5th Working Group
Consumer Centric Market Design

Elia – 22nd March 2023

elia group
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Password: **to7YK4zt**

Agenda

- Work plan towards the Go-live 2023 & next steps for a consumer-centric market design

- Feedback on the public consultation of the CCMD Design Note

- Go-Live 2023: Solution for grid fee and losses

- Go-Live 2023: Overview of the detailed process for the CCMD services

Work plan towards the Go-live 2023 & next steps

Consumer Centric Market Design to make flexibility seamless

Two key features delivering major benefits

A decentralized exchange of between consumers and many other parties, **on & behind the meter "Exchange of energy blocks"**

A real-time market price to reveal the true **value of flexibility** to consumers
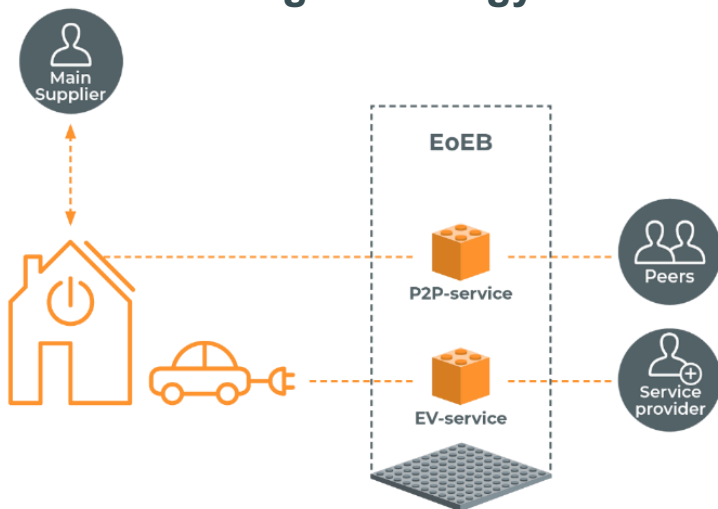
From competition for the meter… to competition behind the meter

Lowering barriers to valorize flexibility

Energy Transactions (EoEB) – Where do we stand?

As of Q4 2023

We are here
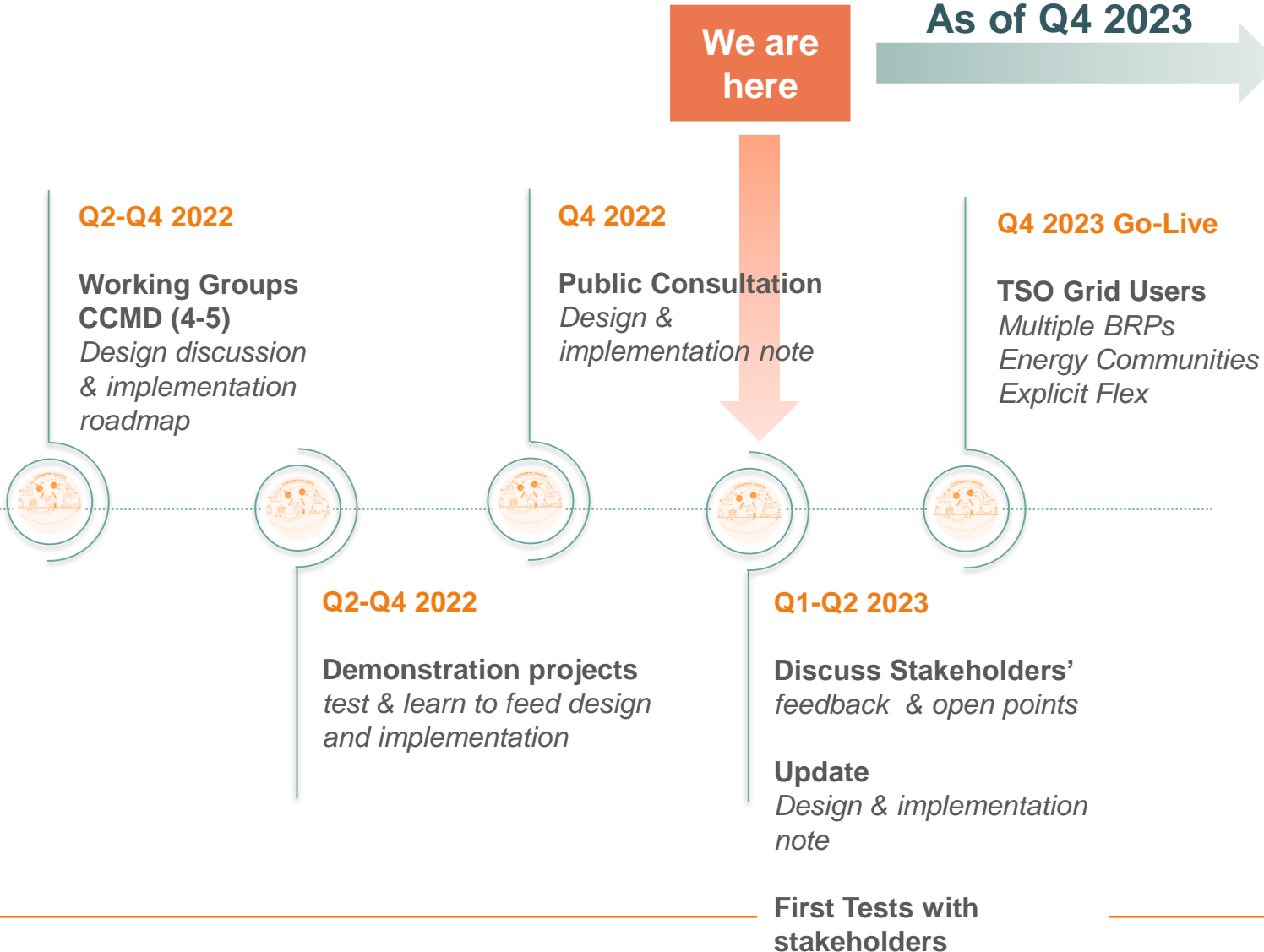
CCMD Services for TSO Grid Users

- Build an **energy community** (share your energy)
- Contract **different BRPs** behind an access point
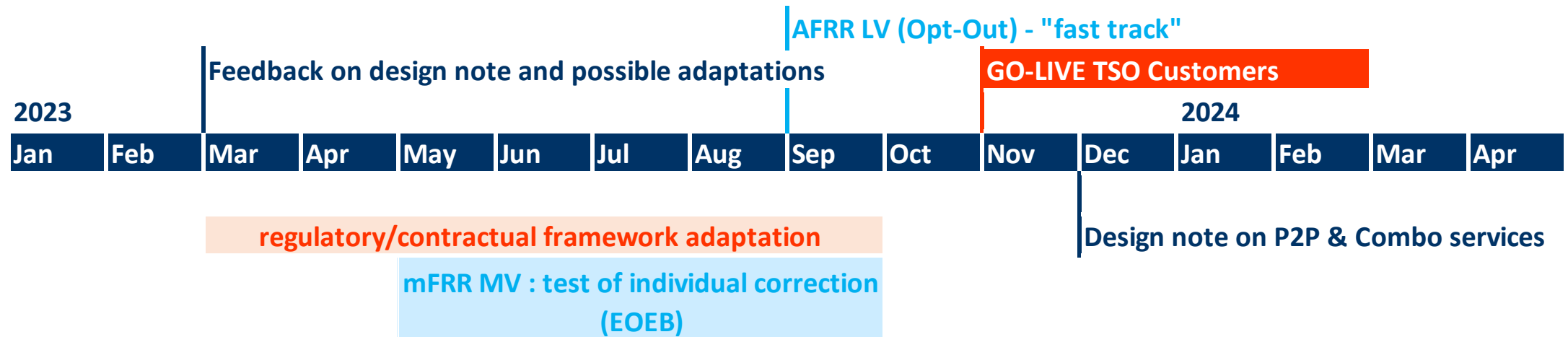- Apply **individual correction** in balancing Services (Explicit Flexibility)

Q2-Q4 2022

Working Groups CCMD (4-5)
Design discussion & implementation roadmap

Q4 2022

Public Consultation
Design & implementation note

Q4 2023 Go-Live

TSO Grid Users
Multiple BRPs
Energy Communities
Explicit Flex

Q2-Q4 2022

Demonstration projects
test & learn to feed design and implementation

Q1-Q2 2023

Discuss Stakeholders'
feedback & open points

Update
Design & implementation note

First Tests with stakeholders

Main Supplier

EoEB

P2P-service

Peers

EV-service

Service provider

Energy Transactions (EoEB) – What's next for 2023?

Together with the DSOs

- ✓ Build a **common T-DSO Vision** of a market design that unlocks a maximum of flexibility
- ✓ Continue working on **T-DSO Masterplan Flex**: opening of aFRR "Low Voltage" Fast Track & test individual correction on mFRR "Medium Voltage"

For TSO Grid Users,

- ✓ Start discussions on **combination of CCMD Services** and **Peer-to-Peer** Exchanges

AFRR LV (Opt-Out) - "fast track"

Feedback on design note and possible adaptations

GO-LIVE TSO Customers

2023

2024

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

regulatory/contractual framework adaptation

Design note on P2P & Combo services

mFRR MV : test of individual correction (EOEB)

Supporting the paradigm shift with a real-time price…

Flexible assets need a **clear signal** to determine the right moment to engage flexibility :

✓ **Explicit activation** by System Operator

Flexibility "volume based"

Flexibility "price based"
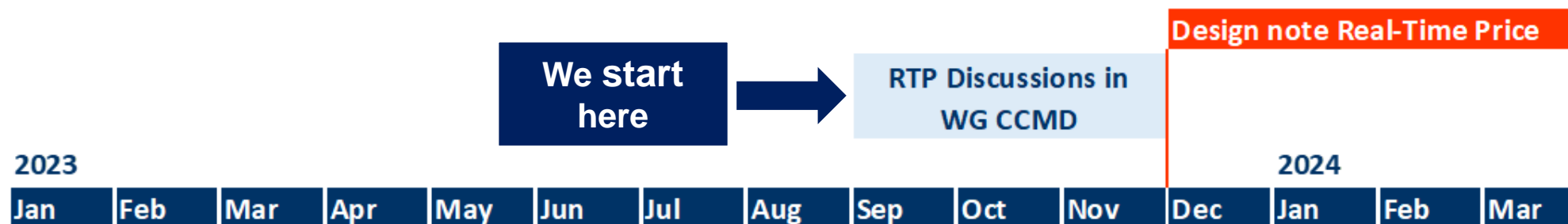
✓ **Implicit financial incentive, or Real-Time Price**

Elia Group is engaged in an **evolution of the imbalance price** in order to trigger a given reaction from the market to **support the system needs**

- From a penalty to **an incentive**
- From a real-time/ex-post calculation to **an ex-ante indicator**
- From a multiple to **a single key indicator**

Real-Time Price, the right moment to kick-off discussions

We start here → RTP Discussions in WG CCMD

Design note Real-Time Price

2023

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

2024

Understand implicit reaction

Simplify 2.0 - Build & Improve

Internal preparation work

- ✓ Work on Simplify 2.0 (Improve SI forecast)
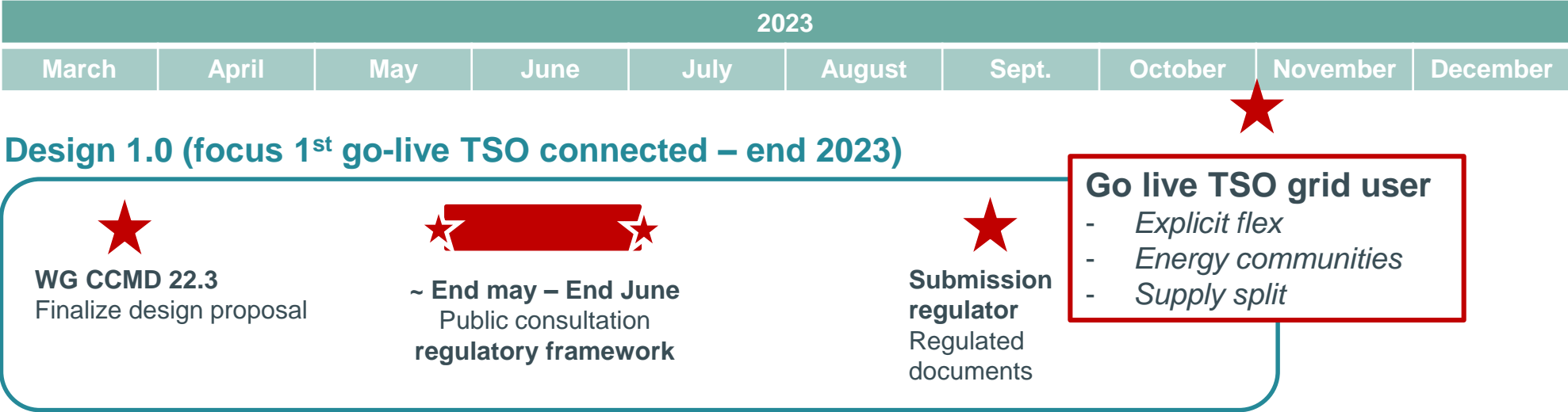- ✓ Understand implicit reaction

