DASSA Consultation Workshop

24 April 2024

DASSA Consultation Workshop

Agenda for today's workshop

Time	Topic
10:30 – 10:45	Introduction
10:45 – 11:05	Proposal Overview
11:05 - 11:25	Auction Design: Daily Auction and Secondary Trading
11:25 – 11:40	*Break*
11:40 - 12:15	Auction Design: Commitment Obligations & Incentives and FAM
12:15 - 12:20	*Break*
12:20 – 12:50	Auction Clearing and Optimisation
12:50 – 13:05	Supplementary Considerations
13:05 – 13:25	Q&A
13:25 - 13:30	Close

DASSA Consultation Overview

Key Details:

The consultation paper is made up of 40 questions spanning a number of topics

An 8-week consultation period is now underway. Responses to be submitted by May 10th

Questions can be submitted to *FASS@Eirgrid.com* or *FASSProgramme@soni.ltd.uk*

House rules

✓ Please keep your microphone muted during the presentation.

✓ Questions through chat and/or raising your hand will be accepted after each section of the presentation and at the Q&A at the end.

✓ The timing of each section will be managed using a traffic light system. Once the light is red the speaker has reached their allocated time limit.

✓ Post workshop, queries can be emailed to EirGrid Plc: to *FASS@Eirgrid.com* and SONI Limited: *FASSProgramme@soni.ltd.uk*

✓ The presentation slides will be made available on the EirGrid and SONI websites.

✓ Written answers to queries submitted by email will be published after the workshop.
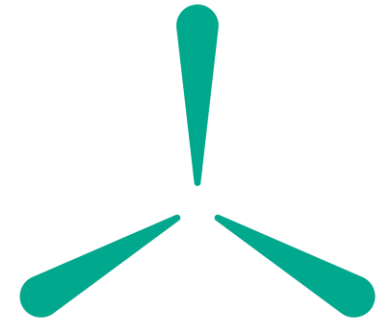
Introduction

Introduction

As set out in the High-Level Design Decision Paper in April 2022:

'The objective of FASS is to deliver a competitive framework for the procurement of System Services, that ensures secure operation of the electricity system with higher levels of non-synchronous generation' - *SEM Committee*

FASS Component	Description	Target Timeline
Day Ahead System Services Auction (DASSA) Arrangements	Daily auction and associated market arrangements. This is a requirement based on EU regulations and SEM Committee decisions.	• December 2026
Fixed Term Contracts	Procurement of fixed term contracts and development of future products (e.g.: Low Carbon Inertia Service (LCIS)).	• TBC, as required by product. • LCIS Phase 1 October 2024
Product Review, Volume Forecasting and Locational Methodology	Ensuring the system services we procure and the volumes obtained enable the TSOs to operate the power system with higher levels of renewables.	• 2024 (reserve services) • 2025 (non-reserve services)
Layered Procurement Framework	Procurement at timeframes greater than one day and less than one year.	• Pending outcome of annual assessment

This Consultation

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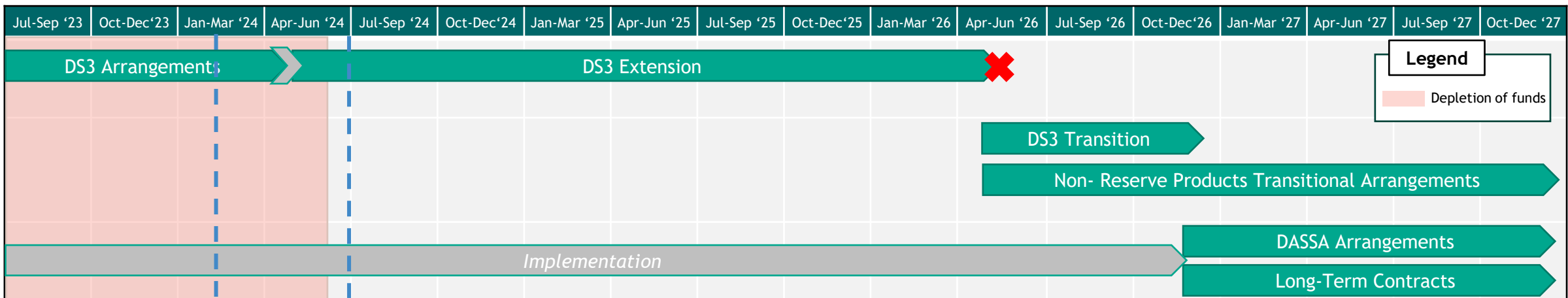
FASS: Status Update (April 2024)

FASS — Summary Status

Overall Status	⇨	Overall green status following publication of TSOs' Phased Implementation Roadmap (PIR) and DASSA Design consultation paper, providing clarity in terms of programme trajectory and scope.
Schedule	⇨	Green status reflecting the programme's alignment with the Phased Implementation Roadmap published on both EirGrid and SONI websites on 13th March.
Resourcing	⇨	TSO programme teams are staffed and engaged to continue work at pace. However, continued funding approval is required to maintain resources.
Finances	⇨	Awaiting RA decision on Phase 2 Uplift and Phase 3 & 4 ROM Estimate Funding Application. Expectation that existing funding will be exhausted by June 2024.

Key Messages

Service Provider Sentiment:
- TBC. Survey to be issued at later date in addition to feedback gather through existing engagements channels.

Key Activities for Immediate Action
- Funding approval
- DASSA Arrangements Industry Workshop April 2024
- Publish System Service Code Development Panel ToR April 2024

Positive Developments (Since Last Report)
- Publication of TSOs' Phased Implementation Roadmap
- Publication of DASSA Design Consultation Paper
- IT System Procurement has commenced

Challenges (Since Last Report)
- Funding uncertainty persists

Note: DS3 System Services Tariff Consultation is outside of the scope of the FASS programme. This is covered under existing operations.
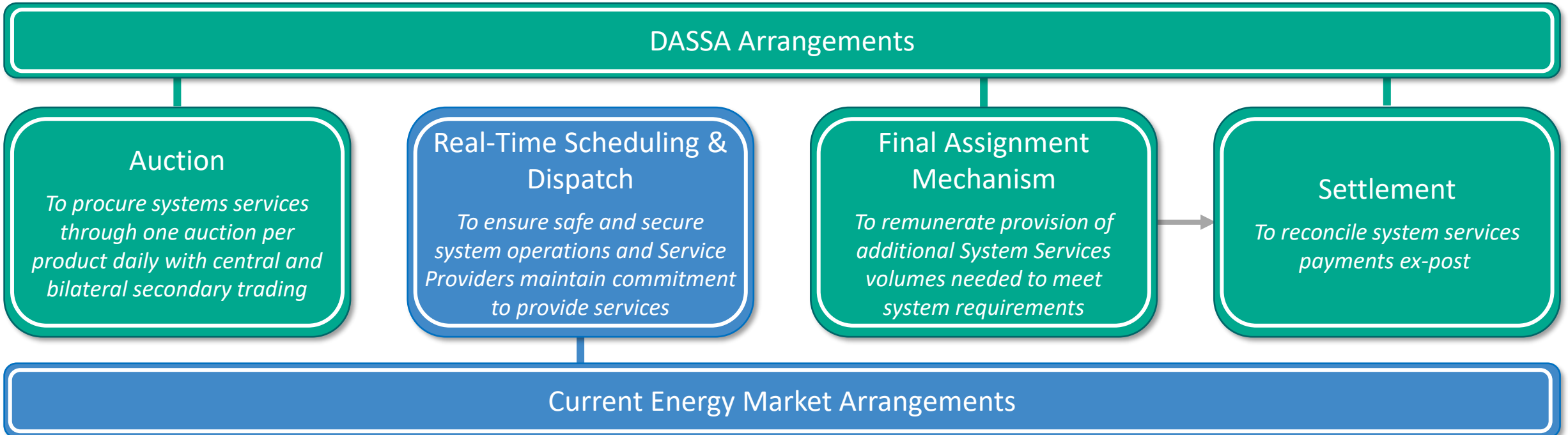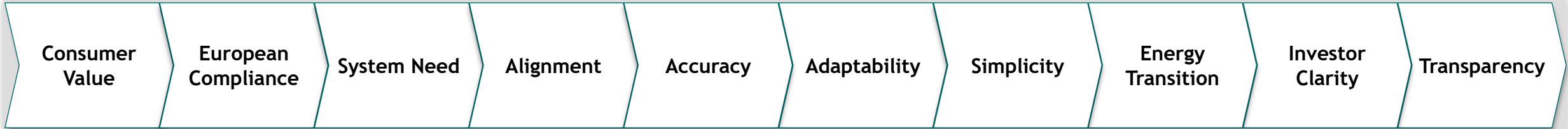
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DASSA Arrangements – HLD criteria

High Level Decision (SEM-22-012): Objectives and Assessment Criteria:

Consumer Value	European Compliance	System Need	Alignment	Accuracy	Adaptability	Simplicity	Energy Transition	Investor Clarity	Transparency

DASSA Arrangements

Auction
To procure systems services through one auction per product daily with central and bilateral secondary trading

Real-Time Scheduling & Dispatch
To ensure safe and secure system operations and Service Providers maintain commitment to provide services

Final Assignment Mechanism
To remunerate provision of additional System Services volumes needed to meet system requirements

Settlement
To reconcile system services payments ex-post

Current Energy Market Arrangements

Proposal Overview

Consultation Overview

Section of Paper	No. of Industry Questions	Topics / Questions	
Introduction and Background	0	• SEMC HLD • SEMC Phase 3 Decision • Network Codes	• DotEcon Design • TSOs PIR
DASSA Governance	0	• System Services Code / TBC • TSO DSO Interactions	• License Modifications • System Services Cost Recovery
DASSA Consultation Scope	0	• Scope of Paper	• Scope of Services for Initial Implementation
DASSA Mechanics	14	• Services to be procured • Timing of the DASSA • DASSA Auction Timeframe • DASSA Trading Period	• DASSA Volume Requirements • DASSA Bidding Structure • Volume Insufficiency • DASSA Clearing
Secondary Trading	9	• Secondary Trading Platform • Secondary Trading Window • Secondary Trading Mechanics	• Potential Market Power in Secondary Trading • TSOs Participation in Secondary Trading
Commitment Obligations and Incentives	4	• Commitment Obligations Overview • Process	• Value of compensation payment • Performance scalars (subject to design)
FAM	5	• Calculating the Volume Requirements • FAM Adjusted Supply Functions • FAM Clearing and Assignments	• FAM Default Price • Constraints and FAM Payments
Locational Considerations	1	• Overview of Locational Constraints • System Services Firm Access	• Long-Run vs. Short-Run Constraints
Registration and Qualification	2	• Registration	• Qualification
Settlement and Payment	1	• Settlement Period	
Forward Markets	1	• Considerations for Forwards Market	
Transition to Auction	1	• DASSA Volumes and Frequency • FAM default Price	• Value of Compensation Payment
Market Interactions	2	• Interaction with the SEM	• Interactions with the European Markets
Glossary	0	N/A	
Total Number of Industry Questions	40		

DASSA: High Level Process

| Prior to Auction | Auction | Scheduling & Dispatch / Commitment to Provide Services | Final Assignment Mechanism (FAM) | Settlement |

Service Providers

- Register & accede to **System Services Code**
- **Qualify** to participate in the DASSA
- Submit DASSA bids for **each Trading Period** in Auction
- **Secondary Trading (rolling window)**
- **Buy & sell DASSA orders** via central platform or bilateral trades
- DASSA Order Holders
- **Pre-gate Closure Confirm** or **lapse** DASSA Orders
- **Post-gate Closure** Maintain **availability** and **deliver** services when required
- Non-DASSA Order Holders
- Maintain **availability** and **deliver** services when required
- Payments in / out
- Ex-post performance **data shared**

TSOs

- **Manage Registration & Qualification Testing**
- Volumes set per product
- **Auction cleared** for each service for each Trading Period
- DASSA Orders **assigned to winners** and published
- TSOs dispatch instruction / frequency event
- Calculate volume requirements for the FAM
- FAM Clears and generates FAM Assignments
- Settlement

Iterative Process

Illustrative timeline, not to scale.

D-X — D-1 — 13:20 **DASSA Gate Closure** — 13:50 **DASSA Results** — D — D+1 — M+1

DASSA: High Level Process

Prior to Auction | **Auction** | **Scheduling & Dispatch** / **Commitment to Provide Services** | **Final Assignment Mechanism (FAM)** | **Settlement**

Service Providers

- Register & accede to System Services Code
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- Submit DASSA bids for **each Trading Period** in Auction
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- DASSA Order Holders
  - Pre-gate Closure **Confirm** or **lapse** DASSA Orders
  - Post-gate Closure Maintain **availability** and **deliver** services when required
- Non-DASSA Order Holders
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TSOs

- Iterative Process
- Manage Registration & Qualification Testing
- Volumes set per product
- **Auction cleared** for each service for each Trading Period
- DASSA Orders assigned to winners and published
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Illustrative timeline, not to scale.

| D-X | D-1 | 13:20 DASSA Gate Closure | 13:50 DASSA Results | D | D+1 | M+1 |

Auction Design: DASSA and Secondary Trading
(Section 4 & 5 of Consultation Paper)

Day-Ahead System Services Auction – Overview (Section 4.2- 4.4 – Consultation Paper)

Auction Timing:
- Daily after the DAM and before the Day-Ahead LTS
- DASSA GCT~13:20

Auction Timeframe:
- 24 hours from 23:00 day-ahead (D-1) to 23:00 the next day (D)

Trading Period Duration:
- Auction will be cleared for every 30-min Trading Period
- Design allows for other durations e.g., to align with future 15-minute imbalance settlement period.

Timeline: 11:00 | 12:00 | 13:00 | 14:00 | .... 17:30 .... D-1 .... 23:00 | D

- 11:00 DAM GCT
- 11:45 DAM-RES
- 13:20 DASSA GCT
- 13:30 DA-LTS GCT
- 13:50 DASSA RES
- 14:00 DA LTS
- 14:00 EU-IDA GCT
- 17:30 IDA1 GCT

30 minutes
DASSA CP
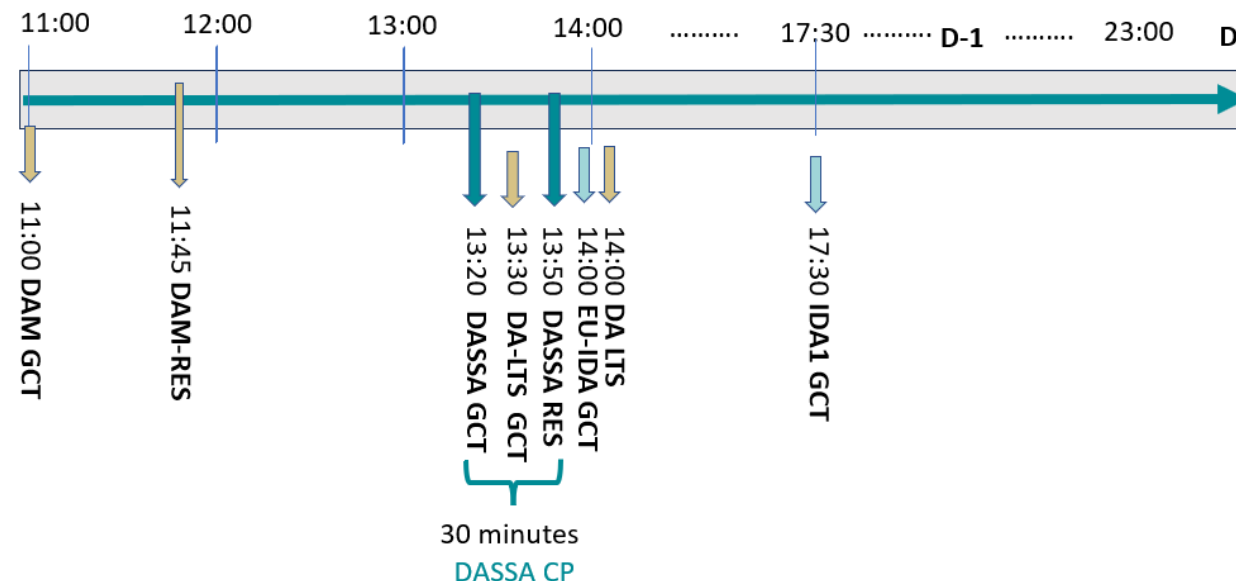
GCT: Gate Closure Time
DAM: Day-ahead Market
LTS: Long Term Scheduling
ST: Secondary Trading

D-1: Day-ahead (Auction Day)
D: Delivery Day
CP: Clearing Process (Auction Run, Approval)
RES: Results

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Day-Ahead System Services Auction - Bidding Process
(Section 4.6 - Consultation Paper)

Central Auction Platform

Bidding Code of Practice
- o Recommended by TSOs; RA responsibility

Bid Format:
- o Simple bid; divisible or non-divisible
- o 1 or more (increasing) price / quantity pairs per service per Trading Period (up to a maximum number tbd)
- o Bids can be updated up to auction gate closure; rebids will not be permitted after that time
- o No interdependency between bids
- o Complex bids or combinatorial auction not being proposed

Auction Supply Function:
- o Stepwise linear supply function
- o Increasing steps of price / quantity pairs, subject to minimum values for each step

Zero & Volume Cap Bids:
- o Zero volume and volume cap bids to allow for all or a portion of a bid to be allocated in the FAM only
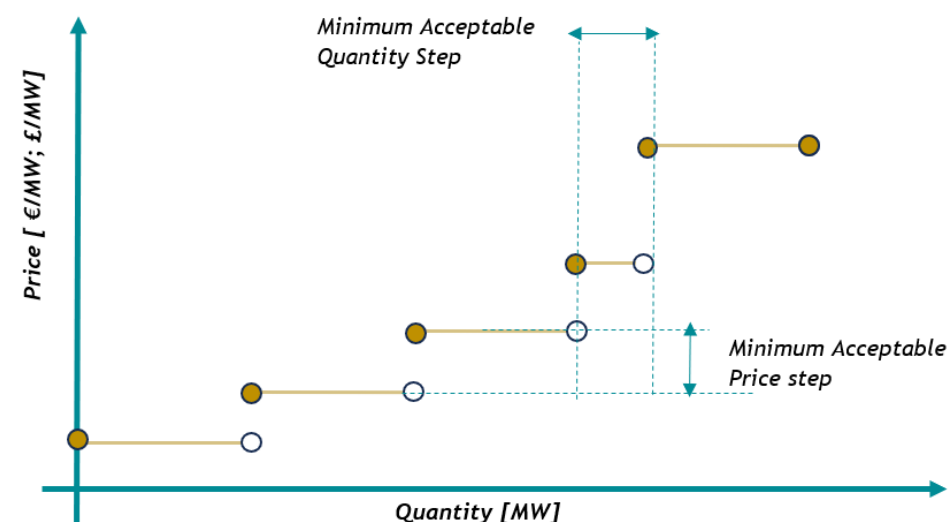
Day-Ahead System Services Auction – Service Provider Perspective

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Central Auction Platform

Unit A:
Has some certainty as to its day-ahead availability

→ **Bid**
Submits 3 p/q pairs:
{(5,5),(7,8),(10,10)}

POR Volume requirement = 20 MW

↓

Validate Bids

↓

Create Supply Functions

↓

Clear Auction

↓

Award Volumes

↓

Pay-As-Clear Clearing Price €9 per MW

→ **Award** →

Unit A DASSA Outcome

DASSA Order	Commitment Obligation	DASSA Payment
13 MW	Yes	€117

Unit B:
Has some certainty as to its day-ahead availability

→ **Bid**
Submits 1 p/q pair:
{(9,7)}

→ **Award** →

Unit B DASSA Outcome

DASSA Order	Commitment Obligation	DASSA Payment
7 MW	Yes	€63

Unit C:
Its availability is uncertain up to close to real-time

→ **Bid**
Submits zero-volume bid:
{(6,0)}

→ **No Award** →

Unit C DASSA Outcome

DASSA Order	Commitment Obligation	DASSA Payment
N/A	N/A	N/A

Bid Price of €6 -> Adjusted Supply Function in FAM →

* For illustrative purposes monetary values are given in Euros. In the DASSA, values will be converted to Pounds Sterling for Northern Ireland service providers.

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Secondary Trading – Overview
(Section 5.1- 5.4 - Consultation Paper)

Central Secondary Trading Platform

Secondary Trading Window:
- After daily auction and up to 90 minutes before the applicable Trading Period

D-1 ... t-1.5 t-1 t-0.5 D t t+0.5 t+1

DASSA results

Secondary trading GCT

FPN submission for GC2

Trading Period (30 minutes)

Secondary trading window
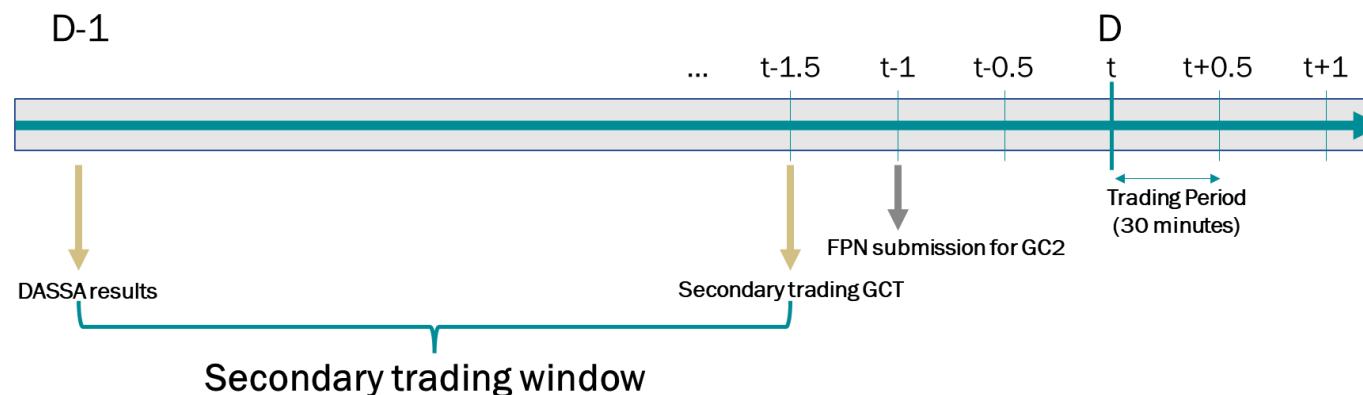
Placing Buy and Sell Orders:
- Buy Order is an offer to take on all or part of a DASSA Order and its associated commitment obligations
- Sell Order is placed by a DASSA Order Holder for all or part of its Order
- Orders to specify quantity and Secondary Trade Price limit i.e., the minimum price an Order Holder is willing to accept for a Sell Order or the maximum price offered for a Buy Order
- Continuous matching of Buy and Sell Orders proposed
- Validations to apply e.g., unit capability, operational requirements, DASSA constraints etc.

Bilateral Trades:
- Pre-agreed trades between service providers
- Trades to be recorded, validated, and confirmed on the central trading platform

Secondary Trading – Service Provider Perspective

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Central Secondary Trading Platform

Unit A:
DASSA Order Holder

No longer able to meet commitment obligation

13 MW POR @ €9 per MW

Sell Order

Min sell price per Order: €15

Validate Orders

↓

Add to Order Book

↓

Match Orders

↓

Validate Trade

↓

Notification

13 MW POR

Buy Order

Max buy price per Order: €15

Unit C:
Non-DASSA Order Holder

Knows availability closer to real-time

Unit A Post Secondary Trade Status

DASSA Order	Commitment Obligation	DASSA Payment	Secondary Trade*
N/A	N/A	N/A	+€15

Unit C Post Secondary Trade Status

DASSA Order	Commitment Obligation	DASSA Payment	Secondary Trade*
13 MW	Yes	€117	-€15

*Secondary Trade price transacted outside of Central Secondary Trading Platform

Auction Design – Commitment Obligation & Incentives
(Section 6 of Consultation Paper)

DASSA Orders – Gate Closure Status and Outcomes

The key evaluation of a DASSA Order will be concerned with the status of the Order at gate closure, i.e. **one hour** before the applicable Trading Period.

| Confirmed DASSA Order | → | Unit receives a DASSA Payment and is subject to Performance Scalar evaluation |

| Lapsed DASSA Order | → | Unit does not receive a DASSA Payment and pays the TSOs a compensation payment |

| Lapsed DASSA Order & Dispensation applies | → | No compensation payment is payable to the TSOs and the unit may receive a partial/ scaled DASSA Payment |
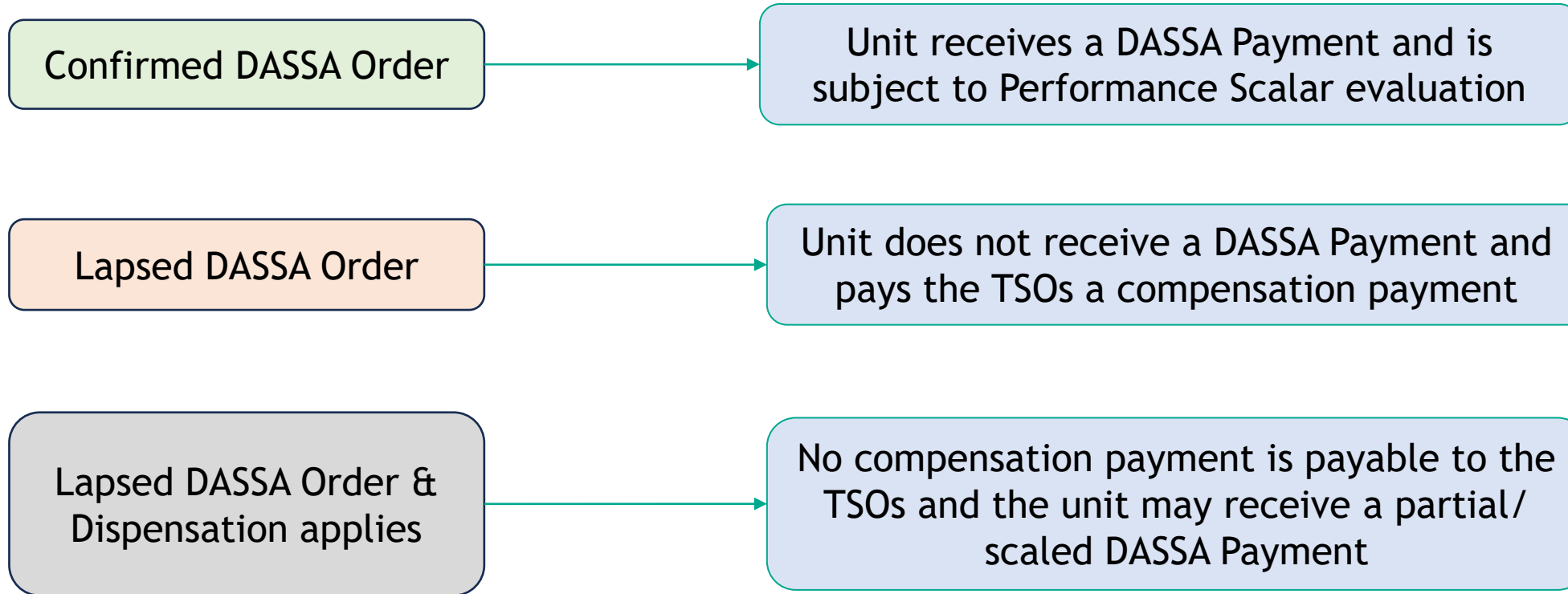
* These outcomes may apply fully or partially to a DASSA Order i.e. a DASSA Order may be partially confirmed.

Terminology

Term	Definition
Gate closure	One hour before the start time of the Trading Period. At this point DASSA Orders will either be confirmed or lapsed (or partially thereof).
Self-lapse	The service provider elects to lapse a DASSA Order by gate closure. An Order can be self-lapsed partially or fully.
FPN compatibility	The Final Physical Notification (FPN) or deemed FPN is compatible with the provision of system services specified in the DASSA Order.
Deemed FPN	An FPN that is deemed by the TSOs for some units e.g. interconnectors.
Pre-gate closure instruction / event	An instruction or event before gate closure that impacts the ability of a service provider to meet their commitment obligations. Examples of these instances may include the following before gate closure: • Sync instructions. • The automatic response to a previous frequency event. • An instruction / event within the specified grace period (for energy storage units). • A change in interconnector flows.
Pre-gate closure instruction / event compatibility	The service provider's position following an instruction or response to an event before gate closure is compatible with the provision of system services specified in the DASSA Order.
Grace period (for energy storage units)	The period to apply where a service provider is impacted by a previous instruction or event it is assumed this prevents the unit from fulfilling its obligation.

DASSA Order Commitment Obligations Evaluation at Gate Closure
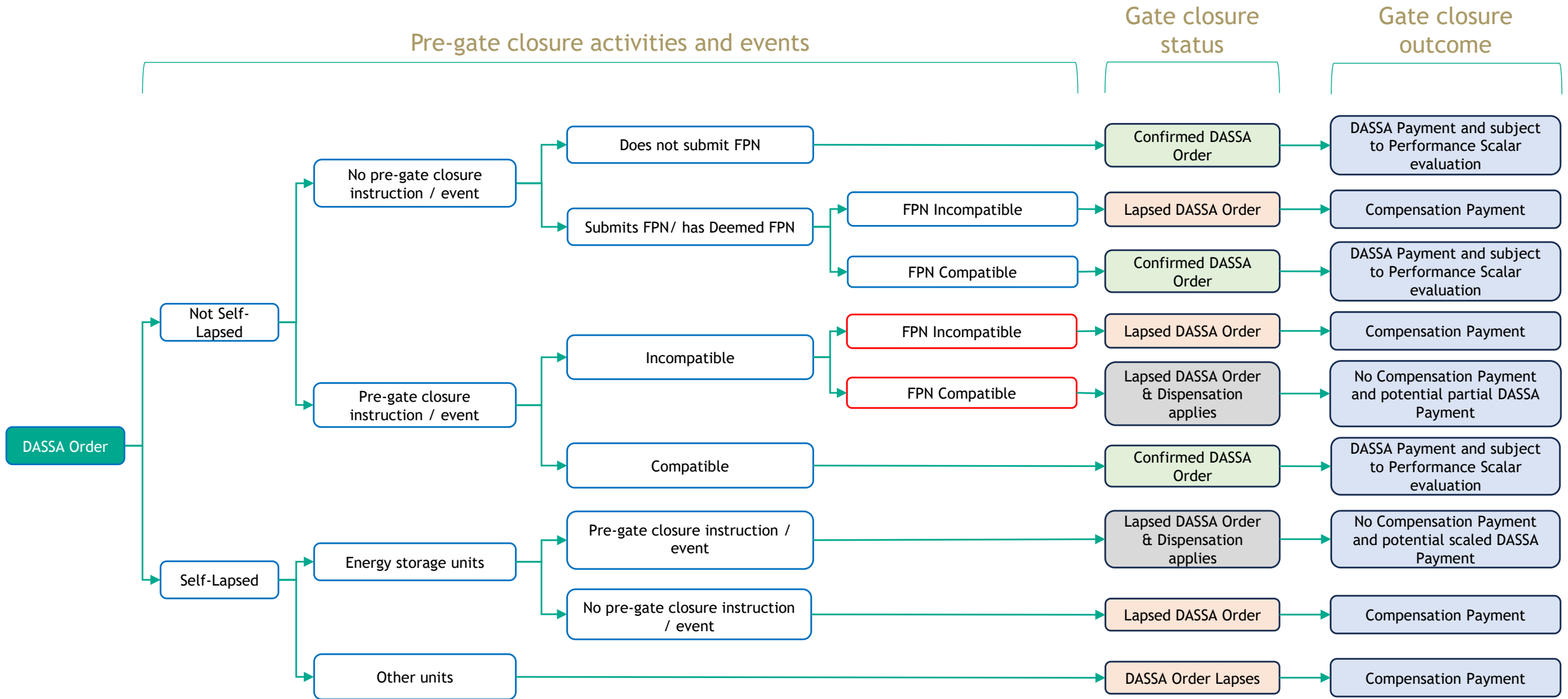
Example A: Conventional unit submits a compatible FPN
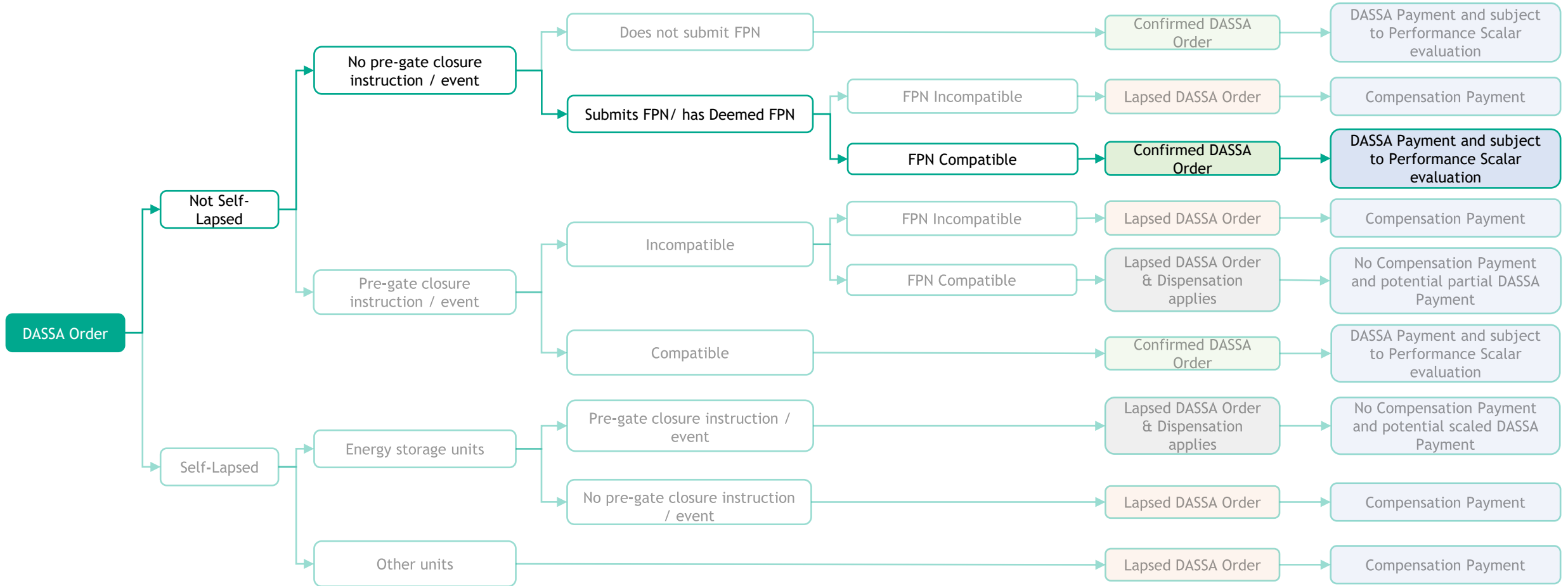
Example A: Conventional unit submits a compatible FPN