Stakeholders' discussions

- ✓ Launch reflections on RTP in WG CCMD
- ✓ Present relevant results from internal studies
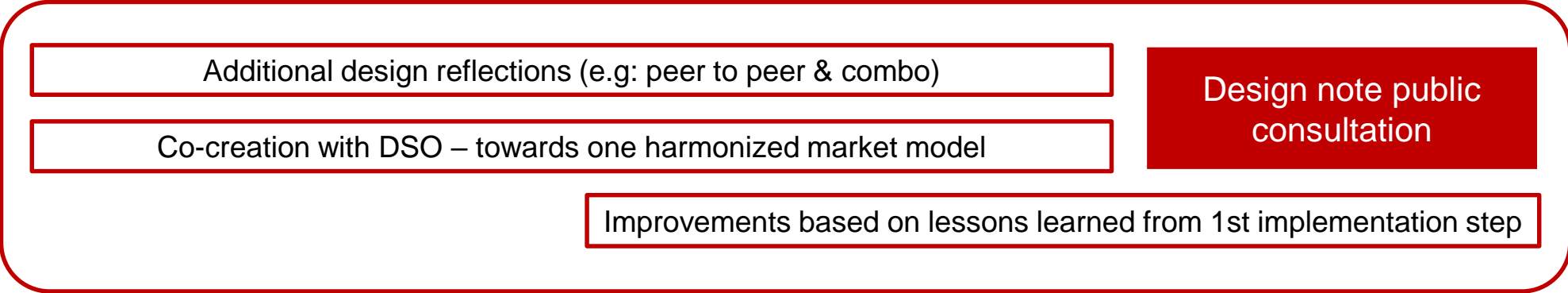- ✓ Possible bilateral meetings to understand better the needs

CCMD Design Note: feedback on public consultation

Reminder – CCMD design in 2023

2023									
March	April	May	June	July	August	Sept.	October	November	December

Design 1.0 (focus 1st go-live TSO connected – end 2023)

WG CCMD 22.3
Finalize design proposal

~ End may – End June
Public consultation
regulatory framework

Submission regulator
Regulated documents

Go live TSO grid user
- *Explicit flex*
- *Energy communities*
- *Supply split*

Design 2.0 (Focus 2nd go live – end 2024)

Additional design reflections (e.g: peer to peer & combo)

Co-creation with DSO – towards one harmonized market model

Design note public consultation

Improvements based on lessons learned from 1st implementation step

Feedback public consultation
CCMD design note

Public consultation CCMD design note
Who gave their feedback?

Public consultation CCMD design note
High level conclusions

Incomplete solution

No final opinion can be taken on the market model proposal as long as some design aspects are unknown.

- Regulatory framework and consistency with regional regulation;
- Grid fees
- Combo;
- Data exchange; metering…

ELIA agrees that some important pieces of the whole market model still require work and alignment with market parties. However, those clarifications do not need to be finalized prior to the implementation of the 1st step of the CCMD roadmap (TSO delivery points for 3 CCMD services)

Regulatory framework evolutions required to reflect CCMD design

Incomplete solution

Ex-ante actions

Generic process

Connection contract

NEW

1 standardized process of DP creation by grid user

Delivery point creation

Service DP registration

SO verification & validation

Start of service

choice of correction model

Access contract

Energy community framework NEW

Related T&C explicit flex.

ToE rules

Ex-post

Settlement

BRP allocation process — *T&C BRP*

Notifications to supplier

T&C Supplier NEW

1 contractual framework ruling the exchange of information needed between ELIA and suppliers

In parallel to the Belgian regulatory framework, ELIA follows with attention the ongoing evolutions in EU regulation as it might also influence the CCMD market model.

Regulatory framework evolutions required to reflect CCMD design

Incomplete solution

Is the proposed market model consistent with existing regional regulation? How will both regulatory frameworks coexist?

- As first step, the proposed CCMD market model will be translated into the identified regulatory framework for its limited scope (TSO connected DP)

- In a second step, the proposed CCMD market model ambitions to offer a framework to facilitate cross system operators services (e.g: energy communities) which does not exist yet.

→ **It complements the existing regional regulation but does not contradict it.**
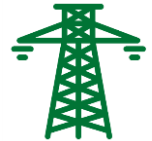
Public consultation CCMD design note
High level conclusions

Confidentiality

- Market parties agree this assumption is no longer essential in tomorrow's market model

- Some market parties would like to keep the ToE possibility open for (big) grid users which are still sensitive to price / data exchange (or for operational reasons on FSP side)

To reflect this feedback, ELIA will propose to keep ToE option open (applied to its current scope of explicit flex) in parallel to the new individual correction model. If no longer relevant (based on the experience in coming years), we can still abandon the ToE framework at later stage.

→ Existing DP registered under current ToE framework will have to reconfirm their intention to keep the existing process as is or to evolve towards individual correction.

Public consultation CCMD design note
High level conclusions

Individual correction model

- Market parties **support individual correction model proposed by ELIA** as the only realistic solution (compared to alternative to organize contract supplier / FSP)

- Such model can only be implemented if central party takes an active coordination role (e.g. tooling to support volume communication, centralization of supply prices for individual consumers,…)

- For cross SO solution, it should be implemented in ATRIAS. Limited buy-in for an intermediate solution
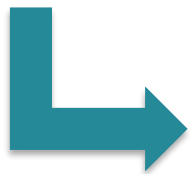
Individual correction model will be implemented for TSO connected DP by end 2023.

ELIA and DSOs fully support LT vision in ATRIAS to cover cross SO configurations. However, an intermediate solution will need to be elaborated to facilitate participation to CCMD services in parallel to the required adaptations of ATRIAS. This intermediate solution will be built in collaboration with market parties and DSOs and with the ambition to minimize the impact on their operational processes.

Public consultation CCMD design note
High level conclusions
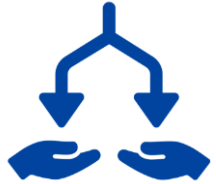
**Repartition key
in Energy Communities**

- FEBEG strongly argues to reinforce requirements related to the repartition key (energy communities) to **allow BRP/supplier to forecast impact of energy sharing**

- Despite concrete request from ELIA, no other party shared feedback on the proposed repartition keys (or alternatives)

ELIA agrees with the statement that suppliers/BRP need to be supported in the forecasting of active consumer participation.

In addition to the current design proposal, ELIA will reinforce the exchange of information (ex ante) and limit the flexibility offered to the ESP in the communication of his repartition key.

Return on experience (TSO GU) will indicate next year if and how we can relax this constraint.

How to facilitate BRP / Supplier's forecast activities in the context of active consumer participation behind the head meter?

Repartition key

Initial design proposal

EX ANTE ———————○——————→ **EX POST**

What?

❑ DP EAN – AP EAN
❑ Max volume
❑ Type of CCMD service
❑ Start / End date

The energy transaction

When?

At service DP registration

D+1 – W + 1

Repartition key

Can be communicated up to D+1 by the energy community manager to the system operator

Updated design proposal

EX ANTE ———————○——————→ **EX POST**

In addition to the initial proposal:

❑ DP technology
❑ Repartition key *NEW*

NEW Each time a modification is registered

NEW Repartition key can only be communicated ex ante to the system operator, **one hour before GCT of ID market**.

Public consultation CCMD design note
High level conclusions
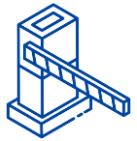
Entry barrier to active consumer participation

BRPs and Suppliers at access point cannot have the possibility to block active consumer participation behind the access point. Hence, their consent as part of the service registration cannot be a design requirement.
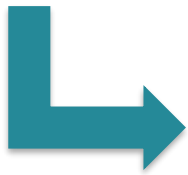
ELIA agrees and proposes the following design evolution:

→ BRP / Supplier at access point are notified for information once service DP registration is finalized and;
→ GU / Service provider / BRP & Supplier at DP (if relevant) are requested to give their consent as part of the service DP registration step.

Go-Live 2023: Solution for grid fees and losses

What happens with grid fees for 1st step of CCMD implementation (TSO-connected DP)?

Elia
Grid Fees

Elia
Residual balancing
Real Time Market / System Marginal Price (*)

collects grid fees **based on physical measurements**

BRP
responsible for financial balance

Access Holder

Supplier
collects residual commodity based on corrected measurements (net of EoEB transactions)

Active Grid User
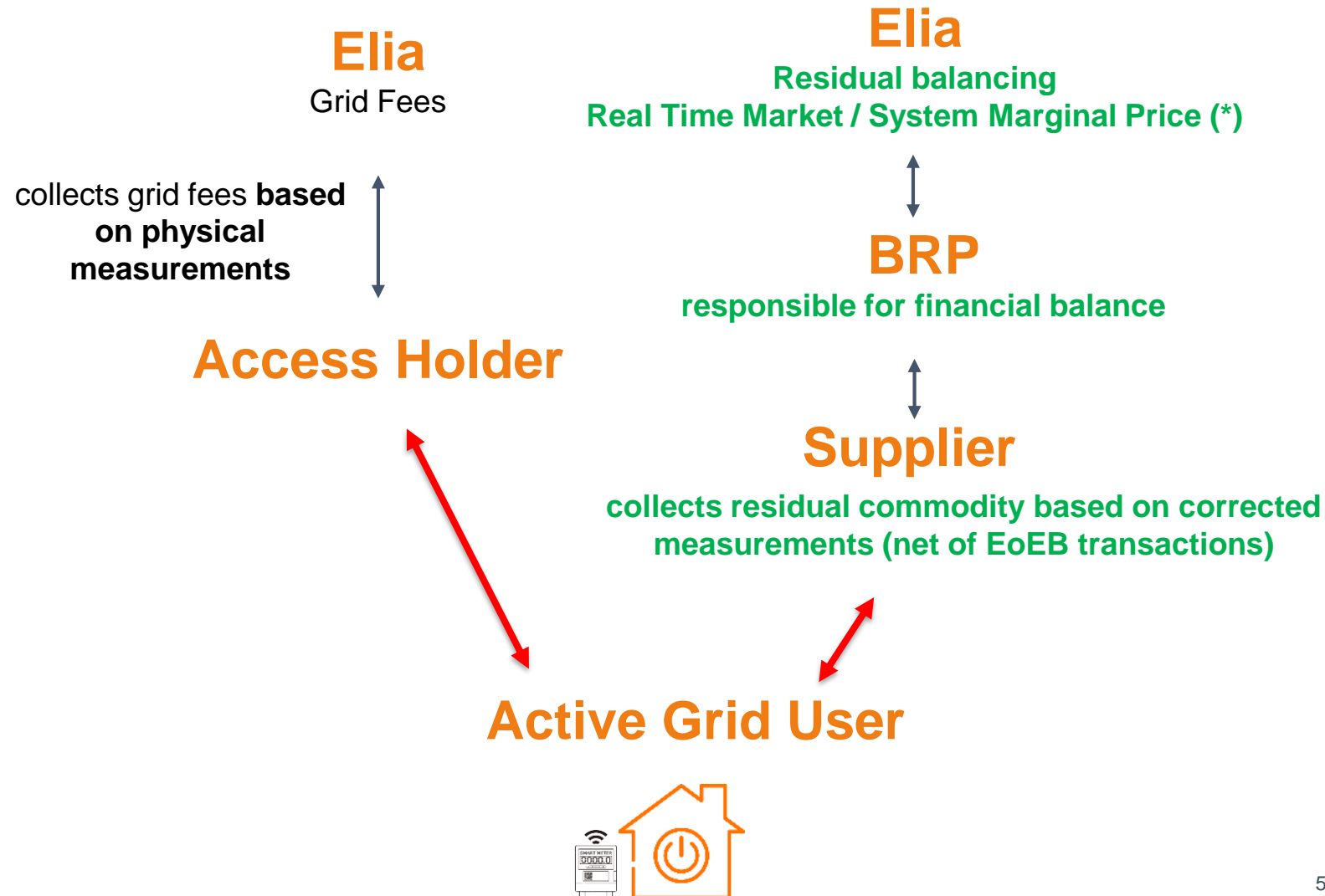
Context

Publication 1st CCMD white paper

Study on Multiple BRP → **Implementation plan on Multiple BRP**
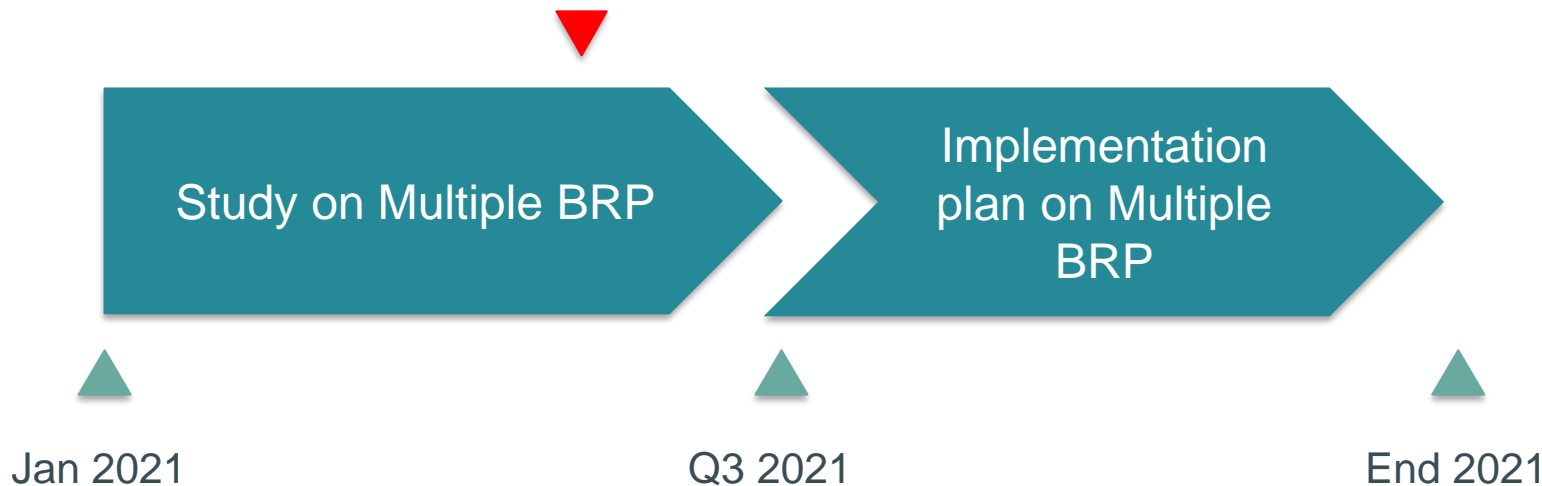
In conclusions of multiple BRP study, ELIA identifies similarities with the CCMD vision paper published in 2021 and makes the link with the implementation of CCMD vision.