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DASSA Order	Unit Type	DASSA Order volume	DASSA Clearing Price
	OCGT	10 MW POR	€10 per MW

```
DASSA Order → Unit does not self-lapse → Unit submits compatible FPN → Confirmed DASSA Order → DASSA Payment
```

Headroom >= 10 MW
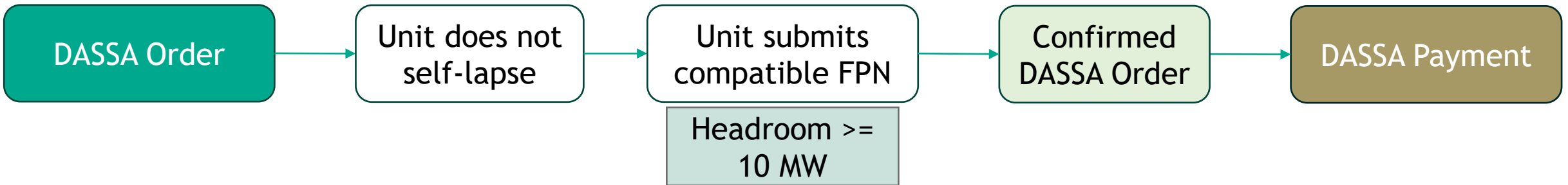
Outcome	Confirmed DASSA Order	DASSA Payment*	Compensation Payment to TSO
	Yes	€100	N/A

*Per 30 min Trading Period and subject to performance scalars

Example B: Non-priority dispatch unit submits an incompatible FPN

DASSA Order
- Not Self-Lapsed
  - No pre-gate closure instruction / event
    - Does not submit FPN → Confirmed DASSA Order → DASSA Payment and subject to Performance Scalar evaluation
    - Submits FPN/ has Deemed FPN
      - FPN Incompatible → Lapsed DASSA Order → Compensation Payment
      - FPN Compatible → Confirmed DASSA Order → DASSA Payment and subject to Performance Scalar evaluation
  - Pre-gate closure instruction / event
    - Incompatible
      - FPN Incompatible → Lapsed DASSA Order → Compensation Payment
      - FPN Compatible → Lapsed DASSA Order & Dispensation applies → No Compensation Payment and potential partial DASSA Payment
    - Compatible → Confirmed DASSA Order → DASSA Payment and subject to Performance Scalar evaluation
- Self-Lapsed
  - Energy storage units
    - Pre-gate closure instruction / event → Lapsed DASSA Order & Dispensation applies → No Compensation Payment and potential scaled DASSA Payment
    - No pre-gate closure instruction / event → Lapsed DASSA Order → Compensation Payment
  - Other units → Lapsed DASSA Order → Compensation Payment

Example B: Non-priority dispatch unit submits an incompatible FPN

DASSA Order	Unit Type	DASSA Order volume	DASSA Clearing Price
	Dispatchable wind unit	10 MW POR	€10 per MW
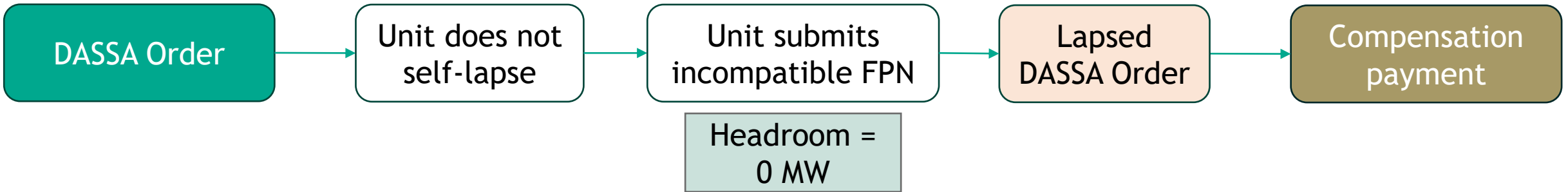
DASSA Order → Unit does not self-lapse → Unit submits incompatible FPN → Lapsed DASSA Order → Compensation payment

Headroom = 0 MW

Outcome	Confirmed DASSA Order	DASSA Payment	Compensation Payment to TSO
	N/A	N/A	Yes: for 10 MW

Example C: Priority-dispatch wind unit does not submit a PN


```
DASSA Order
├── Not Self-Lapsed
│   ├── No pre-gate closure instruction / event
│   │   ├── Does not submit FPN → Confirmed DASSA Order → DASSA Payment and subject to Performance Scalar evaluation
│   │   └── Submits FPN/ has Deemed FPN
│   │       ├── FPN Incompatible → Lapsed DASSA Order → Compensation Payment
│   │       └── FPN Compatible → Confirmed DASSA Order → DASSA Payment and subject to Performance Scalar evaluation
│   └── Pre-gate closure instruction / event
│       ├── Incompatible
│       │   ├── FPN Incompatible → Lapsed DASSA Order → Compensation Payment
│       │   └── FPN Compatible → Lapsed DASSA Order & Dispensation applies → No Compensation Payment and potential partial DASSA Payment
│       └── Compatible → Confirmed DASSA Order → DASSA Payment and subject to Performance Scalar evaluation
└── Self-Lapsed
    ├── Energy storage units
    │   ├── Pre-gate closure instruction / event → Lapsed DASSA Order & Dispensation applies → No Compensation Payment and potential scaled DASSA Payment
    │   └── No pre-gate closure instruction / event → Lapsed DASSA Order → Compensation Payment
    └── Other units → Lapsed DASSA Order → Compensation Payment
```

Example C: Priority-dispatch wind unit does not submit a PN

DASSA Order	Unit Type	DASSA Order volume	DASSA Clearing Price
	Priority-dispatch Wind	2 MW POR	€10 per MW

```
DASSA Order → Unit does not self-lapse → Confirmed DASSA Order → DASSA Payment
```

Outcome	Confirmed DASSA Order	DASSA Payment*	Compensation Payment to TSO
	Yes	€20	N/A

*Per 30 min Trading Period and subject to performance scalars – which may account for auto confirmation of Order

Example D: Conventional unit receives a pre-gate closure instruction to Maxgen and submits an incompatible FPN

Example D: Conventional unit receives a pre-gate closure instruction to Maxgen and submits an incompatible FPN

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DASSA Order	Unit Type	DASSA Order volume	DASSA Clearing Price
	OCGT	10 MW POR	€10 per MW

DASSA Order → Unit does not self-lapse → Unit is subject to pre-GC Instruction/ Event → Dispatched position is not compatible with DASSA Order → FPN is not compatible with DASSA Order → Lapsed DASSA Order → Compensation Payment

Dispatched to Maxgen

Headroom = 0 MW
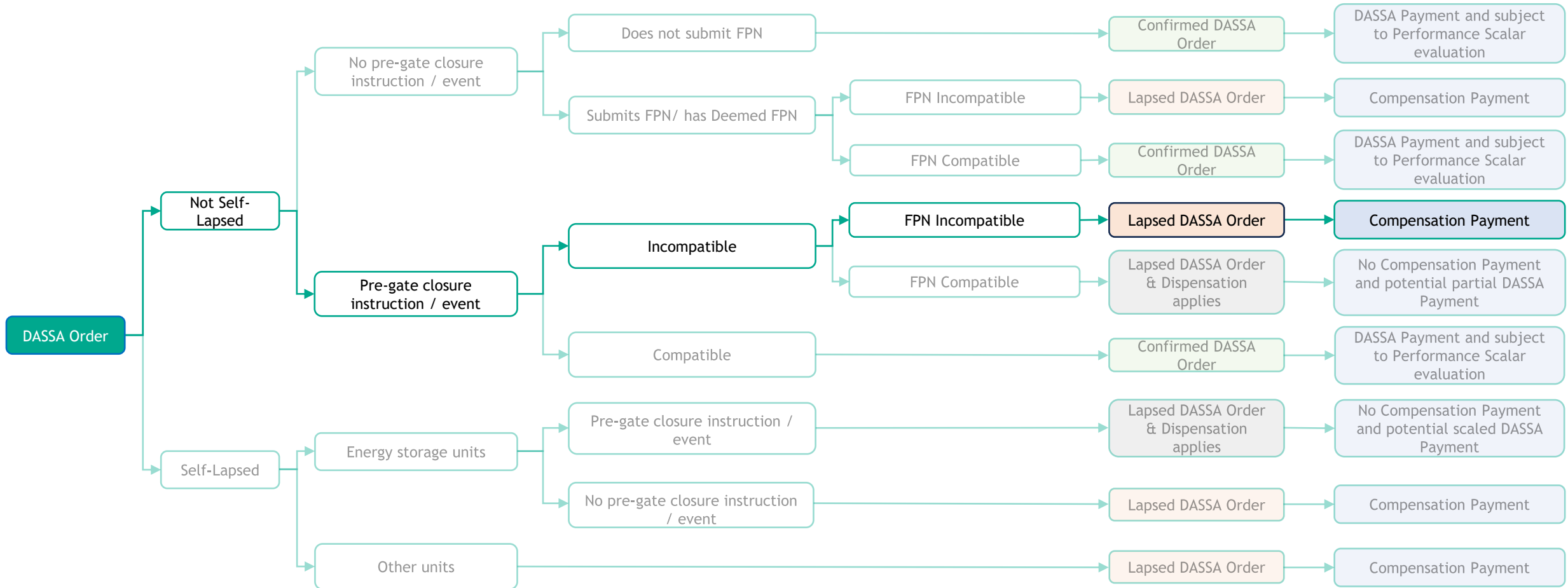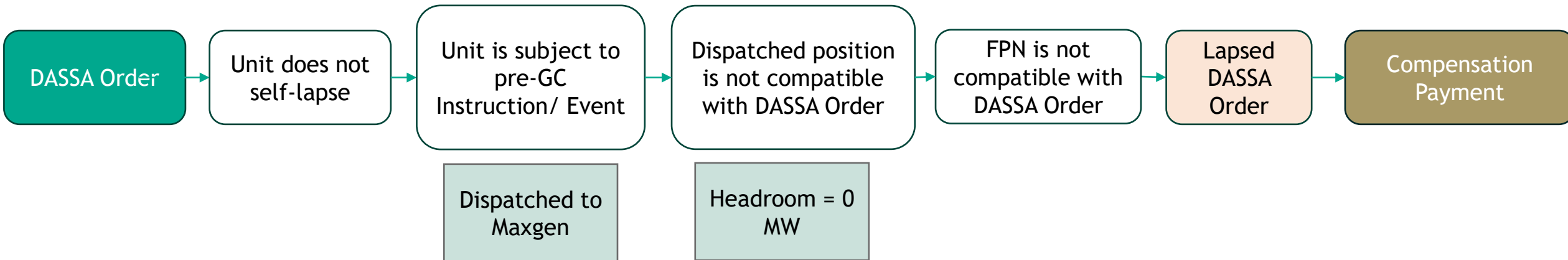
Outcome	Confirmed DASSA Order	DASSA Payment	Compensation Payment to TSO
	N/A	N/A	Yes: for 10 MW

Example E: Non-Energy Storage Unit Self-Lapses Order in Full
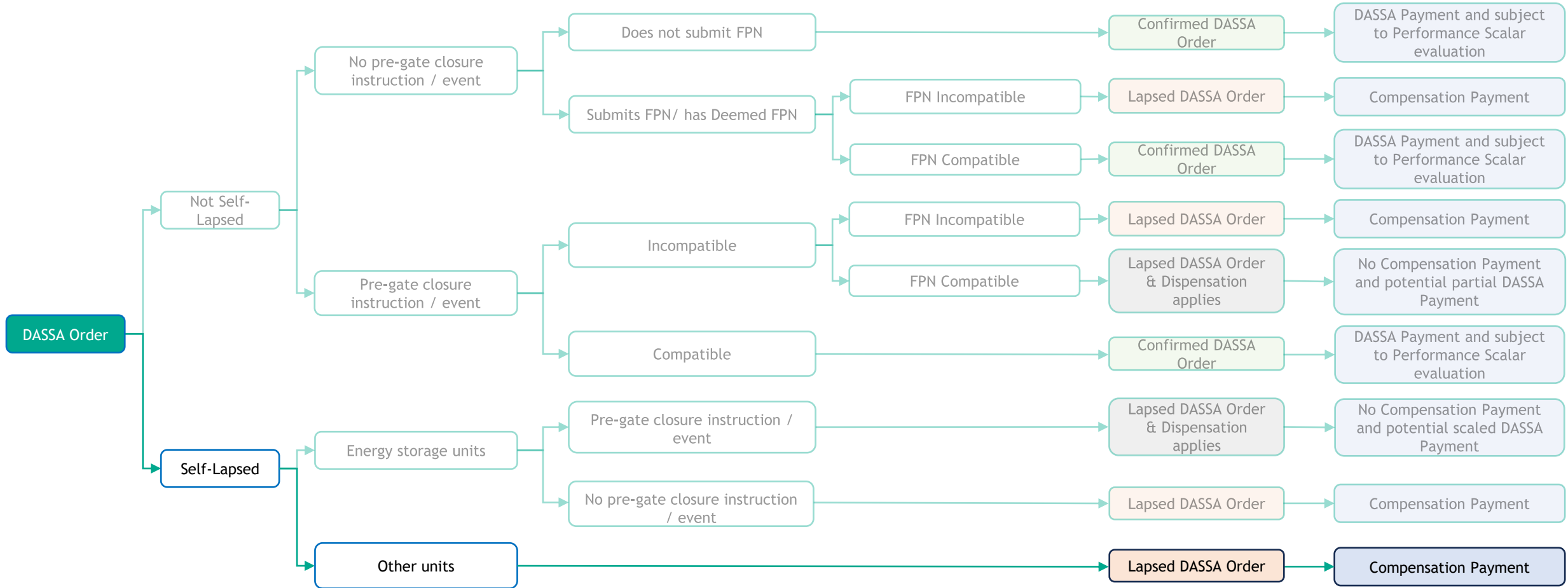
Example E: Non-Energy Storage Unit Self-Lapses Order in Full

DASSA Order	Unit Type	DASSA Order volume	DASSA Clearing Price
	Non-energy storage	10 MW POR	€10 per MW
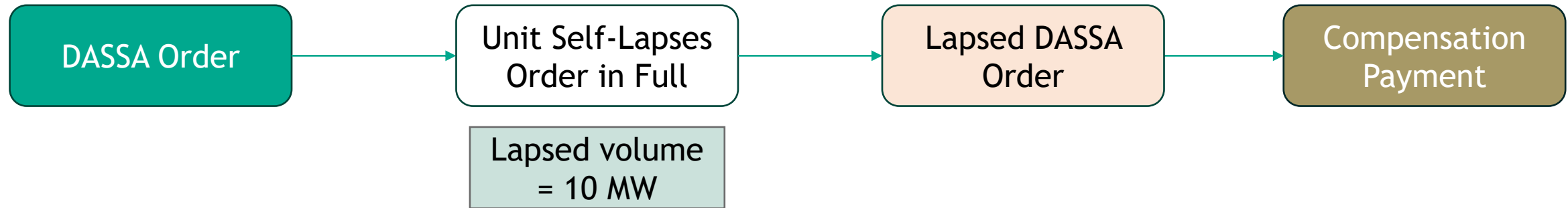
```
DASSA Order  →  Unit Self-Lapses Order in Full  →  Lapsed DASSA Order  →  Compensation Payment
                        Lapsed volume
                         = 10 MW
```

Outcome	Confirmed DASSA Order	DASSA Payment	Compensation Payment to TSO
	N/A	N/A	Yes: for 10 MW
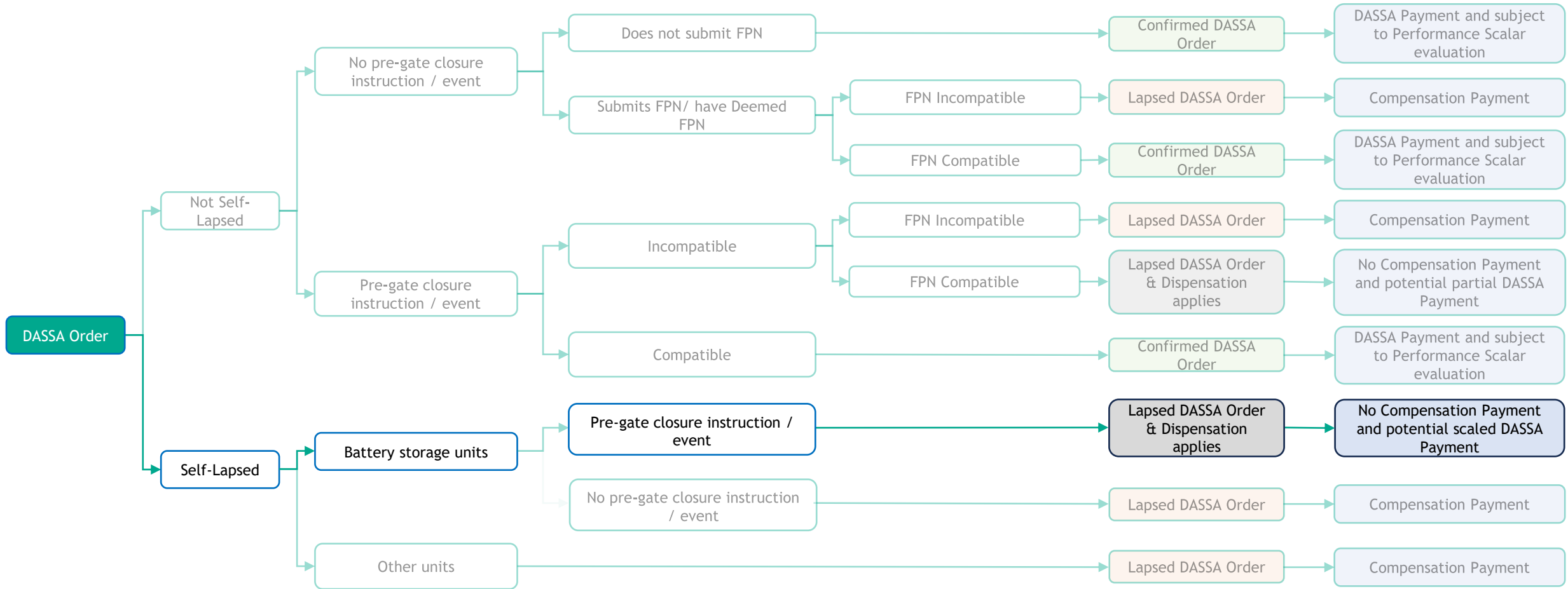
Example F: Energy storage unit self-lapses Order in full – dispensation


```
DASSA Order
├── Not Self-Lapsed
│   ├── No pre-gate closure instruction / event
│   │   ├── Does not submit FPN → Confirmed DASSA Order → DASSA Payment and subject to Performance Scalar evaluation
│   │   └── Submits FPN/ have Deemed FPN
│   │       ├── FPN Incompatible → Lapsed DASSA Order → Compensation Payment
│   │       └── FPN Compatible → Confirmed DASSA Order → DASSA Payment and subject to Performance Scalar evaluation
│   └── Pre-gate closure instruction / event
│       ├── Incompatible
│       │   ├── FPN Incompatible → Lapsed DASSA Order → Compensation Payment
│       │   └── FPN Compatible → Lapsed DASSA Order & Dispensation applies → No Compensation Payment and potential partial DASSA Payment
│       └── Compatible → Confirmed DASSA Order → DASSA Payment and subject to Performance Scalar evaluation
└── Self-Lapsed
    ├── Battery storage units
    │   ├── Pre-gate closure instruction / event → Lapsed DASSA Order & Dispensation applies → No Compensation Payment and potential scaled DASSA Payment
    │   └── No pre-gate closure instruction / event → Lapsed DASSA Order → Compensation Payment
    └── Other units → Lapsed DASSA Order → Compensation Payment
```

Example F: Energy storage unit self-lapses Order in full – dispensation

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DASSA Order

	Unit Type	DASSA Order volume	DASSA Clearing Price
	Battery	10 MW POR	€10 per MW

DASSA Order → Unit self-lapses Order in full → Unit is subject to pre-GC instruction / event → Lapsed DASSA Order & Dispensation applies → No Compensation Payment

Lapsed Volume = 10 MW

Unit responded to event within last 8 hours
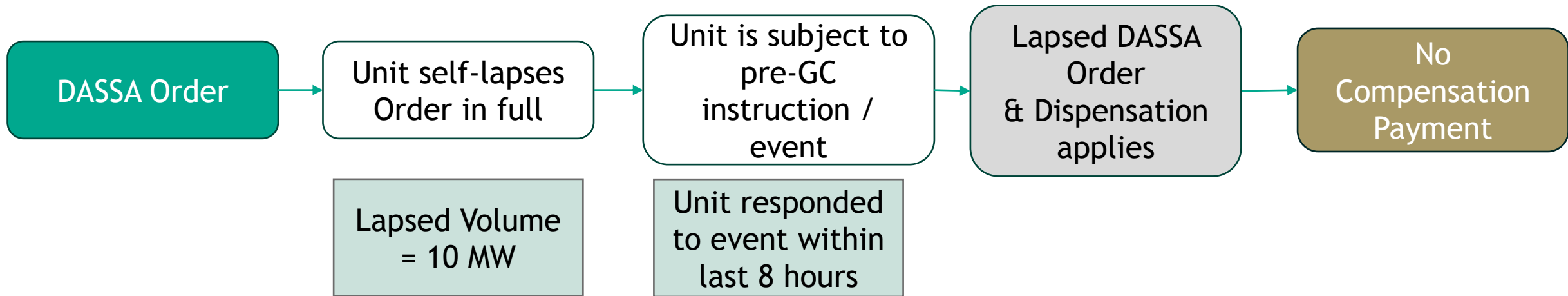
Outcome

	Confirmed DASSA Order	DASSA Payment*	Compensation Payment to TSO
	N/A	€ (0<ß<1) x 100 **	N/A

* Per 30 min Trading Period and subject to performance scalars
** The DASSA payment is scaled depending on the remaining duration of the Grace Period

DASSA Orders – Post-Gate Closure Evaluation

Post-gate closure and for the duration of the Trading Period (or service duration), the Confirmed DASSA Order Holder is required to declare and be available to provide the service and to deliver the service as required.

DASSA Payments are subject to Availability Performance Scalar and Event Performance Scalar consequences.

Availability Performance Scalar → To incentivise the holder of a Confirmed DASSA Order to maintain and accurately declare its availability to provide a service.

Event Performance Scalar → To incentivise the holder of a Confirmed DASSA Order to deliver the service when called upon to do so.
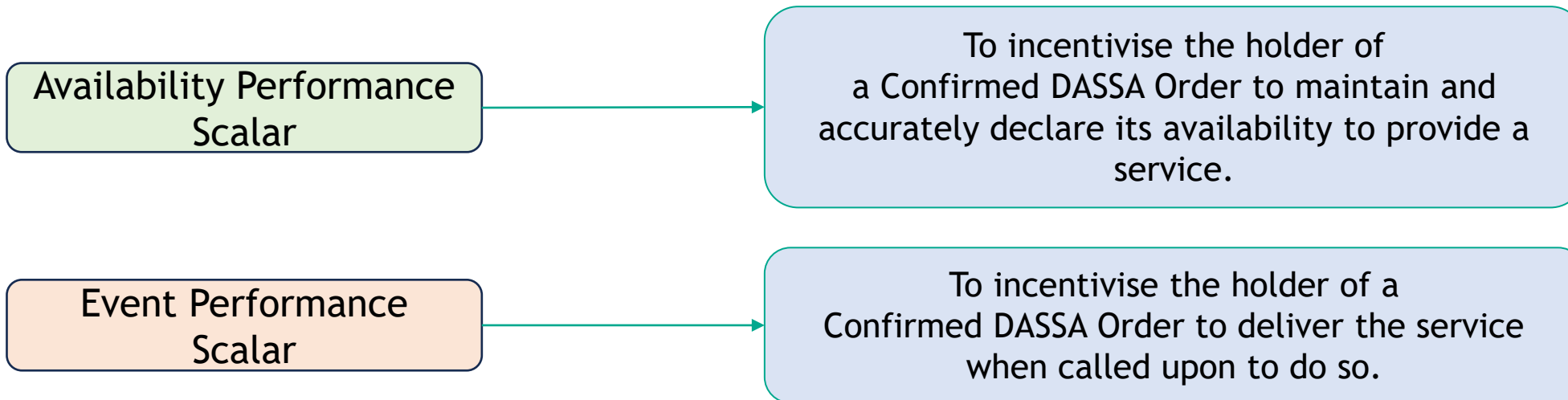
Note: Scalars subject to detailed design and industry engagement

Performance Scalar – Example 1

Confirmed DASSA Order	Confirmed DASSA Order	DASSA Clearing Price	Compensation Payment to TSO
	10 MW POR	€10 per MW	No

Note: Scalars subject to detailed design and industry engagement

Confirmed DASSA Order → Unit is Fully Available → Unit Delivers Service as Required → No Performance Scalar Impact

Availability Scalar: N/A

Event Scalar: N/A
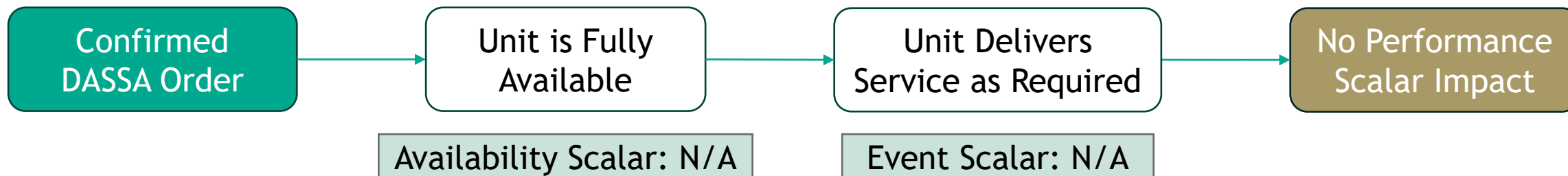
Reduced DASSA Payment*	Current Trading Period	Future Trading Periods
	No	No

*DASSA Payment = Confirmed DASSA Order Volume x DASSA Clearing Price x Performance Scalar [proposed]

Performance Scalar – Example 2

Confirmed DASSA Order	Confirmed DASSA Order	DASSA Clearing Price	Compensation Payment to TSO
	10 MW POR	€10 per MW	No

Note: Scalars subject to detailed design and industry engagement

```
Confirmed
DASSA Order  →  Unit is Not Fully   and / or   Unit Does Not   →   Performance
                Available                       Deliver Service as            Scalar Impact
                                                Required

                Availability Scalar: Yes        Event Scalar: Yes
```
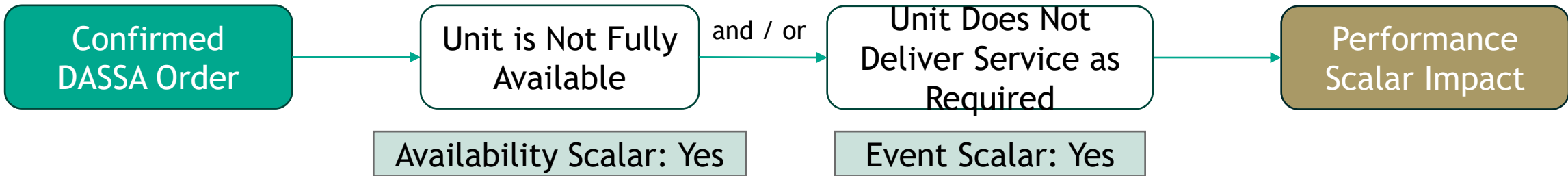
Reduced DASSA Payment*	Current Trading Period	Future Trading Periods
	Yes	Yes

*DASSA Payment = Confirmed DASSA Order Volume x DASSA Clearing Price x Performance Scalar [proposed]

Auction Design – Final Assignment Mechanism

- FAM will allocate payments
- FAM Payments will be on a merit order basis
- Service providers can be entitled for FAM payments subject to their availability
- FAM Payments will be applicable where there is a deficit from DASSA Order Holders

FAM Volume Requirement

Adjusted Supply Functions

FAM Clearing

- FAM Volume Requirement

1) DASSA Order Holders fail to meet the Commitment Obligations

3) Fail to declare Availability (due to providers' fault)

40 MW

20 MW

30 MW

35 MW

2) DASSA Orders can not be met due to TSO Actions

4) Deficit between the actual delivery and the DASSA Orders

FAM Volume Requirement

115 MW

- **Adjusted Supply Functions to create the FAM merit order**
    - Eventual Availability
    - Prices

Adjusted Supply Function (Section 7.3.1 – Consultation Paper)

- Eventual Availability (Volume)
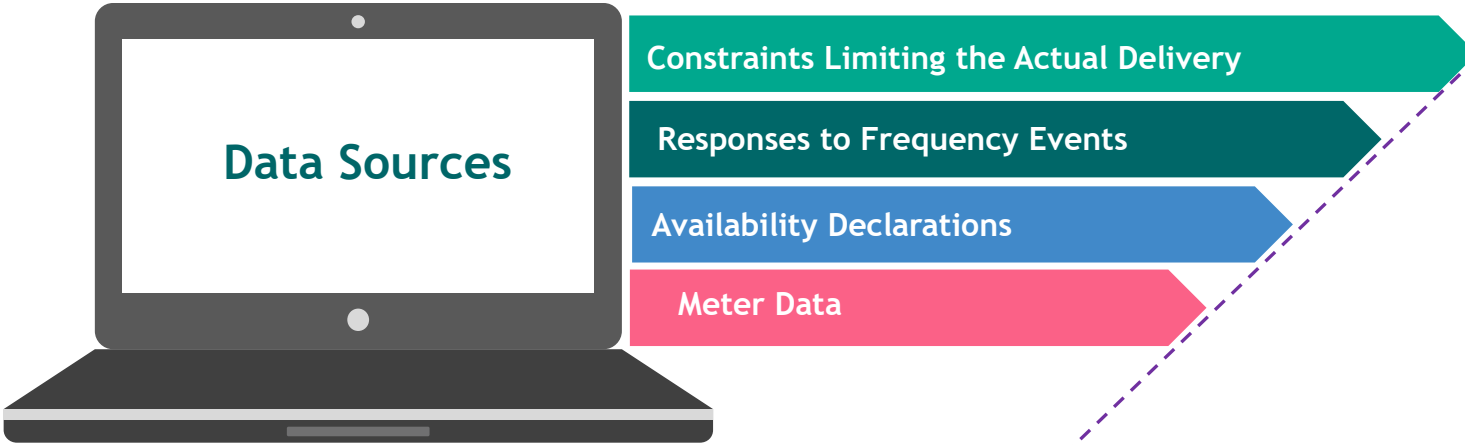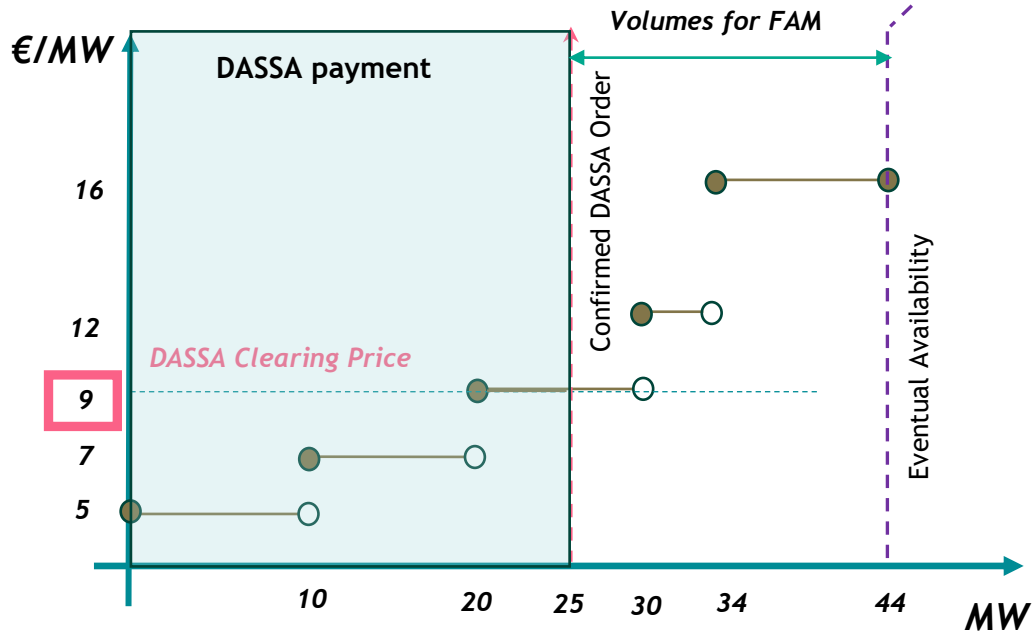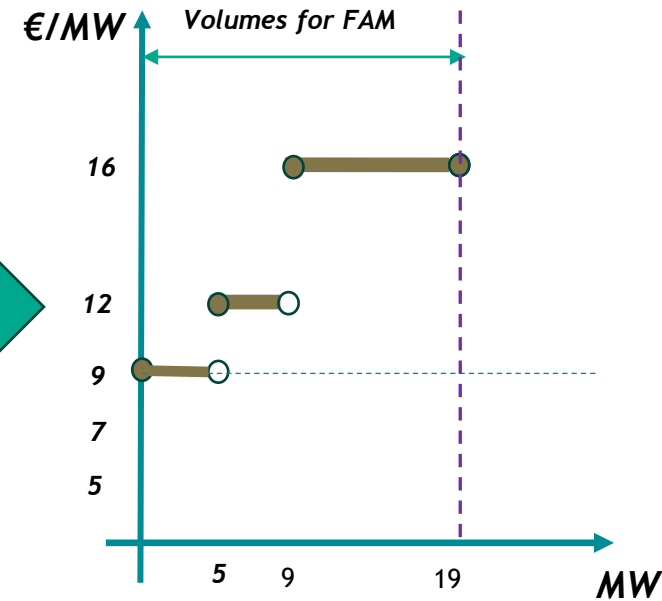
Adjusted Supply Function (Section 7.3.2.1 Consultation Paper)