Jan 2021   Q3 2021   End 2021

The objective of today's presentation is to remind the conclusions related to losses and validated in the implementation plan of the multiple BRP study and confirm their implementation as part of the 1st step of CCMD roadmap (Nov. 2023)

Solution for losses in context of multiple BRP (TSO connected DPs)

Multiple BRP study

Losses should be harmonized by always **using the net offtake value** at **access point level** and allocated **pro-rata between BRPs with offtake within their perimeter**

Losses to allocate between BRPs will be based on the **physical net offtake** at Access Point

Pro-rata allocation between BRPs with offtake within their perimeter happens **based on corrected offtake**
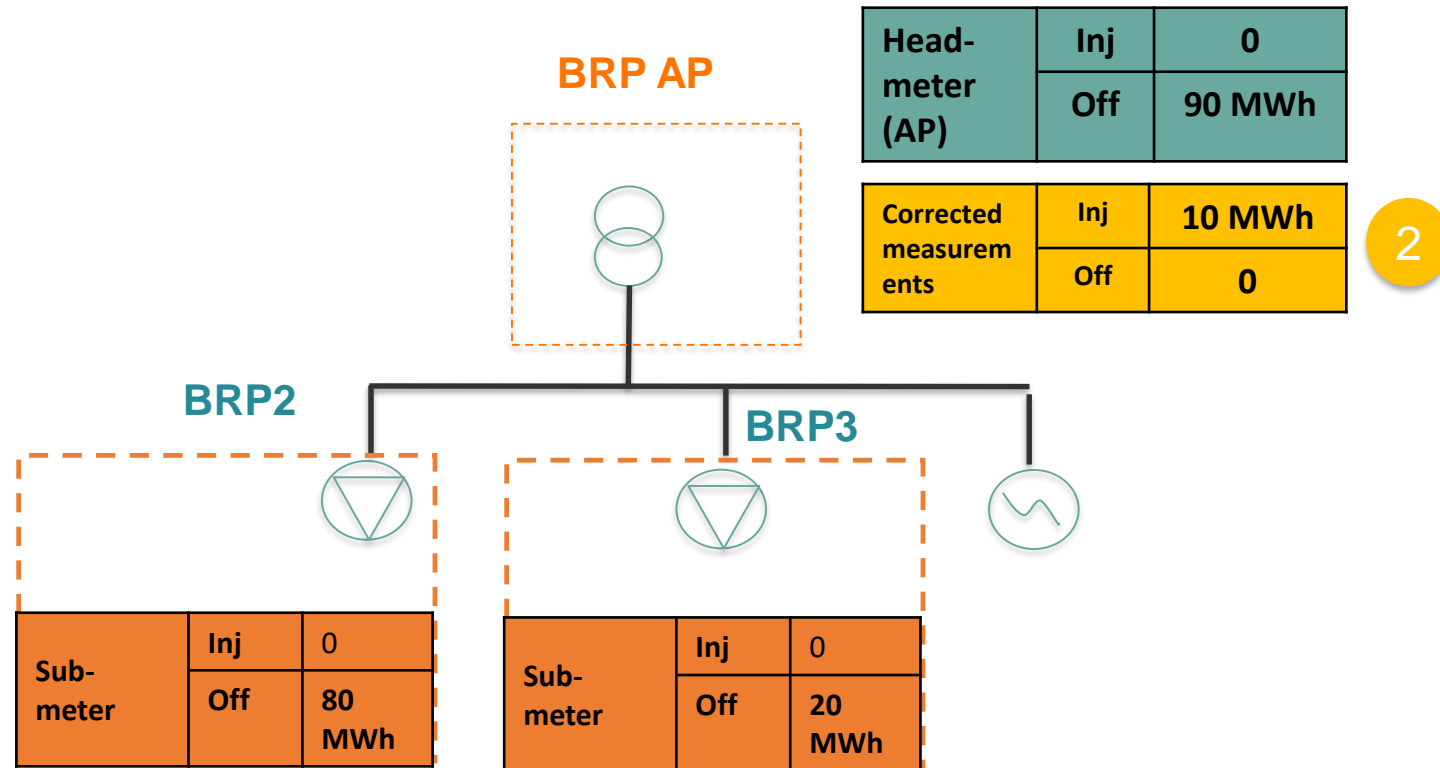
Formula to compute federal losses:

$$BRP(x) = \%losses * Net\ measured\ Offtake_{AP} * \frac{corrected\ offtake\ (\ BRP(x))}{\sum corrected\ offtakes}$$

Losses - Illustration based on an example of multiple BRPs
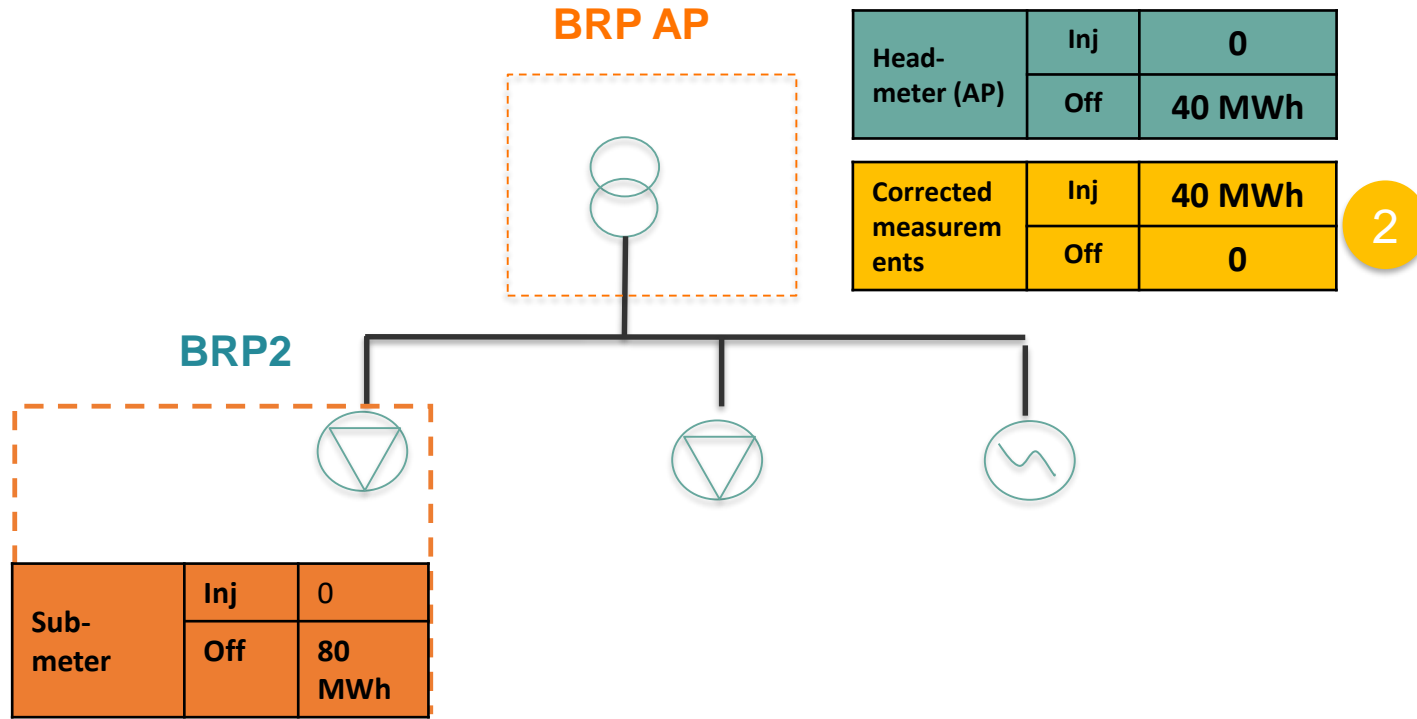
BRP AP

Head-meter (AP)	Inj	0
	Off	40 MWh

Corrected measurements	Inj	40 MWh
	Off	0

2

BRP2

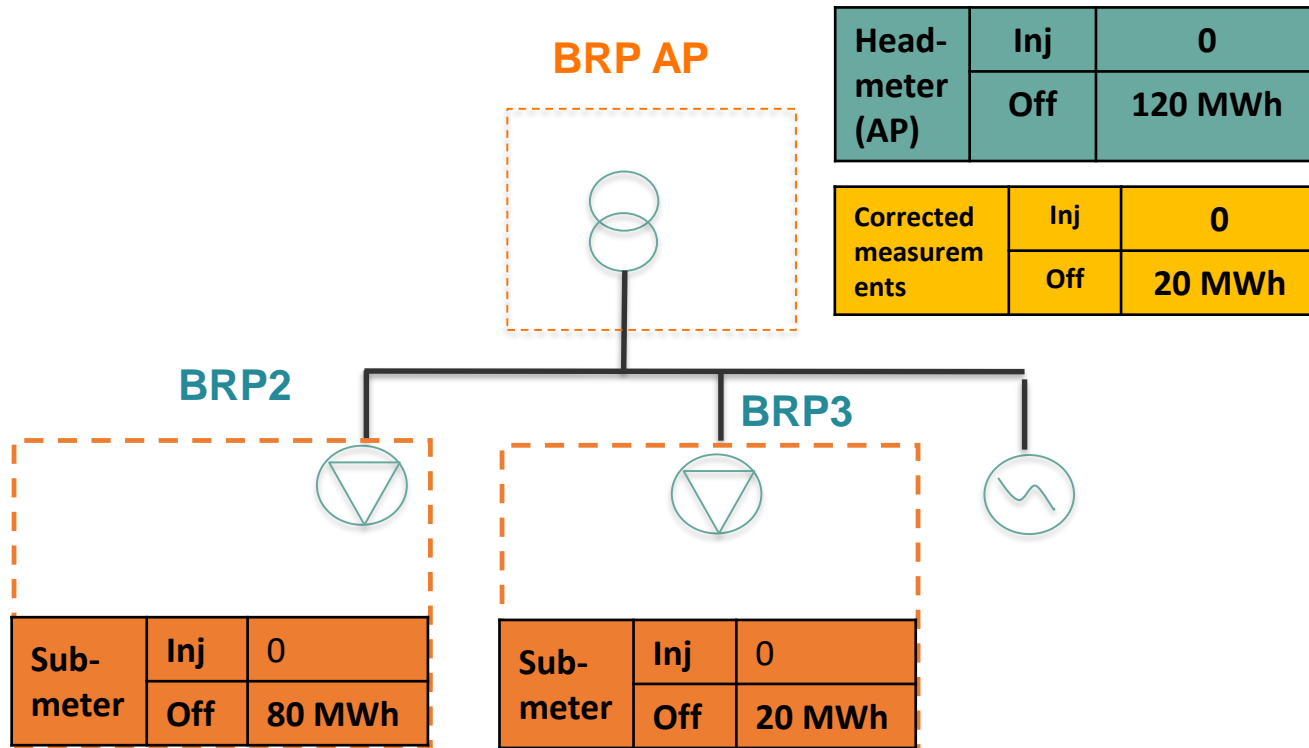| Sub-meter	Inj	0
	Off	80 MWh

Formula to compute federal losses:

$$BRP(x) = \%losses * Net\ measured\ Offtake_{AP} * \frac{corrected\ offtake\ (BRP(x))}{\sum corrected\ offtakes}$$

1

3

1 Losses to allocate = losses percentage * net offtake_AP

→ 1,45 % * 40 MWh

2 Determine corrected measurement for BRP_AP

→ 40 MWh – 80 MWh = 40 MWh (inj.)

3 Pro-rata between BRPs offtake

→ BRP 2 is the only BRP with offtake after correction

→ 80 MWh / 80 MWh = 1

Losses - Illustration based on an example of multiple BRPs

BRP AP

Head-meter (AP)	Inj	0
	Off	100 MWh

Corrected measurements	Inj	0
	Off	20 MWh

BRP2

Sub-meter	Inj	0
	Off	80 MWh

Formula to compute federal losses:

$$BRP(x) = \%losses \; * Net\; measured\; Offtake_{AP} \; * \frac{corrected\; offtake\; (\;BRP(x))}{\sum corrected\; offtakes}$$
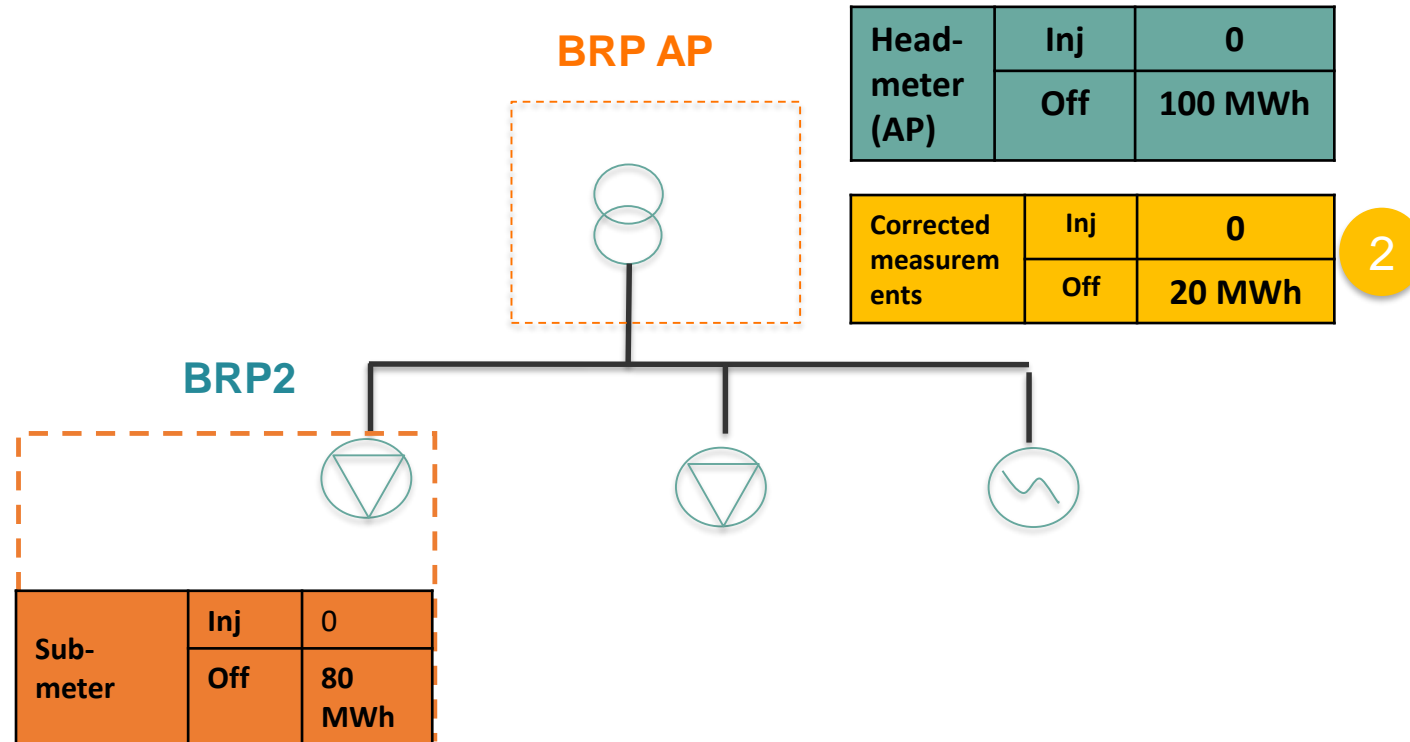
1 Losses to allocate = losses percentage * net offtake_AP

→ 1,45 % * 100 MWh

2 Determine corrected measurement for BRP_AP

→ 100 MWh – 80 MWh = 20 MWh (O)

3 Pro-rata between BRPs offtake

→ BRP_AP = (20 MWh / 100 MWh)
→ BRP 2 = (80 MWh / 100 MWh)

Losses - Illustration based on an example of multiple BRPs

BRP AP

Head-meter (AP)	Inj	0
	Off	90 MWh

Corrected measurements	Inj	10 MWh
	Off	0

2

BRP2

Sub-meter	Inj	0
	Off	80 MWh

BRP3

Sub-meter	Inj	0
	Off	20 MWh

1 Losses to allocate = losses percentage * net offtake_AP

→ 1,45 % * 90 MWh

2 Determine corrected measurement for BRP_AP

→ 90 MWh – 80 MWh – 20 MWh = 10 MWh (I)

3 Pro-rata between BRPs offtake

→ BRP_2 = (80 MWh / 100 MWh)
→ BRP 3 = 20 MWh / 100 MWh

Formula to compute federal losses:

$$BRP(x) = \%losses * Net\ measured\ Offtake_{AP} * \frac{corrected\ offtake\ (\ BRP(x))}{\sum corrected\ offtakes}$$

1

3

Losses - Illustration based on an example of multiple BRPs

BRP AP

Head-meter (AP)	Inj	0
	Off	120 MWh

Corrected measurements	Inj	0
	Off	20 MWh

2

BRP2

Sub-meter	Inj	0
	Off	80 MWh

BRP3

Sub-meter	Inj	0
	Off	20 MWh

Formula to compute federal losses:

$$BRP(x) = \%losses * Net\ measured\ Offtake_{AP} * \frac{corrected\ offtake\ (\ BRP(x))}{\sum corrected\ offtakes}$$

1

1 Losses to allocate = losses percentage * net offtake_AP

→ 1,45 % * 120 MWh

2 Determine corrected measurement for BRP_AP

→ 120 MWh – 80 MWh – 20 MWh = 20 MWh (O)

3 Pro-rata between BRPs offtake

→ BRP_AP = (20 MWh / 120 MWh)
→ BRP_2 = (80 MWh / 120 MWh)
→ BRP 3 = (20 MWh / 120 MWh)

Go-Live 2023: Overview of the detailed process for the CCMD services

CCMD services
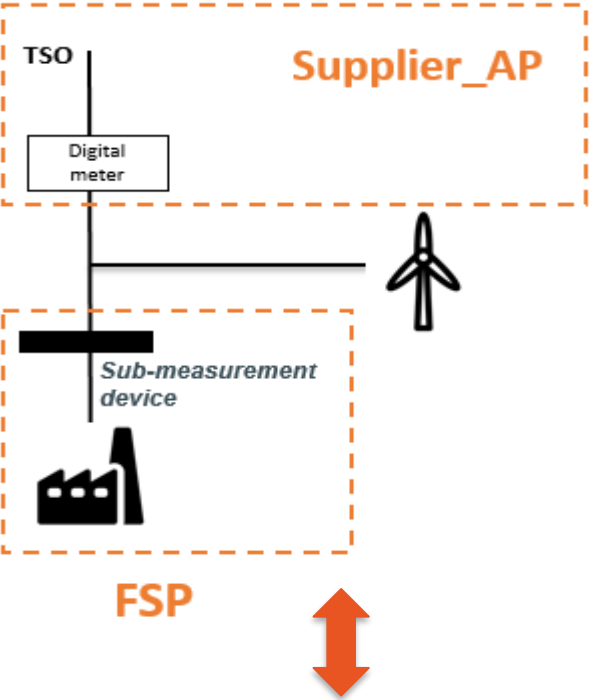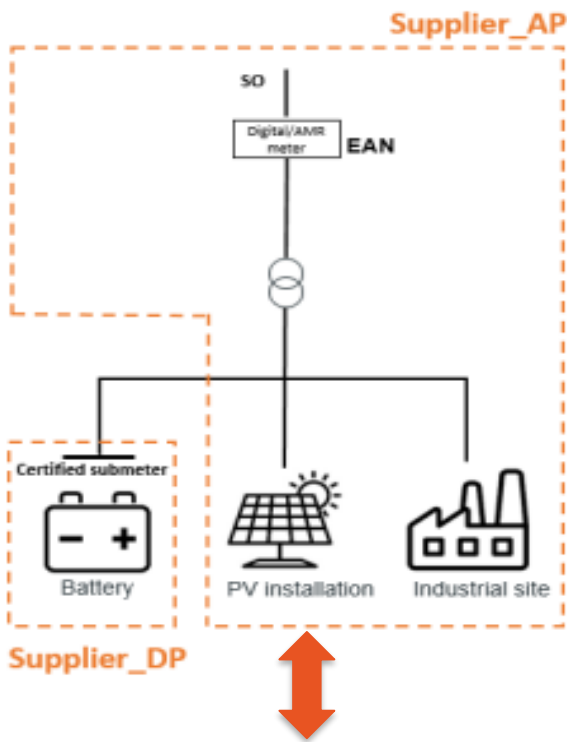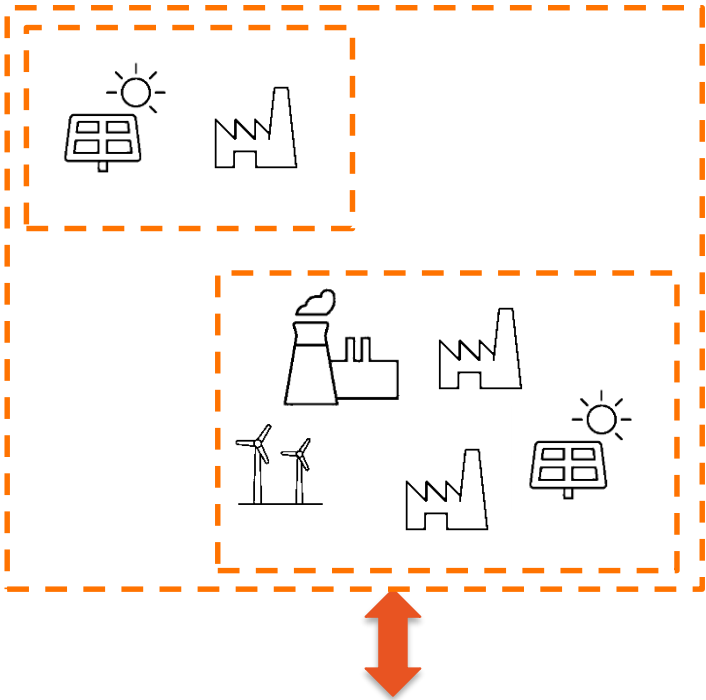
Customer needs is key in the implementation of CCMD
Please give your feedback

Generic process CCMD services

| Ex-ante actions | Ex-post |

- Delivery point creation
- Notification
- Settlement
- Service registration
- Start of service
- BRP allocation process
- Notifications to supplier
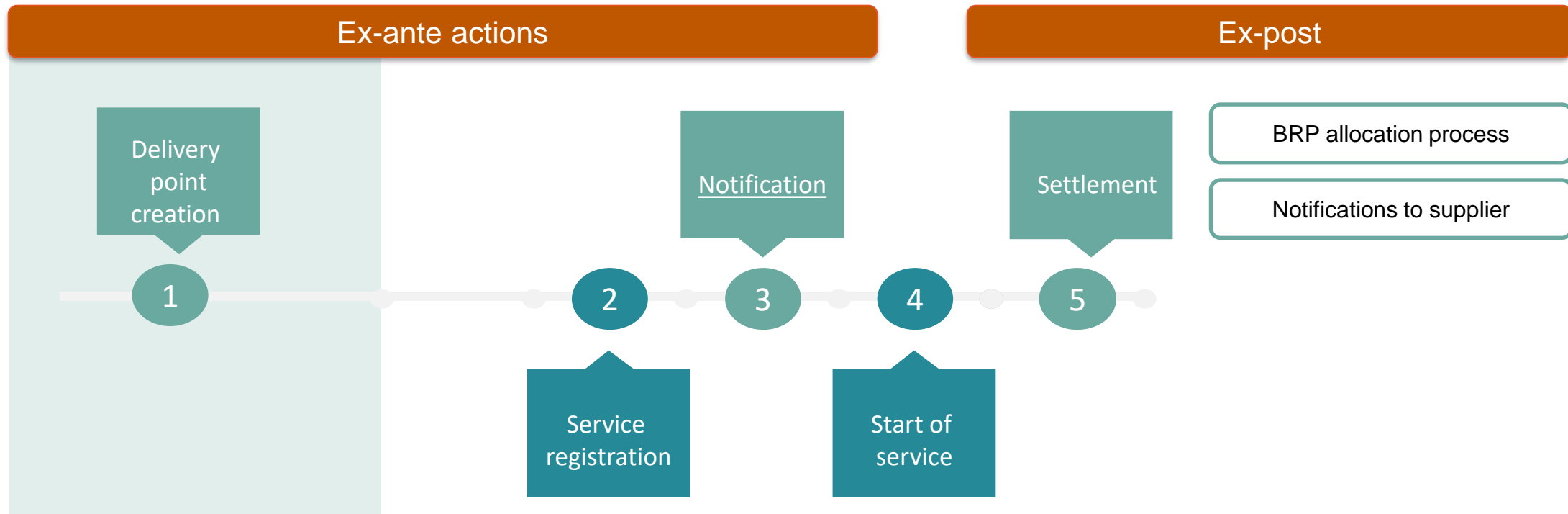
1. Generic process for Delivery point creation
2. Service registration will differ partially for each service
3. Same notification to be sent for all services to the concerned stakeholders of the service
4. Service will play a role for Energy transactions
5. The corrections applied for BRP allocation will be the same for all services