- Prices – Extension of DASSA Supply Function to Eventual Availability
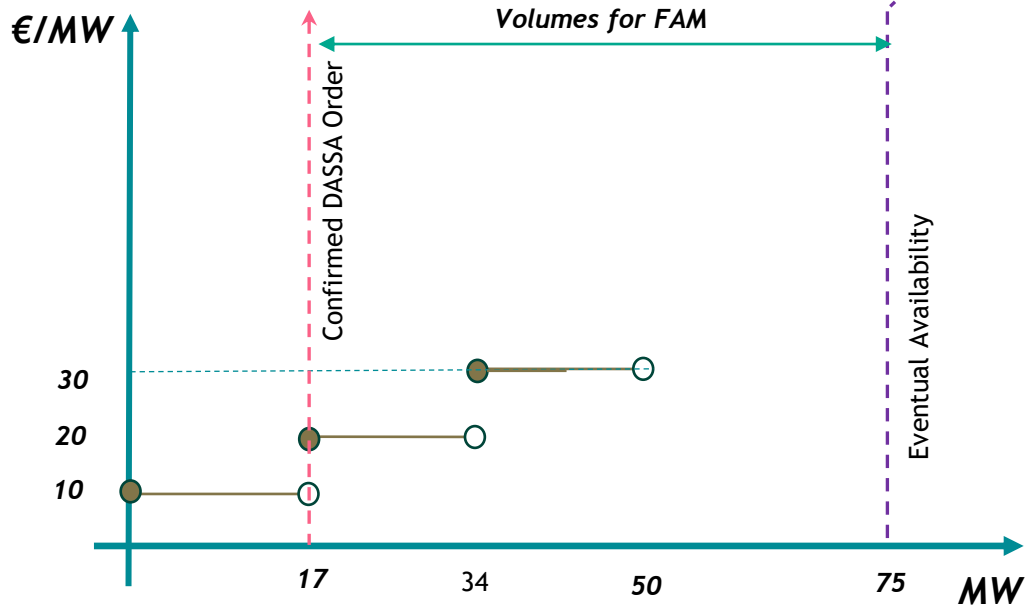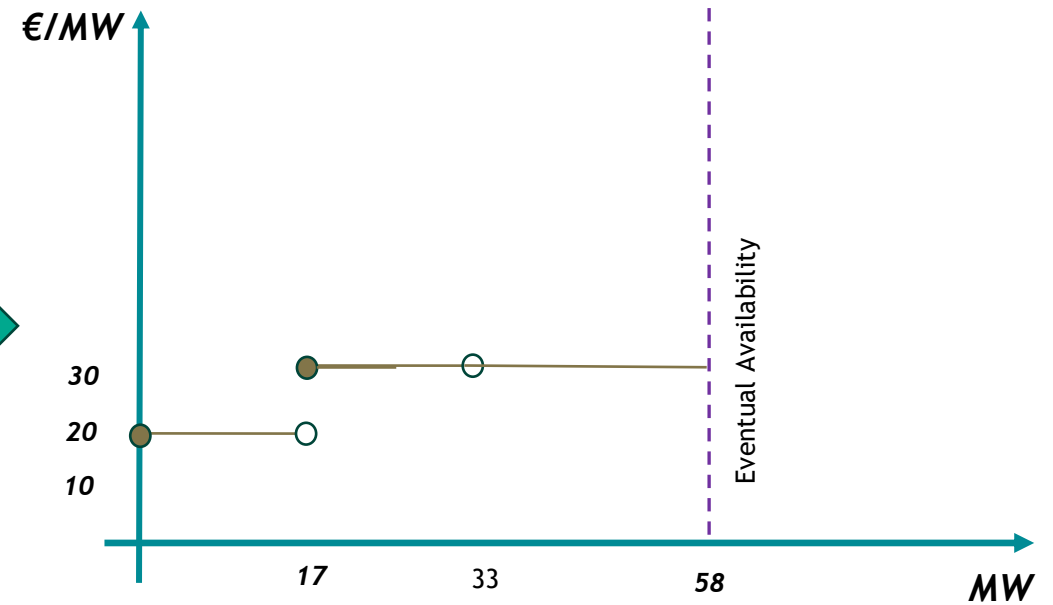
Adjusted Supply Function (Section 7.3.2.2 – Consultation Paper)

- Prices – Crop of DASSA Supply Function to Eventual Availability

Data Sources

- Constraints Limiting the Actual Delivery
- Responses to Frequency Events
- Availability Declarations
- Meter Data

DASSA Supply Function [Unit A]

Volumes for FAM

€/MW

Confirmed DASSA Order

Eventual Availability

30

20

10

17   34   40   50   75   MW

FAM Adjusted Supply Function [Unit A]

€/MW

Eventual Availability

30

20

10

17   23   33   MW
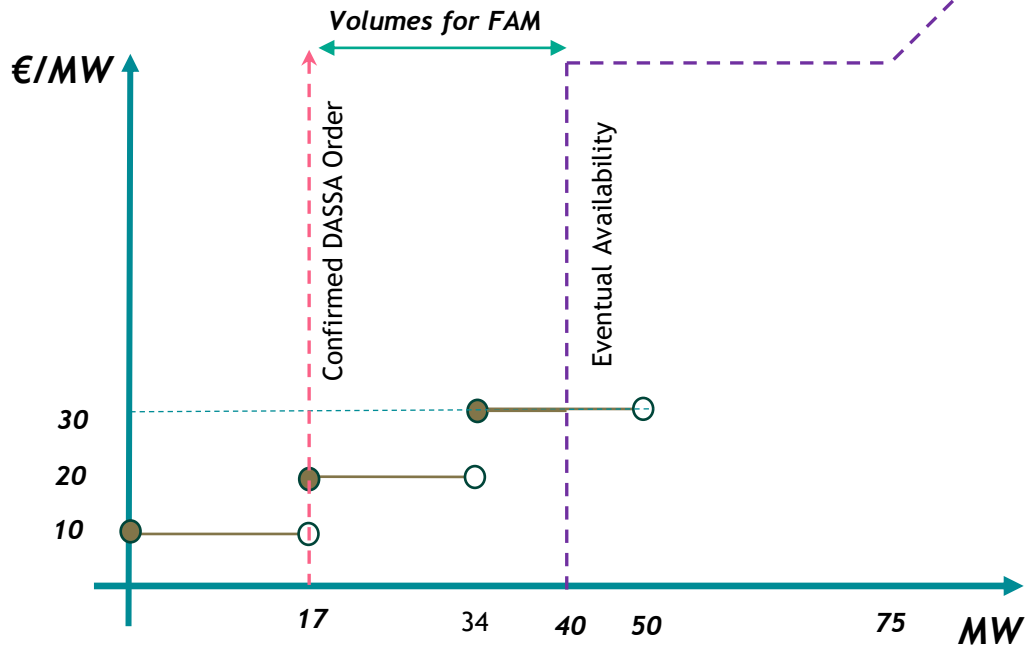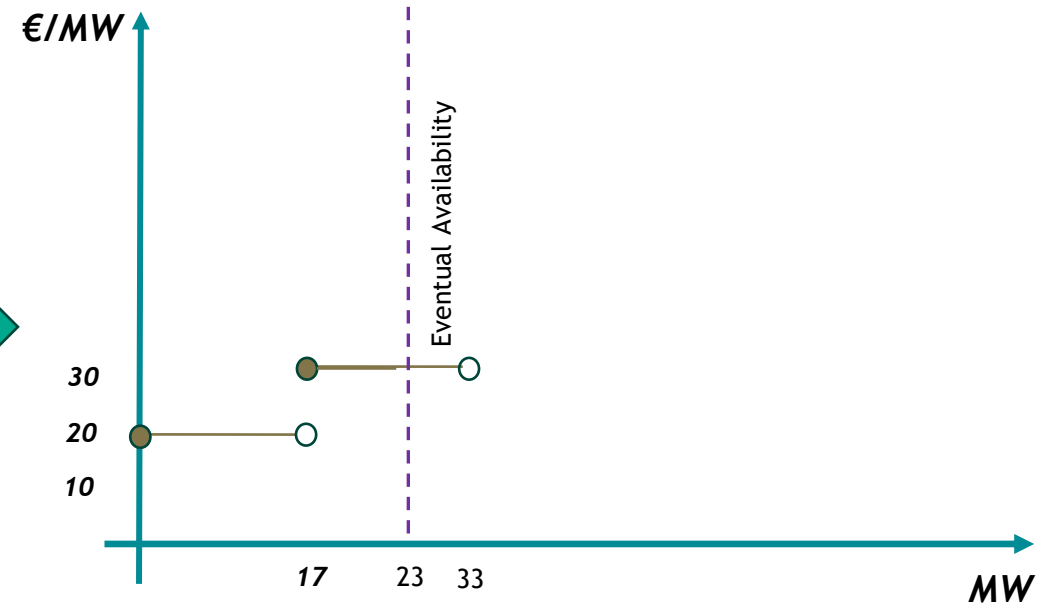
Adjusted Supply Function (Section 7.3.2.3 – Consultation Paper)

- Prices – No DASSA Bid – FAM Default Price
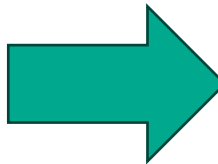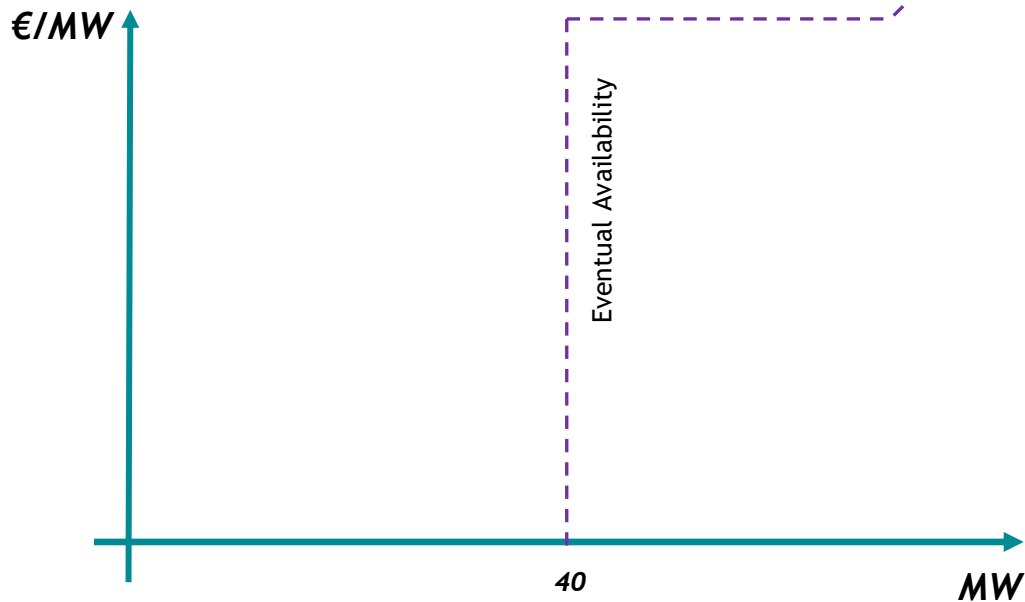
Adjusted Supply Function (Section 7.3.2.4 – Consultation Paper)

- Prices – Zero Volume Bid - (p,q)=(10,0)

Data Sources

Constraints Limiting the Actual Delivery

Responses to Frequency Events

Availability Declarations

Meter Data

DASSA Supply Function [Unit A]

€/MW

Eventual Availability

40

MW

FAM Adjusted Supply Function [Unit A]

€/MW

Zero Volume Bid

Eventual Availability

10

40

MW
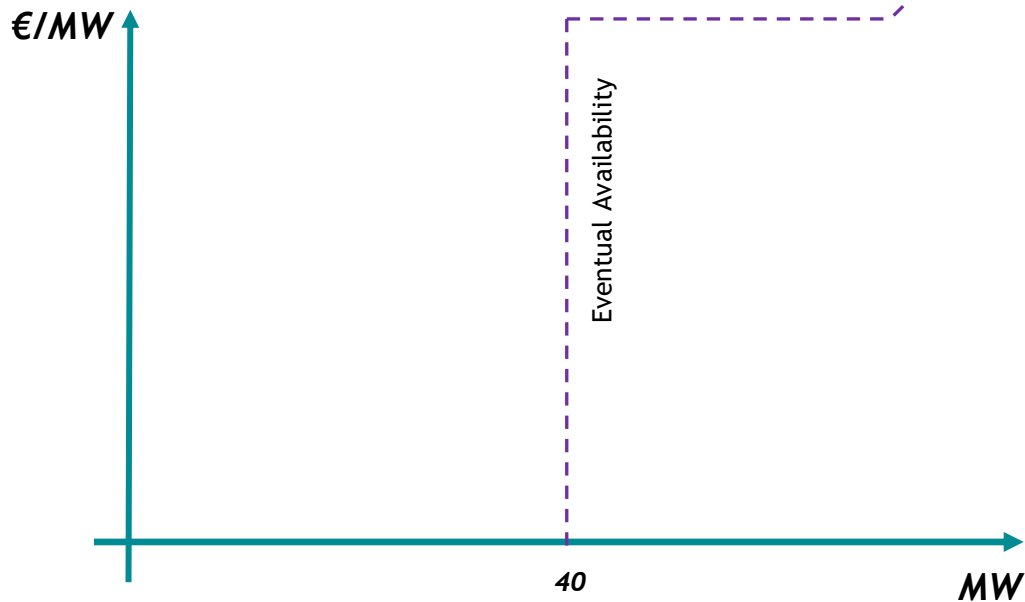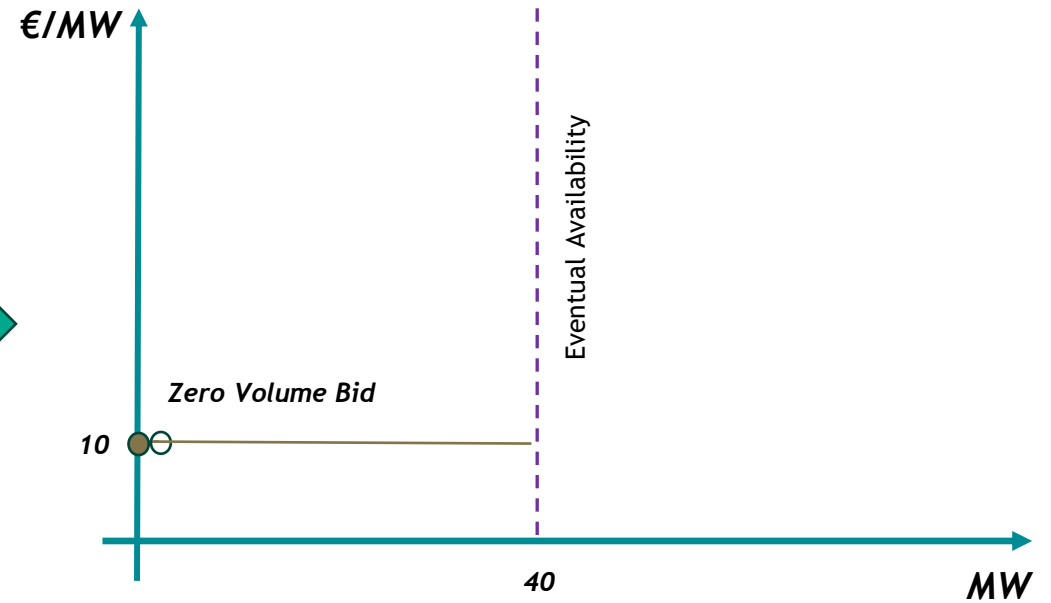
Adjusted Supply Function (Section 7.3.2.5 – Consultation Paper)