Delivery Point Creation

Grid User

Grid User introduces a request to ELIA

EPIC

ELIA verifies compliancy with metering requirements and other pre-requisite
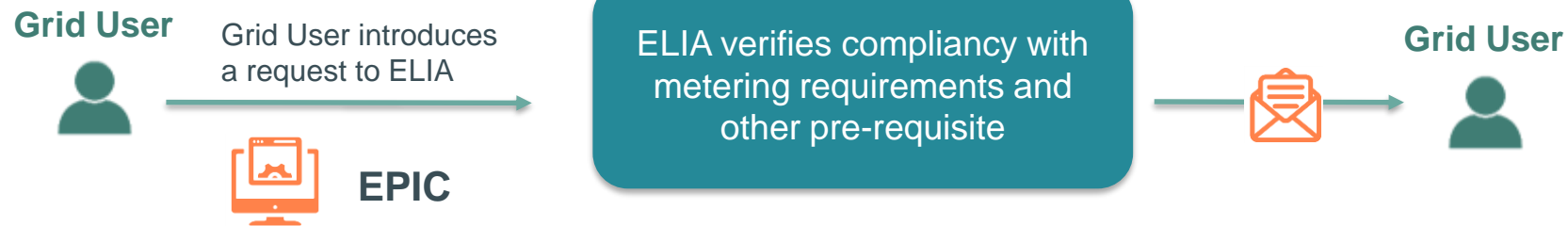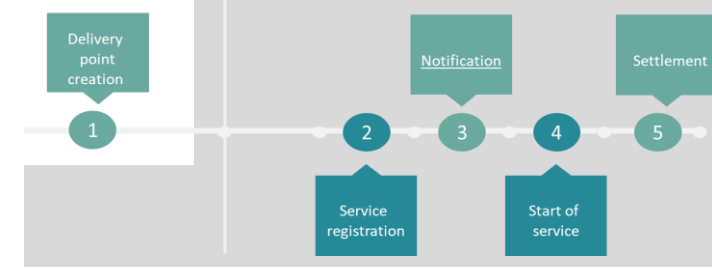
Grid User

Provide:
- Single line diagram
- Metering device
- Connection to metering device
- Pmax
- Technology

- Elia will communicate to Grid User to which services the DP is capable to participate
- Provide EAN for DP

Explicit Flexibility
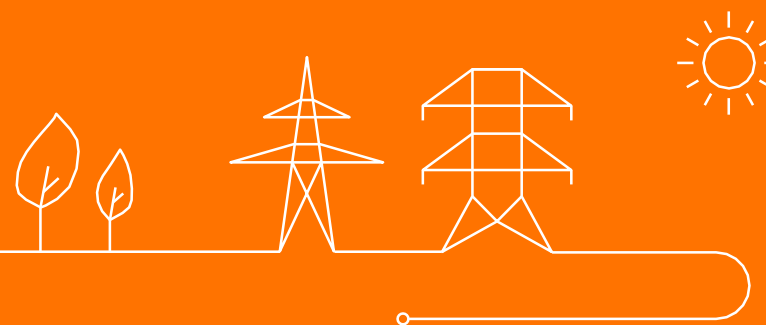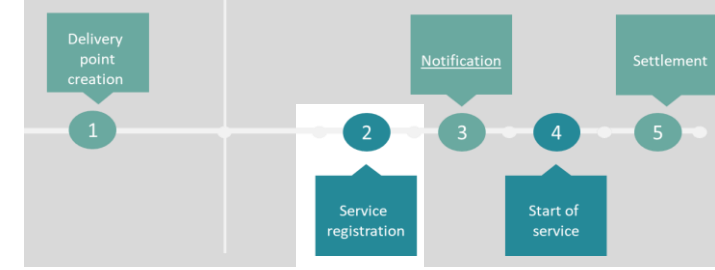
Registration of a Delivery Point to the service

Grid User Declaration	Validation	Notification	Entry into service
1	**2**	**3**	**4**
GUD			
5WD		Min 10WD	
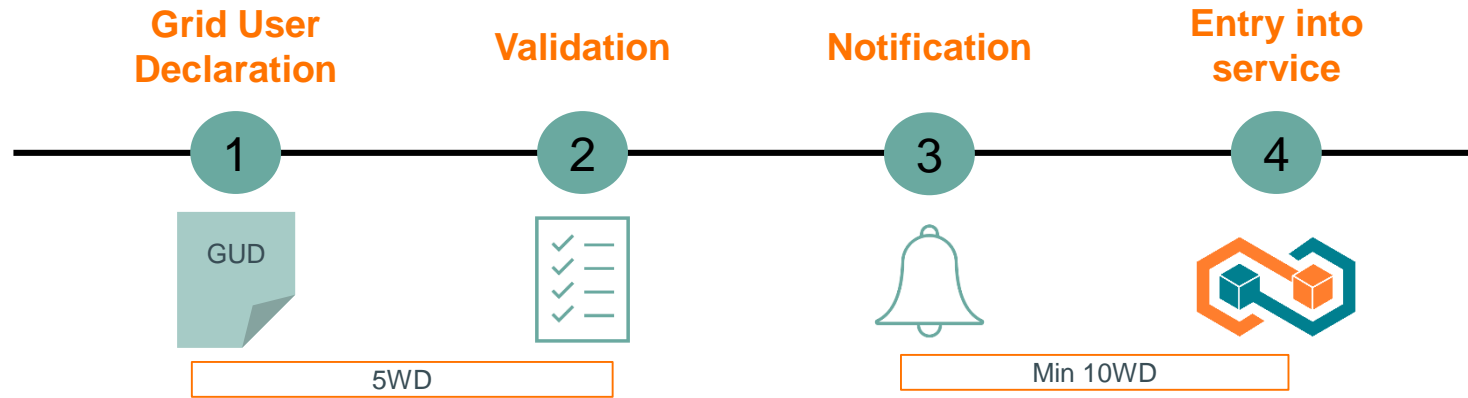
1. The BSP sends a Grid User Declaration to ELIA indicating the choice of the Grid User to participate to the individual correction model. The GUD must be received at least 15WD before the start date of the modification.

2. ELIA has 5 WD to validate the GUD and the registration of the DP to the service.

3. A notification is sent to all involved market parties to confirm/inform about the registration to the service. The notification is sent at least 10WD before the start date of the modification.

4. The Delivery Point enters the service on the start date indicated in the GUD.

Notification of the service DP registration
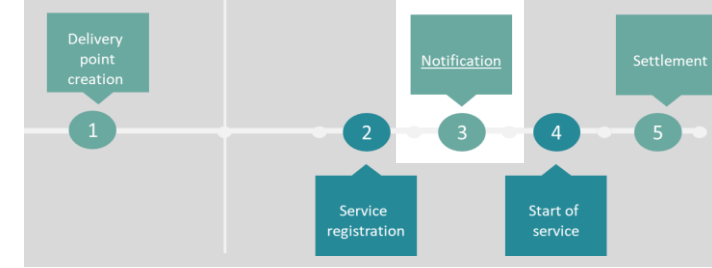
The notification is sent to all involved market parties and contains the following information:

- Delivery Point and Access Point EAN

- Service

- Start and end date

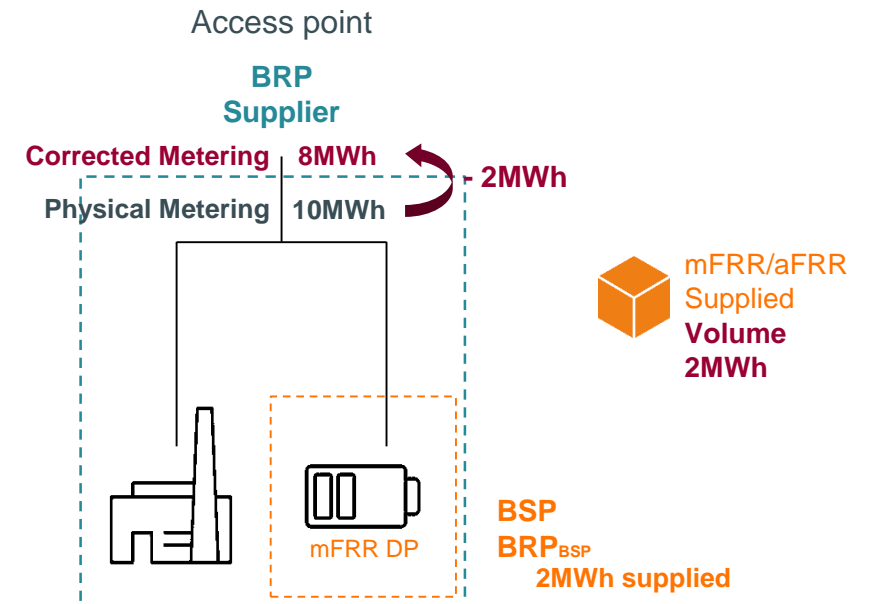- Technology et maximum power of the Delivery Point

Grid User

BRP$_{source}$ **Supplier**   **BSP**   **BRP**$_{BSP}$

Grid User

Access point

BRP$_{source}$
Supplier

mFRR/aFRR Supplied

BSP
BRP$_{BSP}$

aFRR/mFRR DP

Settlement

Delivery point creation

Notification

Settlement

1 2 3 4 5

Service registration

Start of service
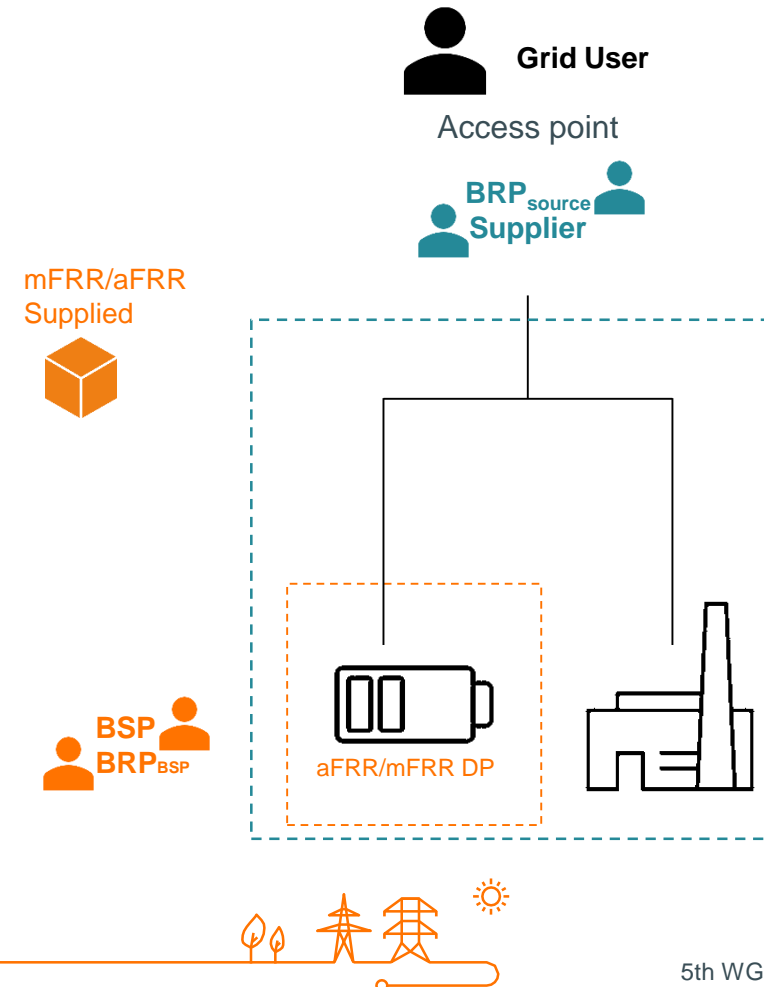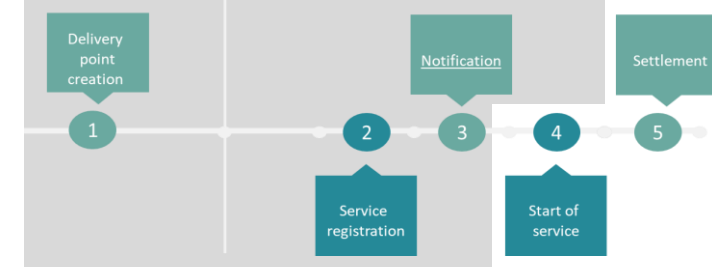
When a Delivery Point included in an individual correction model participates to aFRR or mFRR, the following corrections are made:

- The Access Point is corrected with the aFRR/mFRR Supplied volume.

- BRP_{BSP} perimeter is corrected with the difference between the aFRR/mFRR Requested and the aFRR/mFRR Supplied volume

The corrections are identical to the corrections done through Transfer of Energy except that the BRP_{source} is corrected at Access Point level.