- Prices – DASSA Volume Cap
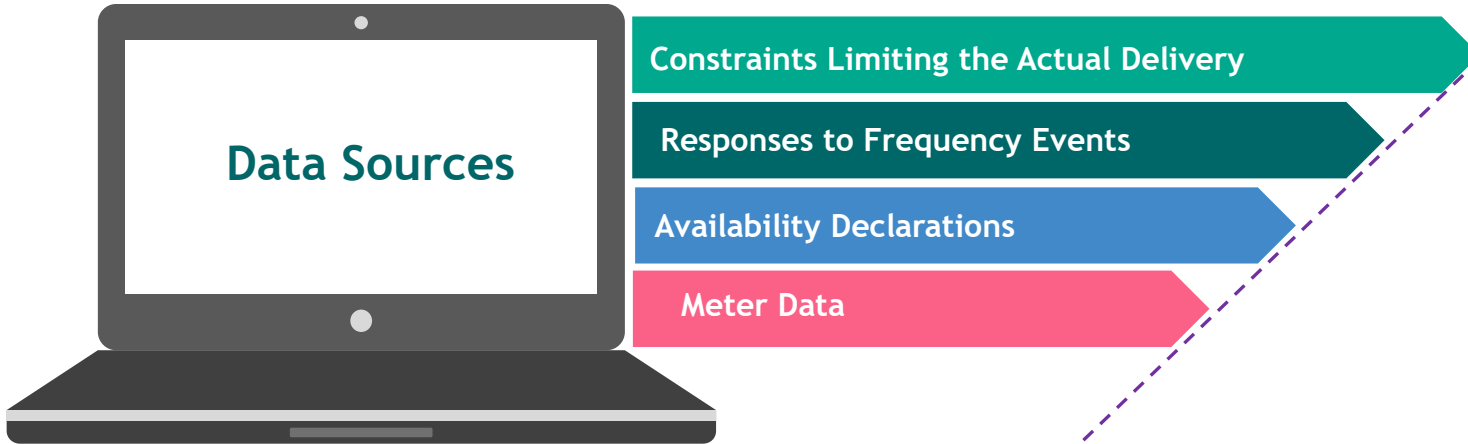
Data Sources

- Constraints Limiting the Actual Delivery
- Responses to Frequency Events
- Availability Declarations
- Meter Data

DASSA Supply Function [Unit A]

€/MW

Volumes for FAM

Volume Cap

Cleared volume

Eventual Availability

DASSA Clearing Price

16

12

9

7

5

10   20   25   30   34   44   MW

FAM Adjusted Supply Function [Unit A]

€/MW

Volumes for FAM

16

12

9

7

5

5   9   19   MW
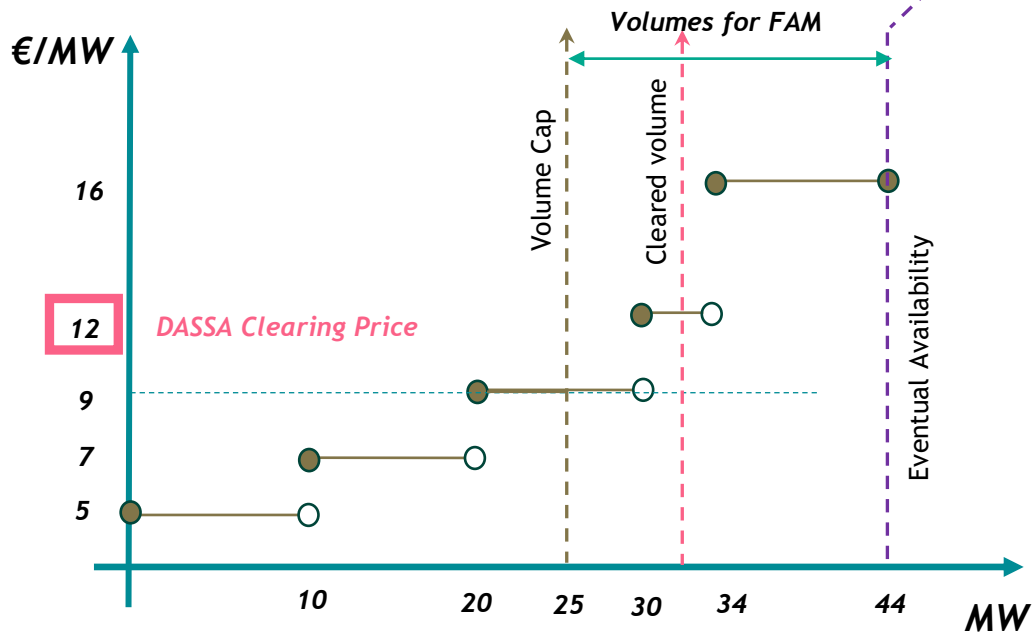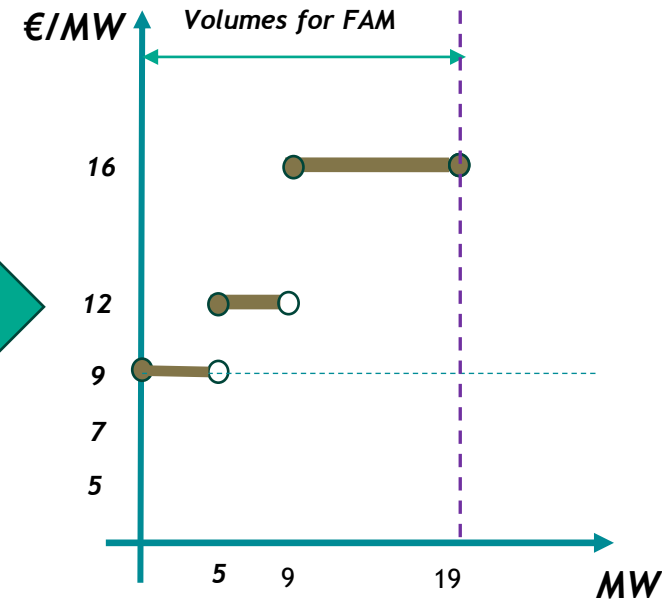
Adjusted Supply Function (Section 7.3.2.6 – Consultation Paper)

- Secondary Trading Considerations in the FAM

DASSA Supply Function [Unit A]

Option 1

Option 2
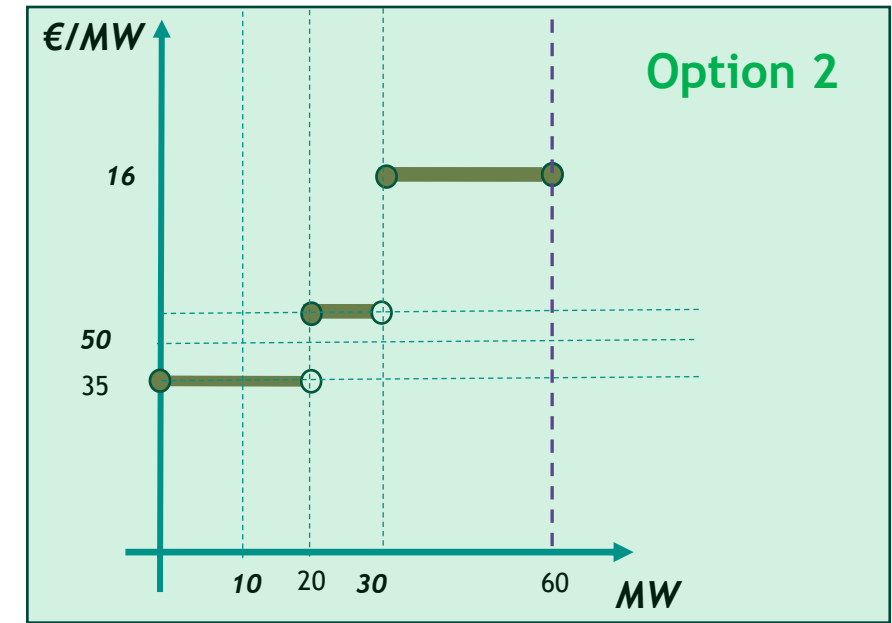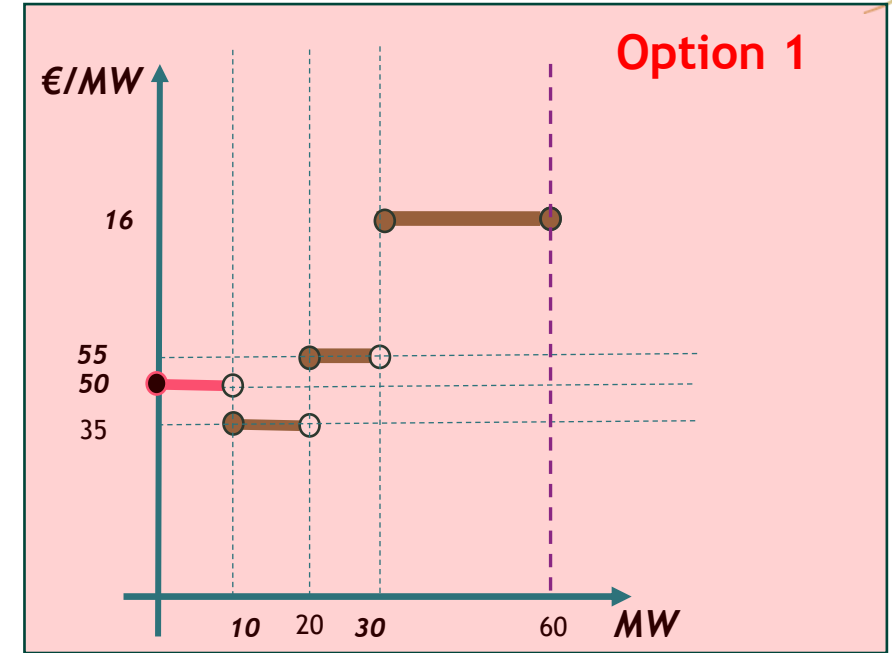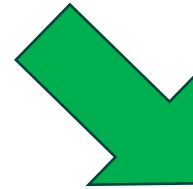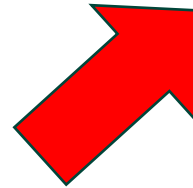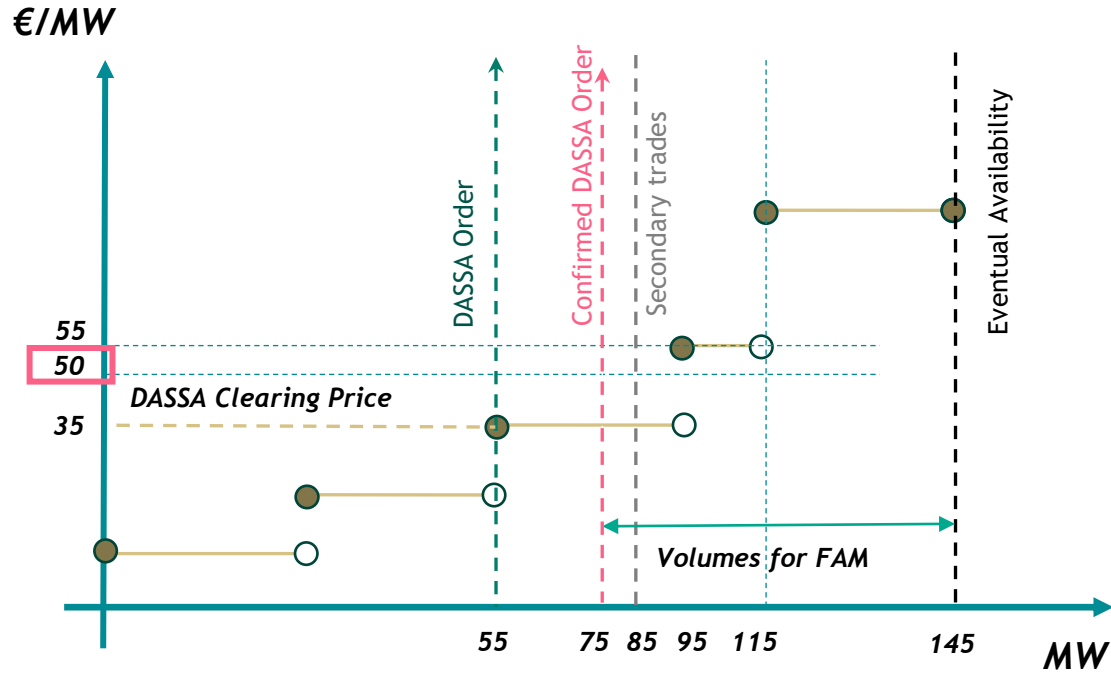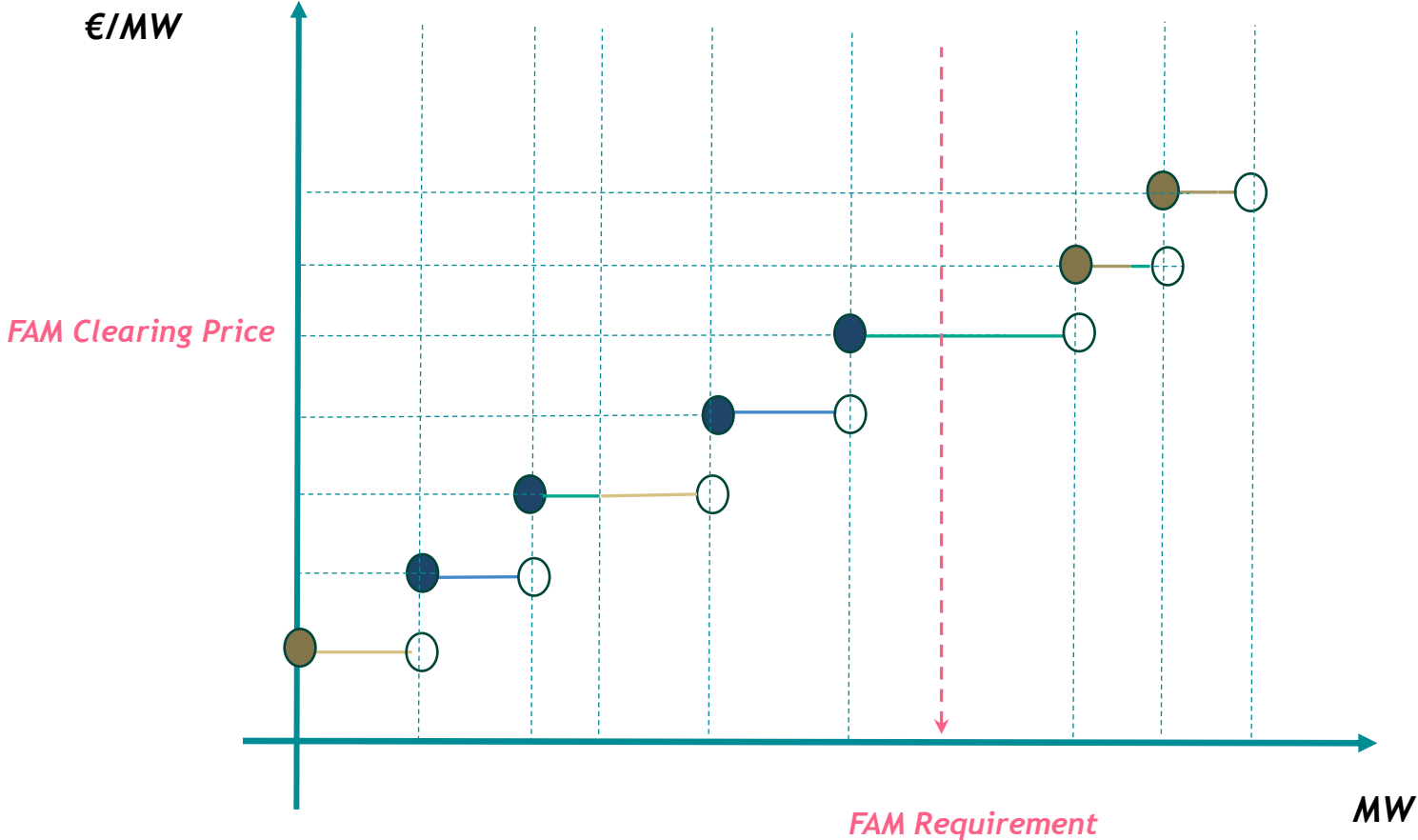
FAM Clearing

Auction Clearing and Optimisation

DASSA Clearing Overview

Objective Function

- **Minimize the cost of system services procurement**

Constraints to be included

- **Min requirement (all Island basis)**
- **Min requirements per zone/jurisdiction**
  TSO's preferences
- **Min requirement for implicit bundles**
- **Min requirement for quality services**

Constraints that will not be included

- **Transmission line constraints**
- **Transmission outages**

Elements of the Objective function
- Procurement cost
- Value functions (for quality and explicit bundles)

Outcomes
- Allocated volumes
- Prices per service per trading period
- Price for explicit bundle
- Prices for quality products
- Zonal prices if applicable

DASSA Supply Function

Volume Increments

Unit A	$\{(5,50), (7,100), (10,120), (11,150)\}$
Unit B	$\{(7,30), (9,120), (10,200)\}$
Unit C	$\{(6,50), (8,120)\}$

$\{(5,50), (7,50), (10,20), (11,30)\}$
$\{(7,30), (9,90), (10,10)\}$
$\{(6,50), (8,70)\}$

DASSA Supply Function
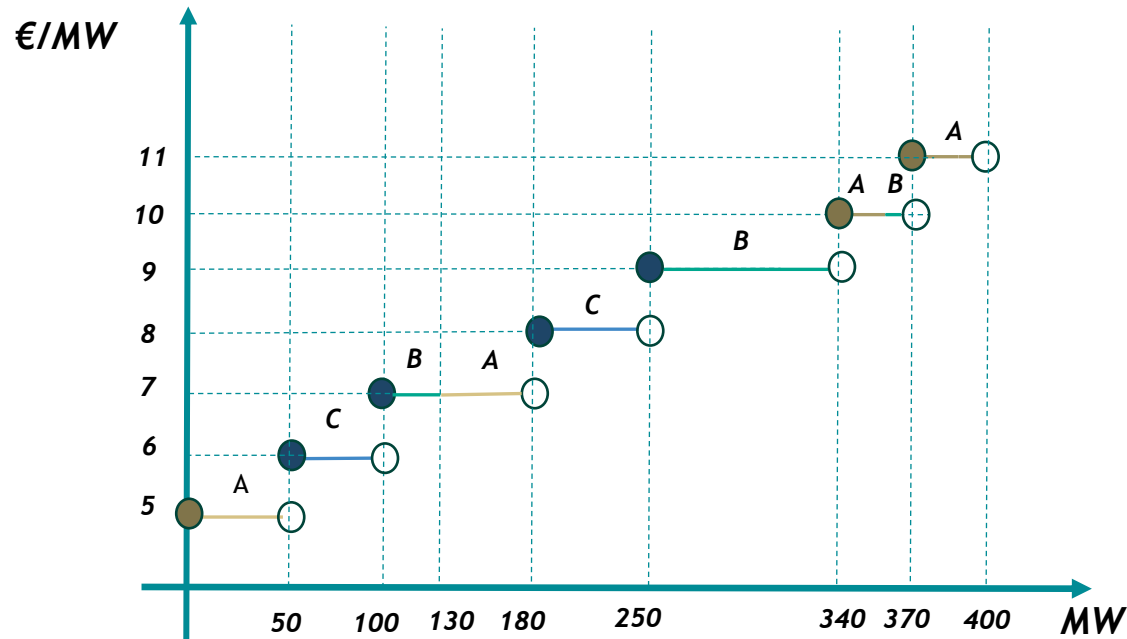
Divisible / Non-divisible bids (Section 4.6.7 - Consultation Paper)

Service Providers Have Two Options:
- To submit divisible bids
- To submit non-divisible bids

Divisible bids

Price [€/MW; £/MW]

Quantity [MW]
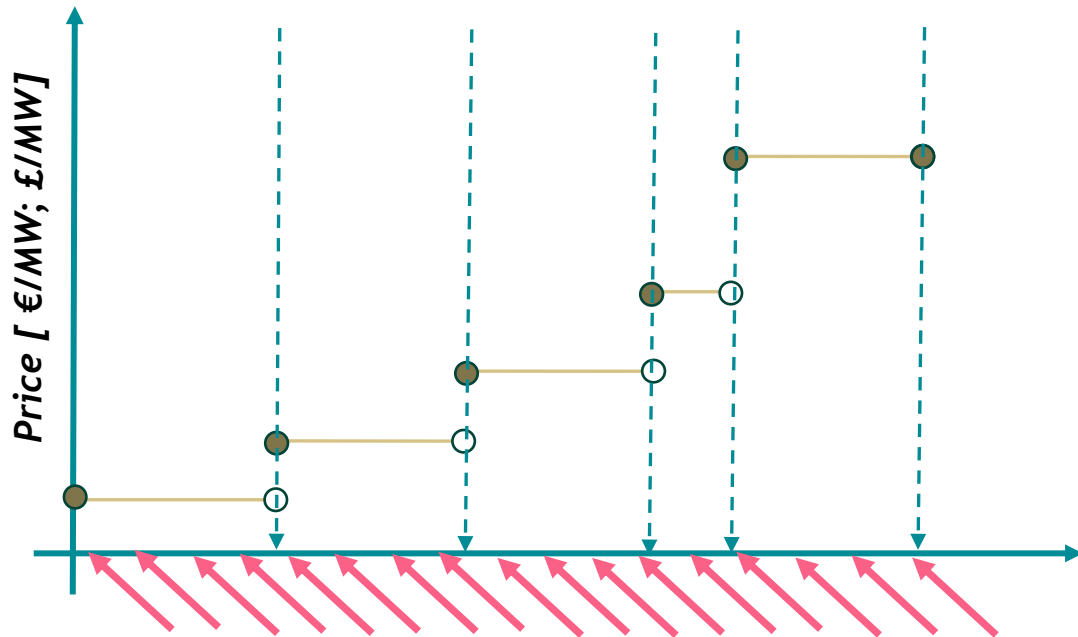
Allocated volumes

Non-divisible bids

Price [€/MW; £/MW]

Quantity [MW]
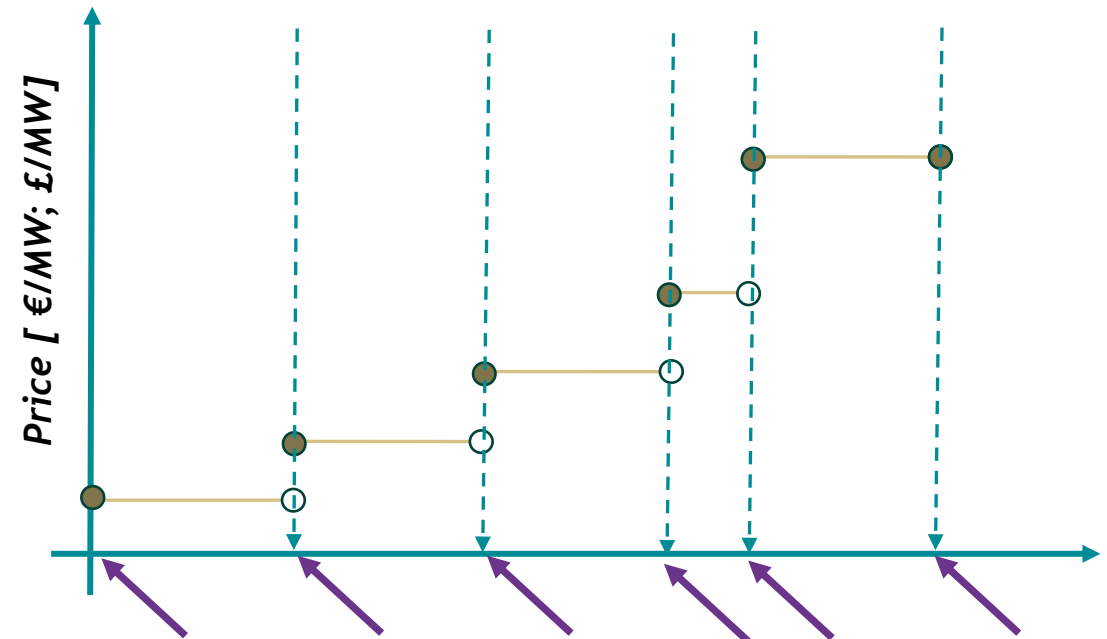
Allocated volumes

Clearing – Divisible Bids – No Constraint
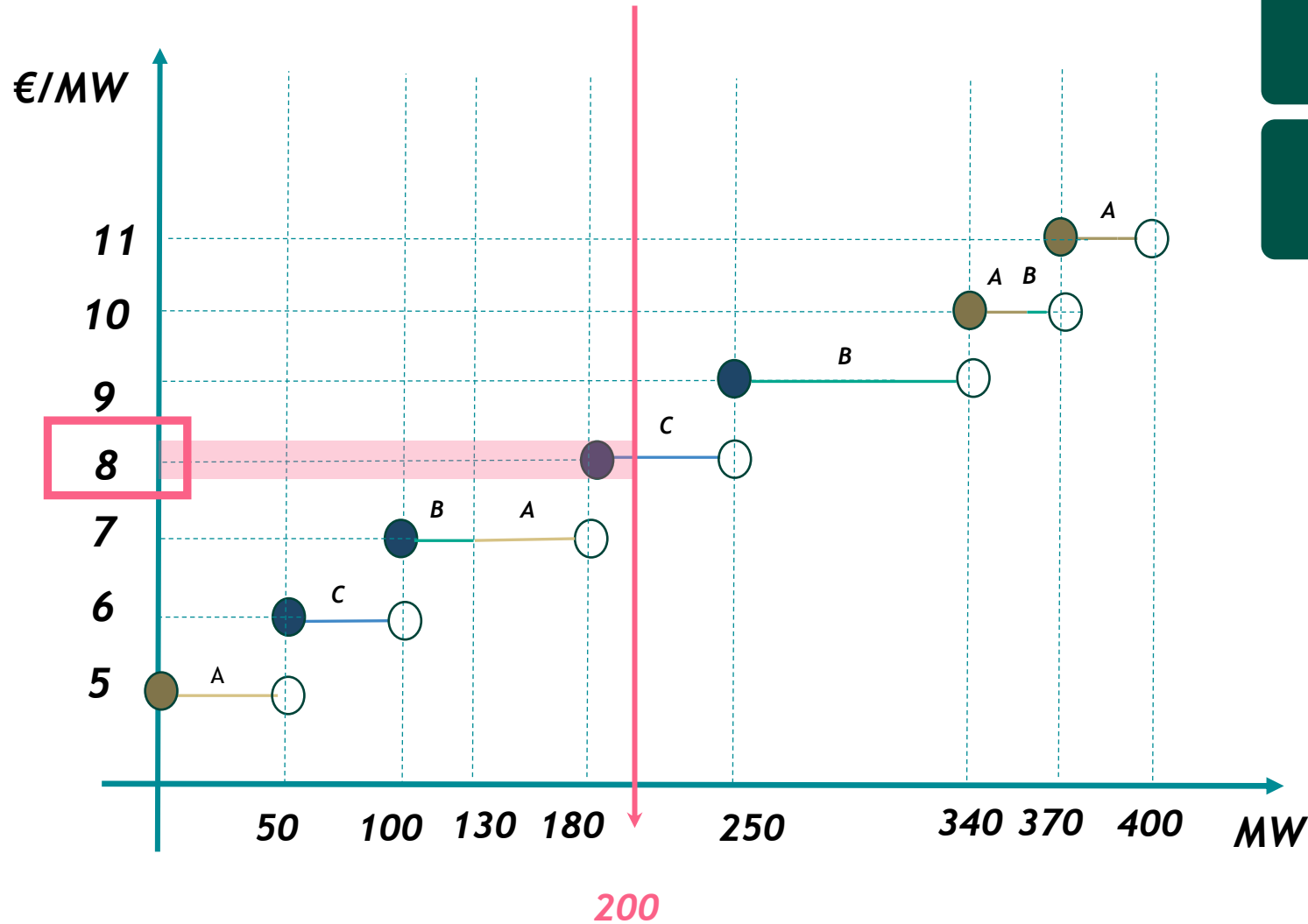
Clearing price — € 8 per MW

Procured Volume — 200 MW

Total Cost — € 1600

Units	Volume [MW]
Unit A	100
Unit B	30
Unit C	70

Clearing – Non-divisible Bids

Unit D {(9,30)}

€/MW
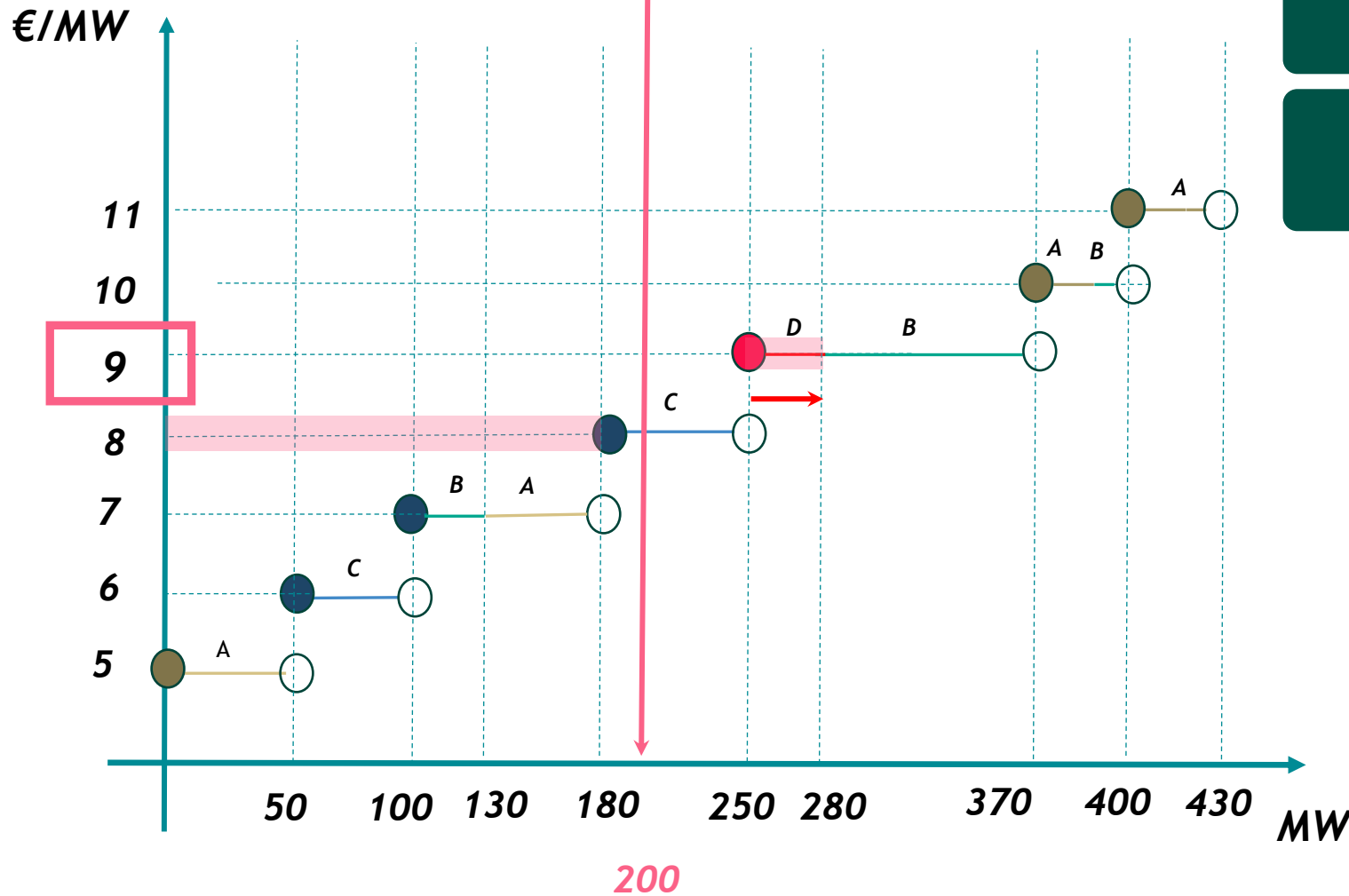
Clearing price — € 9 per MW

Procured Volume — 200+10 MW

Total Cost — € 1890

Units	Volume [MW]
Unit A	100
Unit B	30
Unit C	50
Unit D	30

Locational Considerations for DASSA (Section 4.11.2 - Consultation Paper)

- **TSOs can set**
  - Minimum jurisdictional requirements
  - Minimum zonal requirements
    - DASSA might be initiated with jurisdictional considerations and then include additional zones if it is needed

- **Two options for clearing & settlement**
  - Single clearing price per service per trading period
  - Zonal price & premium payments