Access point

BRP Supplier

Corrected Metering 8MWh

- 2MWh

Physical Metering 10MWh

mFRR/aFRR Supplied
Volume
2MWh

mFRR DP

BSP
BRP_{BSP}
2MWh supplied

Access to information

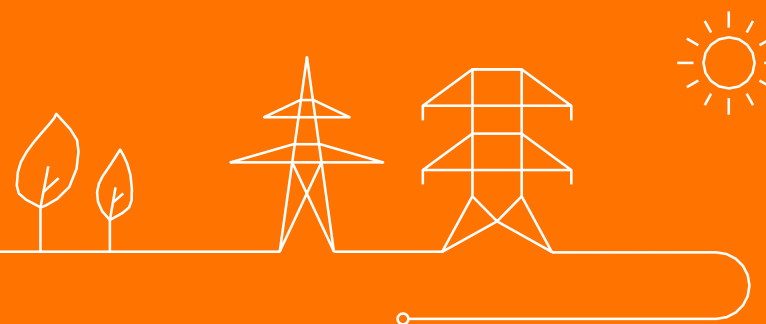| Who ?	Volume (aFRR/mFRR Supplied)	Physical Metering	Corrected Metering
Grid User (owner of data)	X	X	X
BRP$_{source}$ Supplier	X	X	X
	X	X	X
BSP	X		
BRP$_{BSP}$	X		

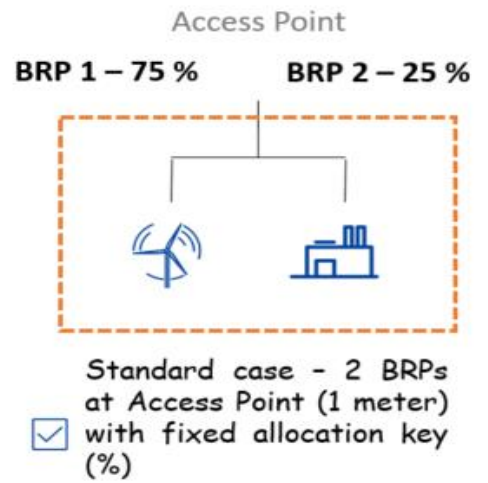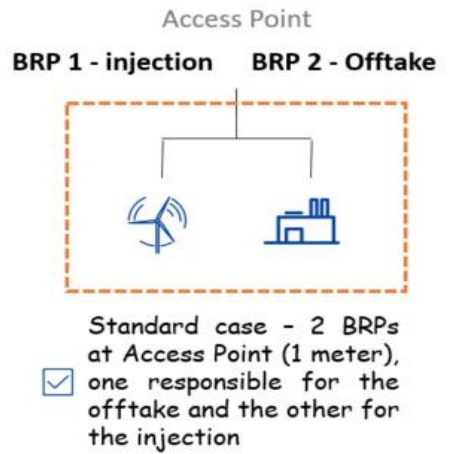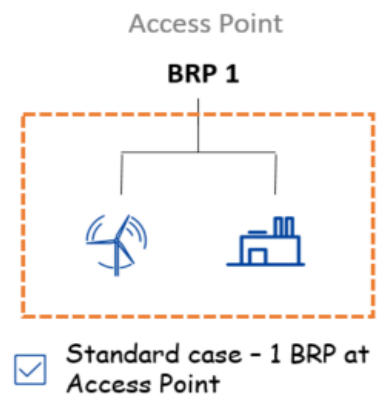# Access to information - Timeline
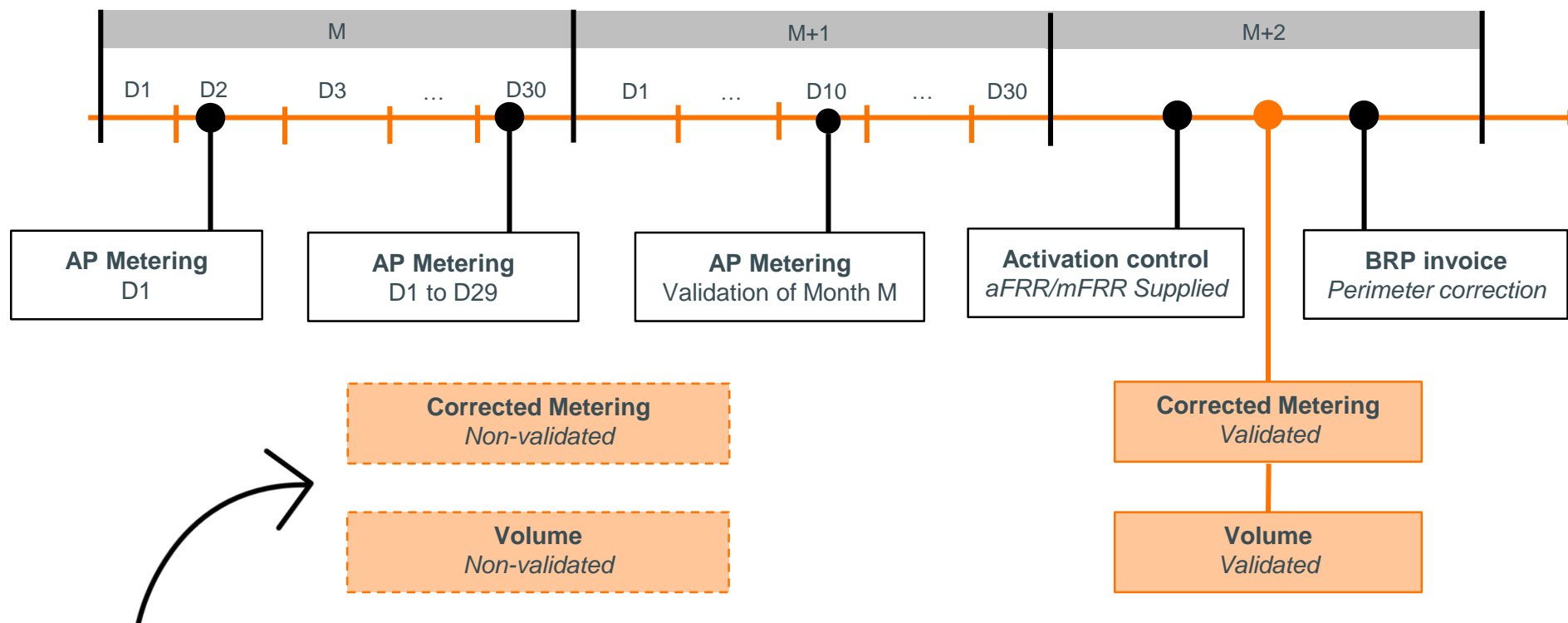
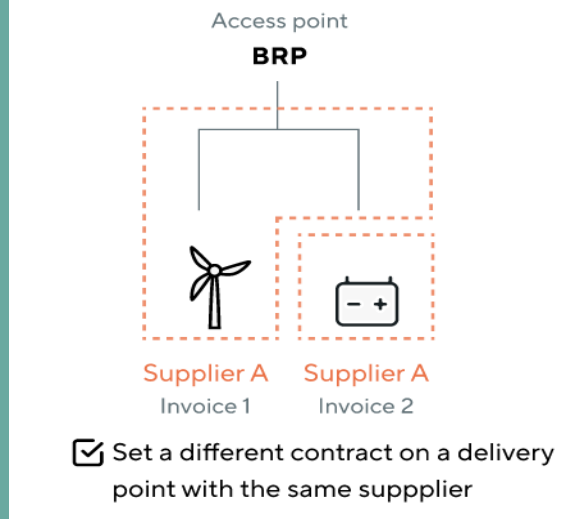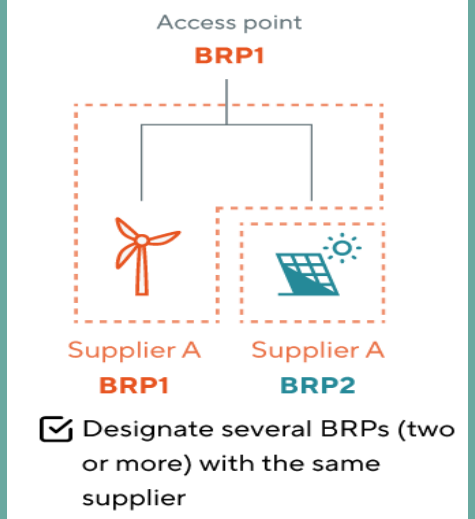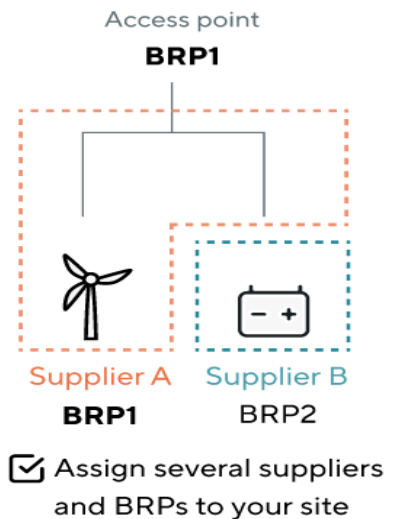**ELIA is still evaluating the timing of the access to non-validated information.**

Supply Split (multiple BRP)

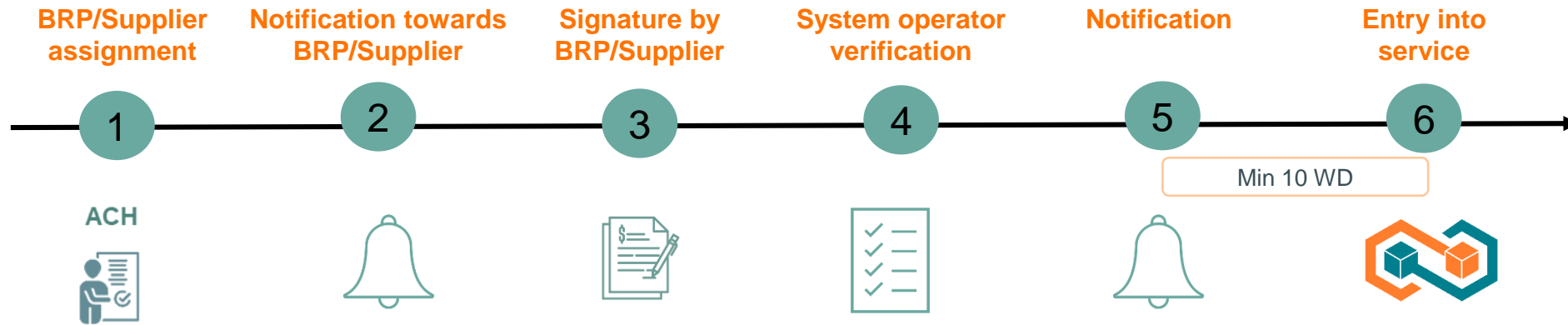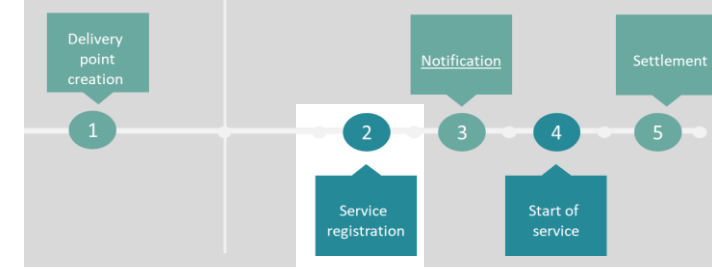# 6 possible options will be covered in next version of Access Contract (multiple BRP / Multiple supplier)
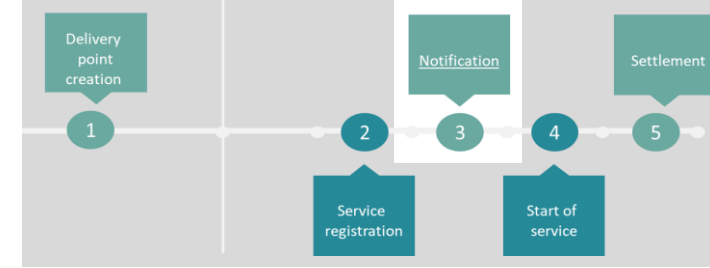

Access Point

BRP 1

☑ Standard case – 1 BRP at Access Point

Access Point

BRP 1 - injection   BRP 2 - Offtake

☑ Standard case – 2 BRPs at Access Point (1 meter), one responsible for the offtake and the other for the injection

Access Point

BRP 1 – 75 %   BRP 2 – 25 %

☑ Standard case – 2 BRPs at Access Point (1 meter) with fixed allocation key (%)

Already possible today

Access point

BRP1

Supplier A   Supplier B
BRP1   BRP2

☑ Assign several suppliers and BRPs to your site

Access point

BRP1

Supplier A   Supplier A
BRP1   **BRP2**

☑ Designate several BRPs (two or more) with the same supplier

Access point

BRP

Supplier A   Supplier A
Invoice 1   Invoice 2

☑ Set a different contract on a delivery point with the same supplier

Additional opportunities

Service Registration: Supply split

Delivery point creation 1

Notification

Settlement

2 3 4 5

Service registration

Start of service

BRP/Supplier assignment	Notification towards BRP/Supplier	Signature by BRP/Supplier	System operator verification	Notification	Entry into service
1	2	3	4	5	6

Min 10 WD

ACH

1. Access Contract holder will assign on an existing Delivery point (created in previous step) a couple of BRP and Supplier

2. System operator will notify the concerned parties of their assignment(BRP/Supplier)

3. BRP/Supplier need to sign the assignment at latest 10WD before entering into force, otherwise, the request will be rejected

4. After signature, System Operator will verify if the BRP and Supplier have a framework with the System operator.

5. A notification is sent to all involved market parties to confirm/inform about the registration to the service.

6. The Delivery Point enters the service on the start date.

Notification of the service DP registration

Delivery point creation 1
Service registration 2
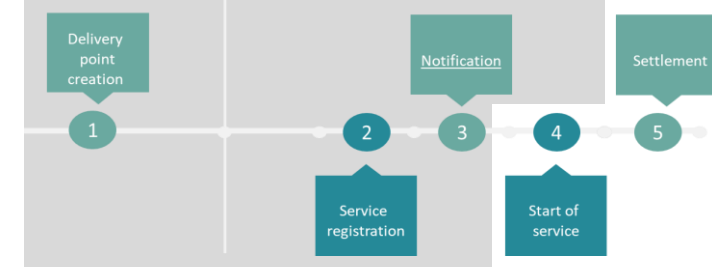Notification 3
Start of service 4
Settlement 5

The notification is sent to all involved market parties and contains the following information:

- Delivery Point and Access Point EAN

- Service

- Start and end date

- Technology of the Delivery Point

- Maximum power of the Delivery Point defined by GU

BRP_{AP}
$Supplier_{AP}$

Access Point

BRP_{DP}
$Supplier_{DP}$

Grid User

ACH

BRP$_{AP}$

Supplier$_{AP}$

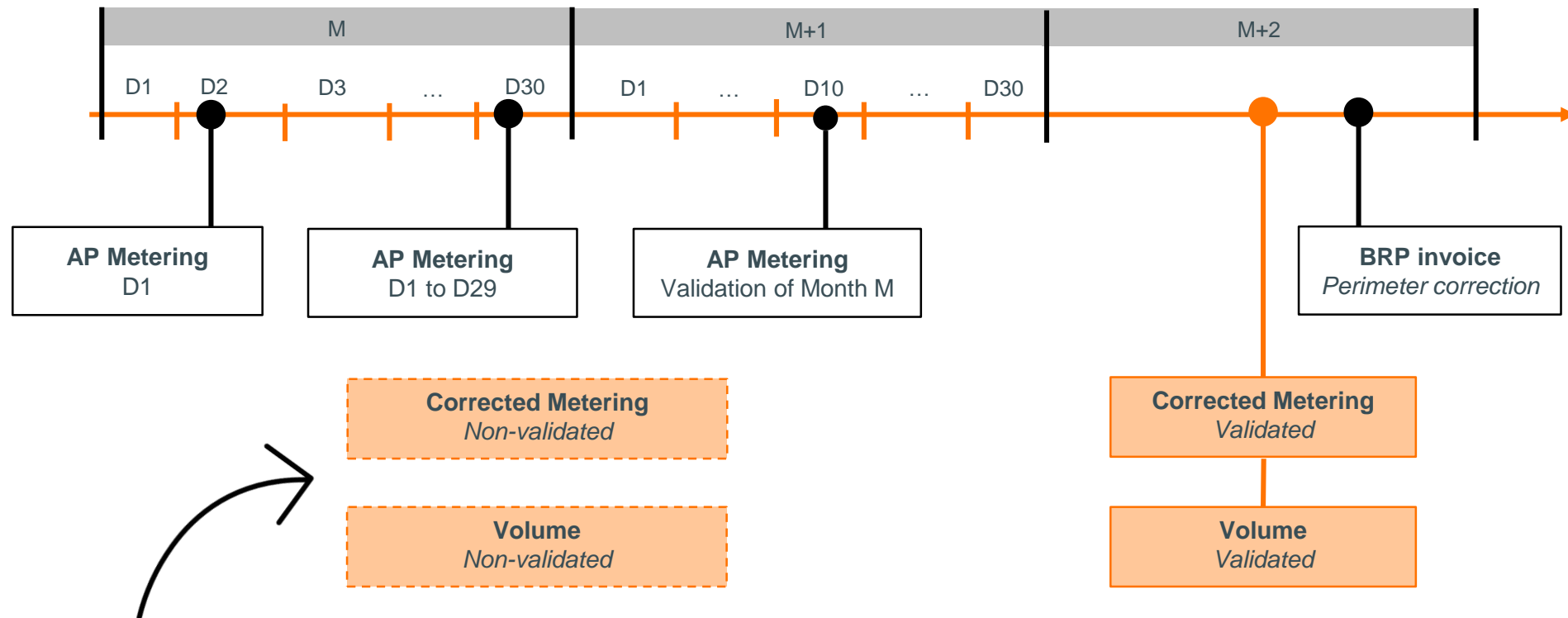**BRP$_{DP}$**
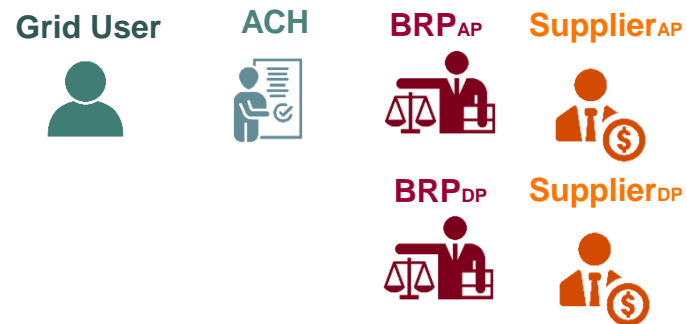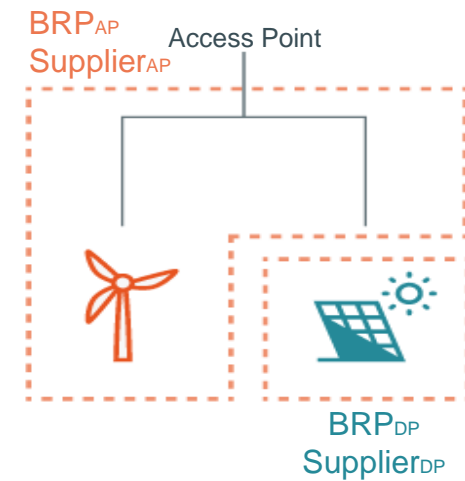
Supplier$_{DP}$

Settlement: Supply split

When a BRP/Supplier will be assigned on the level of Behind Acces Delivery point, the following will be done :

- The Access Point is corrected with the Delivery point metering volume.

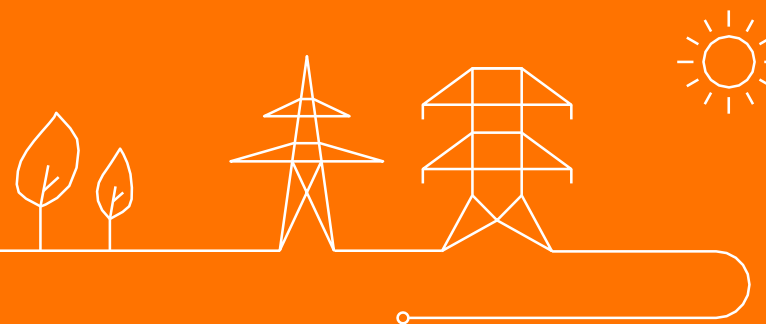- Delivery point metering will be allocated towards the BRP and Supplier assigned on the Delivery point
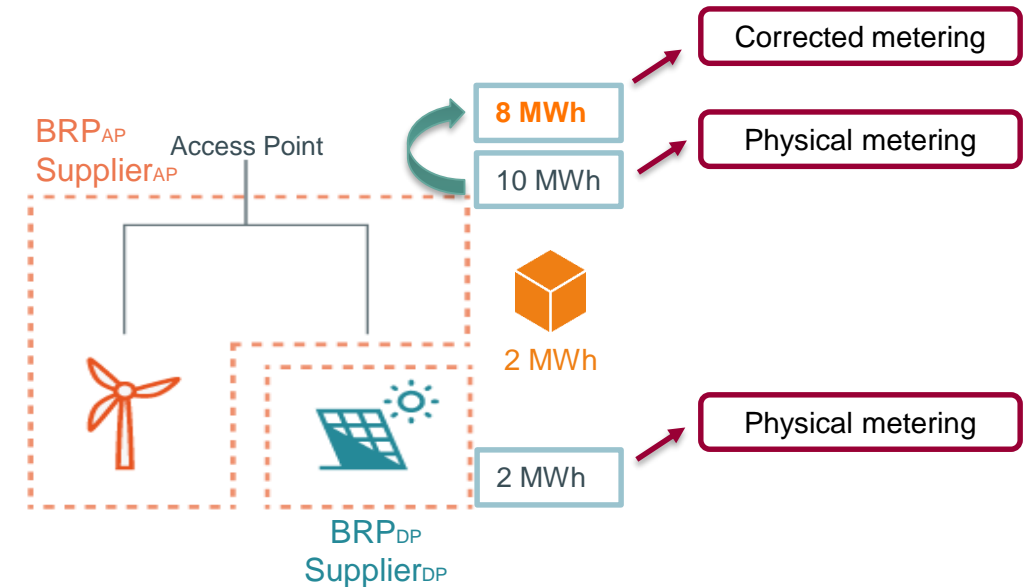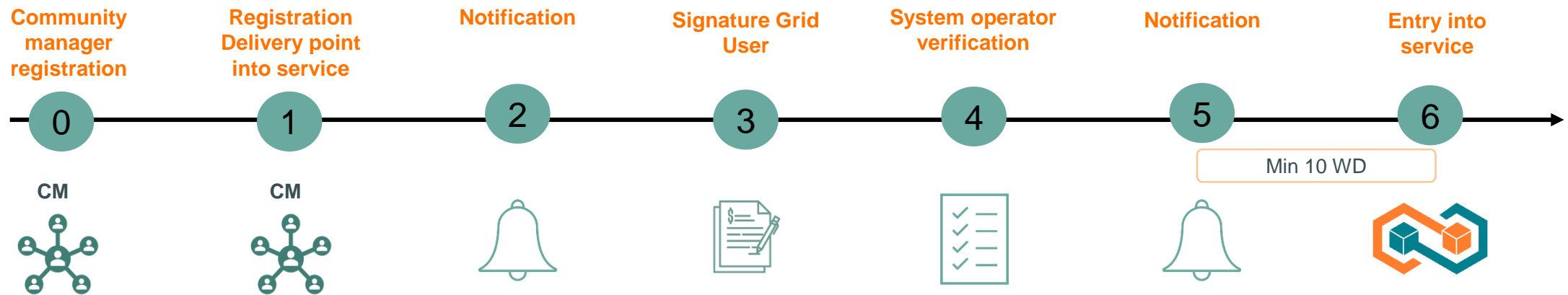
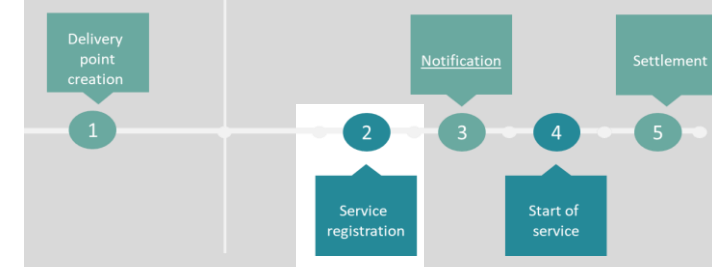# Access to information

ELIA is still evaluating the timing of the access to non-validated information.

Energy Community

Service Registration: Energy Community

Community manager registration	Registration Delivery point into service	Notification	Signature Grid User	System operator verification	Notification	Entry into service
0	**1**	**2**	**3**	**4**	**5**	**6**
CM	CM					

Min 10 WD
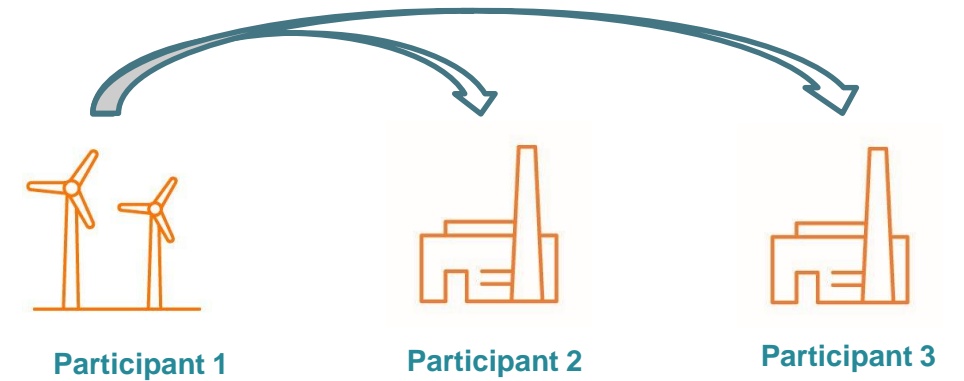
1. Community manager will add Delivery points into the community

2. System operator will notify the concerned parties for their assignment (All GU concerned)

3. Each Grid user needs to sign at latest 10WD before entering into force, otherwise, the request will be rejected

4. After signature, System Operator will validate the community registration.

5. A notification is sent to all involved market parties to confirm/inform about the registration to the service.

6. The Delivery Points will enter the service on the start date.

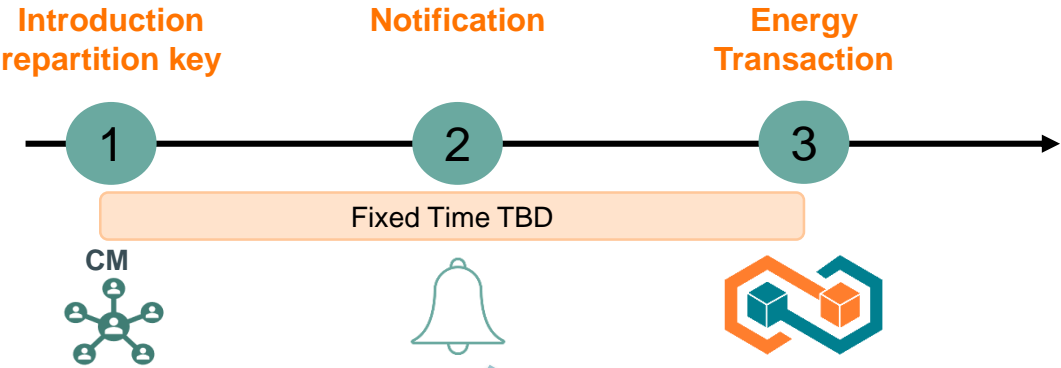7. As long as no reparation key, no exchange will take place
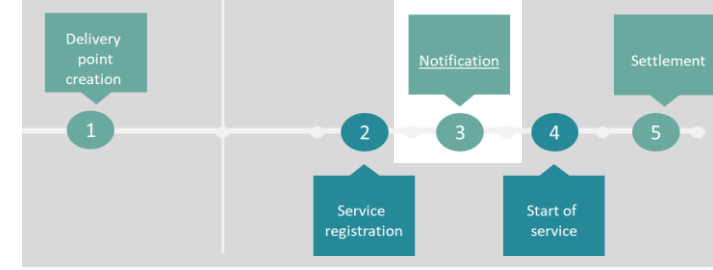
Notification of the DP registration
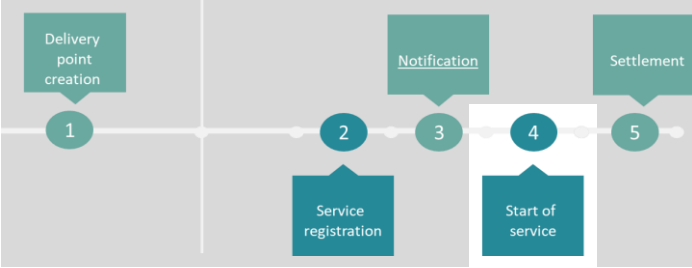
The notification is sent to all involved market parties and contains the following information:

- Delivery Point and Access Point EAN

- Service

- Start and end date

- Technology of the Delivery Point

- Maximum power of the Delivery Point defined by GU

For each Participant

CM

Grid User   BRP$_{AP}$ Supplier$_{AP}$

Participant 1   Participant 2   Participant 3

Start of service : Energy Community

Introduction repartition key — 1

Notification — 2

Energy Transaction — 3

Fixed Time TBD

CM

1ˢᵗ possible repartition key - priority

Source		Destination	
DP ID	Priority	DP ID	Priority
DP 5	1	DP 1	3
DP 6	2	DP 2	1
		DP 3	2

2ⁿᵈ possible repartition key – weight (IO percentage)

Source		Destination	
DP ID	Percentage of injection shared	DP ID	Percentage of shared injection
DP 5	90%	DP 1	10%
DP 6	25%	DP 2	40%
		DP 3	50%

To: BRPs; Suppliers;…

Community:
Repartition key type: (Priority/weight)
Start time
End time
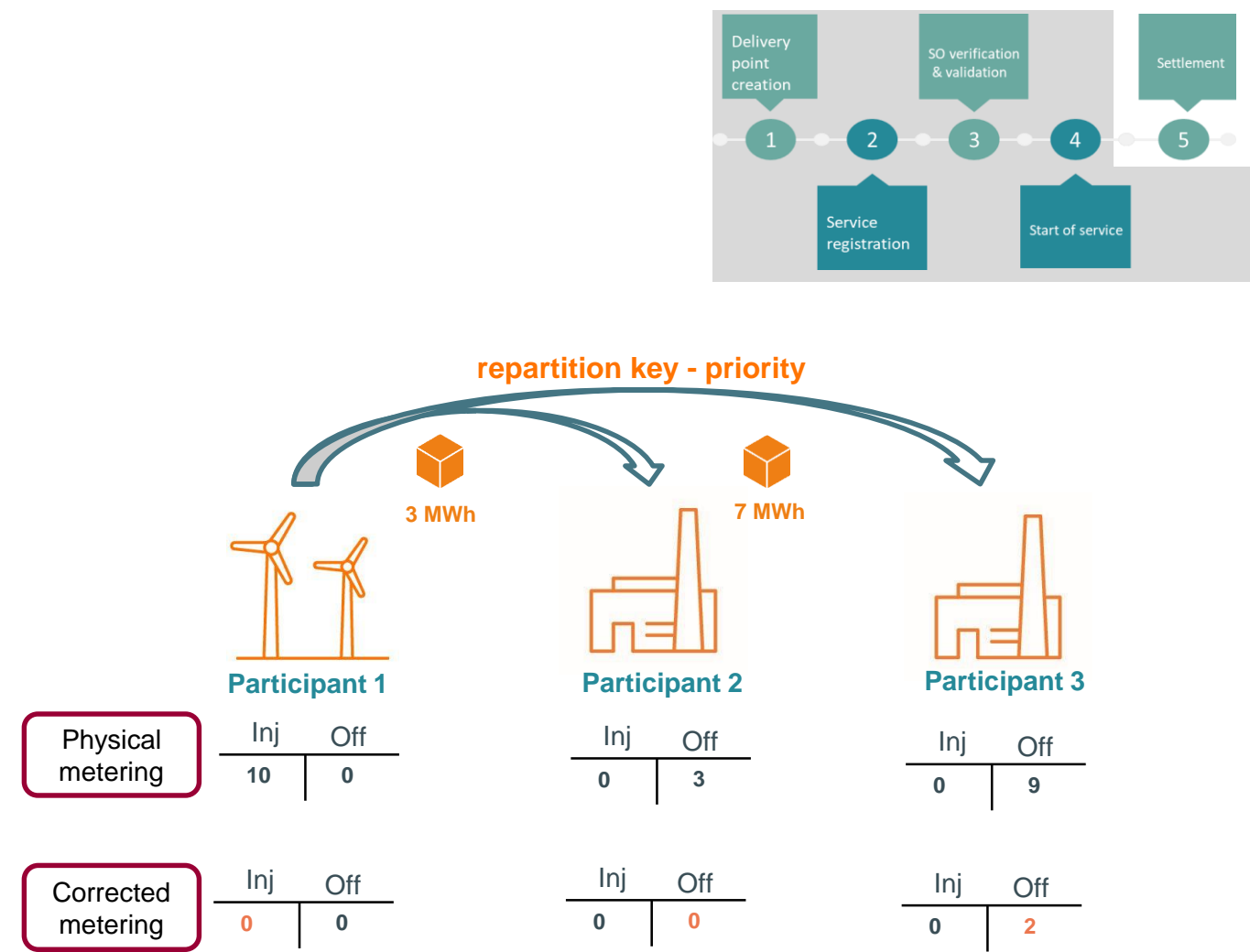Total production in Community:

Impacted Delivery points:

Participant	Key

Leftover energy can be shared pro rata or assigned to a specific participant

Settlement: Energy Community

Delivery point creation | SO verification & validation | Settlement
1 2 3 4 5
Service registration | Start of service
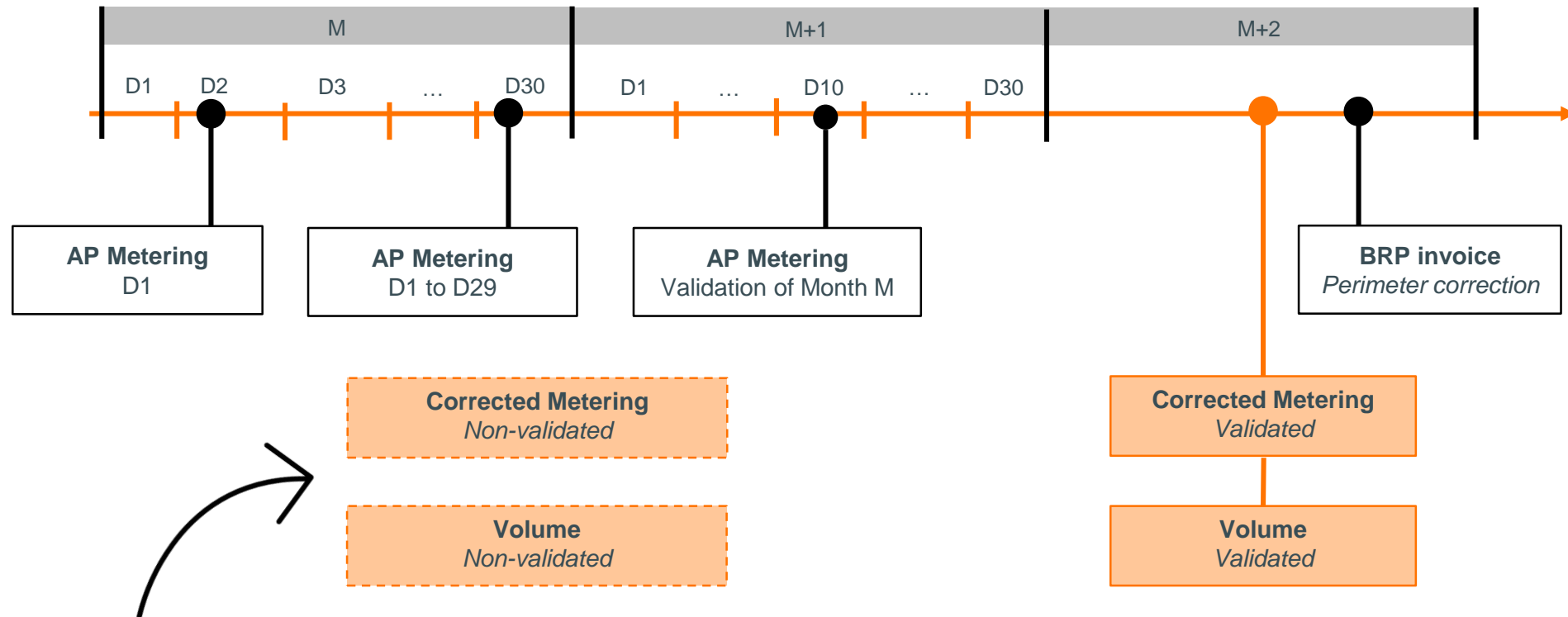
When a Delivery point participates inside of a community service, system operator will apply on the metering the repartition key to calculate the Energy volumes that need to be transferred.

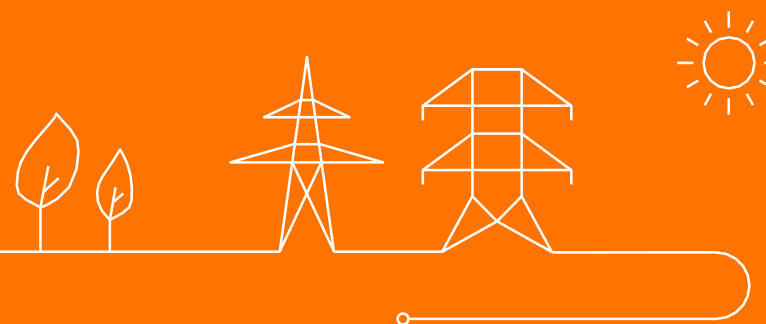- The Access Point is corrected with the energy volume transferred to community

repartition key - priority

3 MWh   7 MWh

Participant 1   **Participant 2**   **Participant 3**

Physical metering	Inj	Off		Inj	Off		Inj	Off
	10	0		0	3		0	9

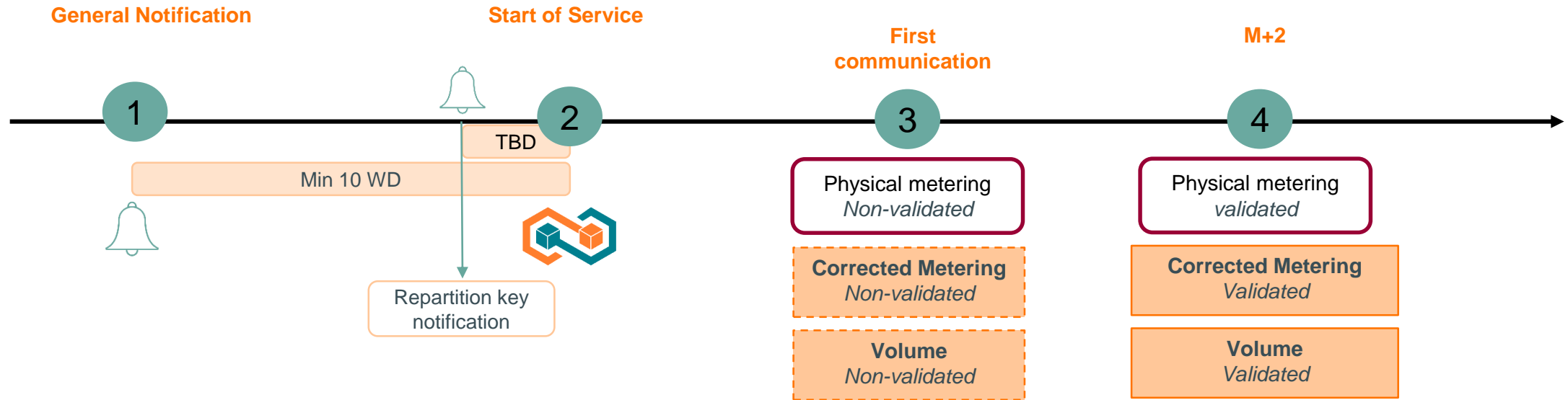| Corrected metering	Inj	Off		Inj	Off		Inj	Off
	0	0		0	0		0	2

Access to information

ELIA is still evaluating the timing of the access to non-validated information.

Impact on BRP & Supplier at Access Point

Impact on BRP and Supplier at the Access Point

General Notification

Start of Service

First communication

M+2

① ② ③ ④

TBD

Min 10 WD

Repartition key notification

③ Physical metering
Non-validated

Corrected Metering
Non-validated

Volume
Non-validated

④ Physical metering
validated

Corrected Metering
Validated

Volume
Validated

1. Generic notification is sent to Access Point BRP and Supplier every time there is a new service on Delivery point

2. Specific notification to share repartition key towards each BRP/supplier (Community only)

3. System operator will communicate the non-validated volumes to the BRP/Supplier. Timing of Corrected metering is still under investigation (consequence of previous processes).

4. At M+2, Elia will communicate the validated data