DASSA Supply Function - Locational Considerations

Increments

Unit	Values		Increments	Zone
Unit A	{(5,50), (7,100), (10,120), (11,150)}		{(5,50), (7,50), (10,20), (11,30)}	Zone 1
Unit B	{(7,30), (9,120), (10,200)}		{(7,30), (9,90), (10,10)}	Zone 2
Unit C	{(6,50), (8,120)}		{(6,50), (8,70)}	Zone 1
Unit D	{(9,30)}			Zone 2

Minimum Requirement	Volume [MW]
Zone 1	70
Zone 2	70
Total	200

DASSA Supply Function

Zone 1: IE
Zone 2: NI

Option 2 – Zonal Premium
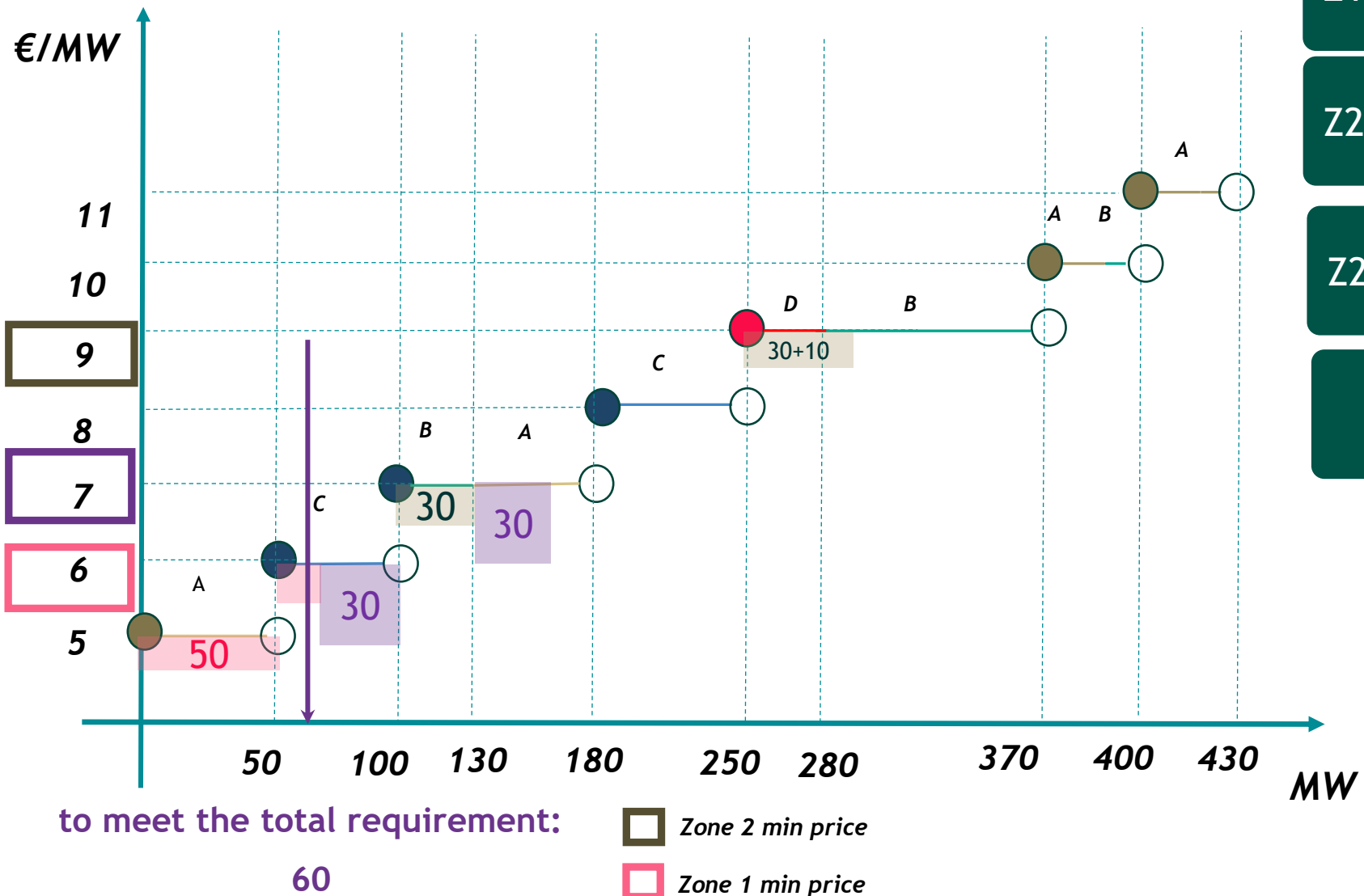
Value Functions & Constraints – Example
(Section 4.10.1 – Consultation Paper)

- HQ-FFR Minimum Requirement = 100 MW

- Additional 100 MW of FFR:
    - It can be procured from eighter HQ-FFR or LQ-FFR
    - For example, TSOs prefer to procure HQ-FFR if its price is at most € 2 higher than the LQ-FFR
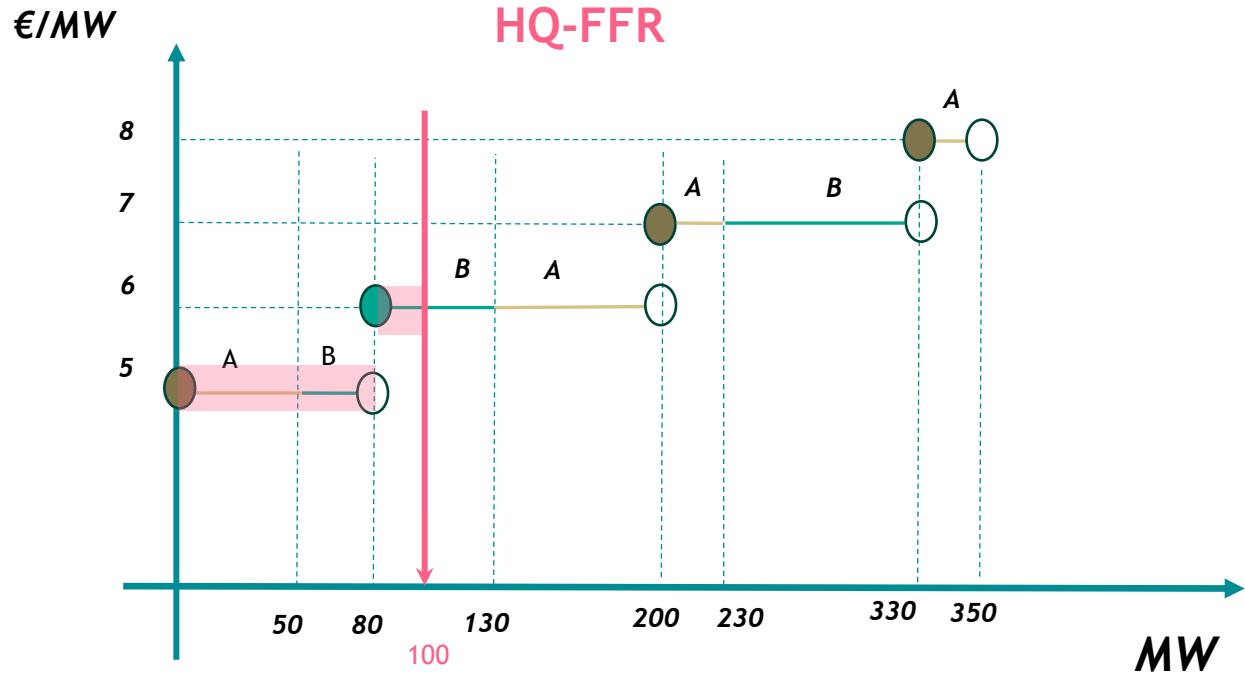
Quality Products

Increments

Unit A HQ-FFR	$\{(5,50),(6,100),(7,130),(8,150)\}$
Unit B HQ-FFR	$\{(5,30),(6,100),(200,7)\}$
Unit C LQ-FFR	$\{(4,50),(5,120)\}$
Unit D LQ-FFR	$\{(3,20),(4,50)\}$

Unit A HQ-FFR	$\{(5,50),(6,50),(7,30),(8,20)\}$
Unit B HQ-FFR	$\{(5,30),(6,70),(7,100)\}$
Unit C LQ-FFR	$\{(4,50),(5,70)\}$
Unit D LQ-FFR	$\{(3,20),(4,30)\}$

HQ-FFR Supply Function

LQ-FFR Supply Function

Clearing – HQ-FFR

€/MW

HQ-FFR

8

7

6

5

A   B

B   A

A

B

A

A

50   80   130   200   230   330   350

100

MW

Minimum	Volume [MW]
HQ-FFR	100
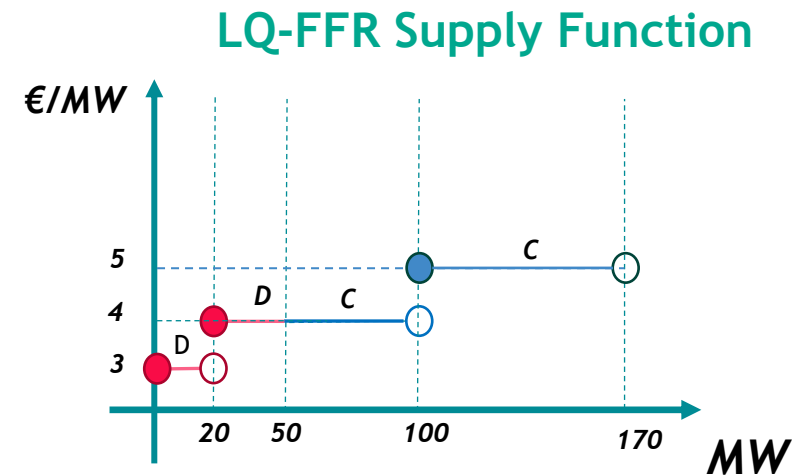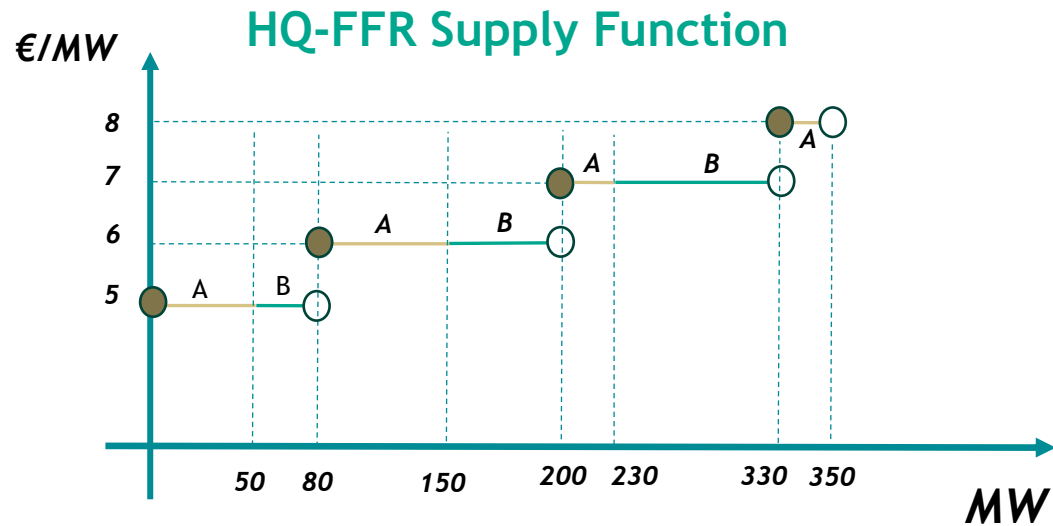
Units	Volume [MW]
Unit A	50
Unit B	50

Still another 100 MW must be met

Clearing – Scenario I – meet the full requirement from HQ-FFR

HQ-FFR

€/MW

100

8 — A
7 — A ········ B
6 — B ···· A
5 — A ···· B

50 80 130 200 230 330 350
100

**HQ-FFR** → Clearing price ○ **€ 6 per MW**

Total Cost ○ **€ 1200**
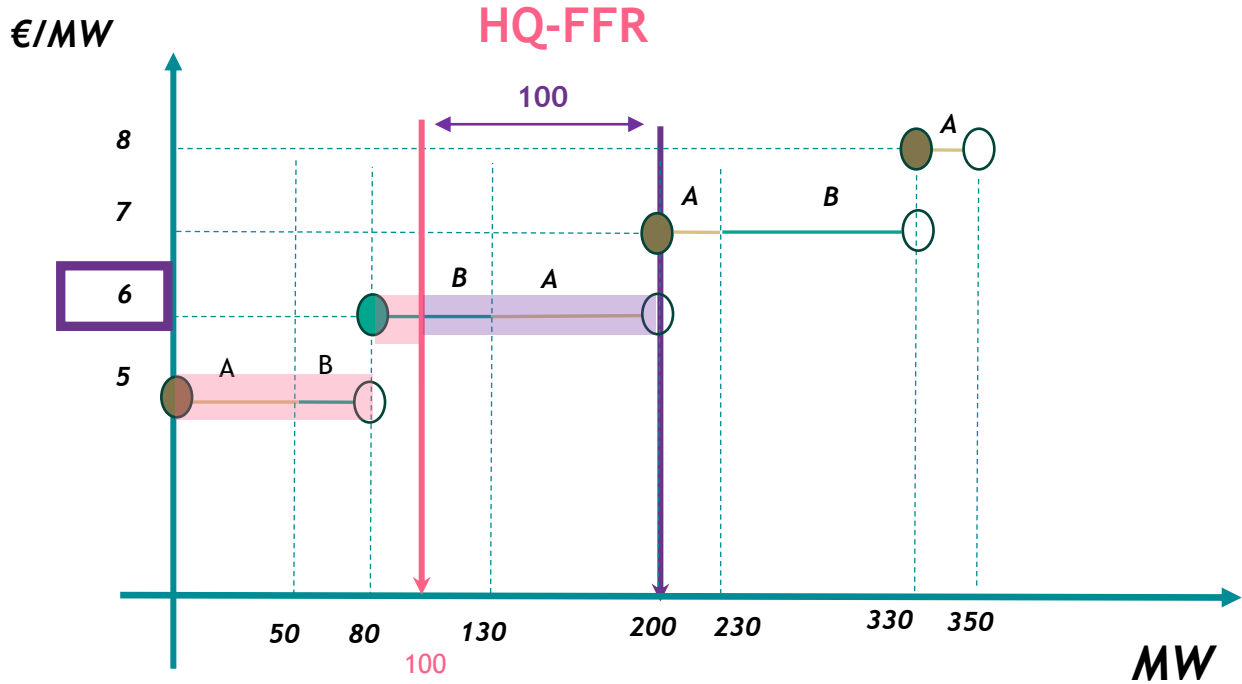
TSOs have the option to procure a portion of additional 100 MW from LQ-FFR which is cheaper (DASSA Offer Curve starts at the price of 3)
HQ-FFR Value Difference: 6-3=3

	Volume [MW]
HQ-FFR	100
+Mix	100

Units	Volume [MW]
Unit A	50+70
Unit B	50+30

LQ-FFR

€/MW

5 — C
4 — D ···· C
3 — D

20 50 100 170 MW

Scenario 2 – meet the min requirement of HQ-FFR + a mixture for the additional 100 MW
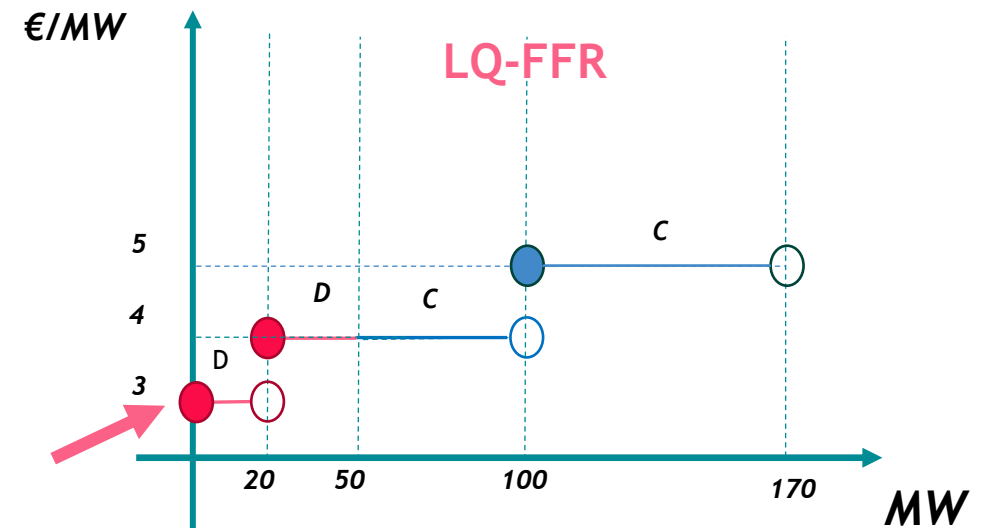
Scenario 2 – meet the min requirement of HQ-FFR + a mixture for the additional 100 MW
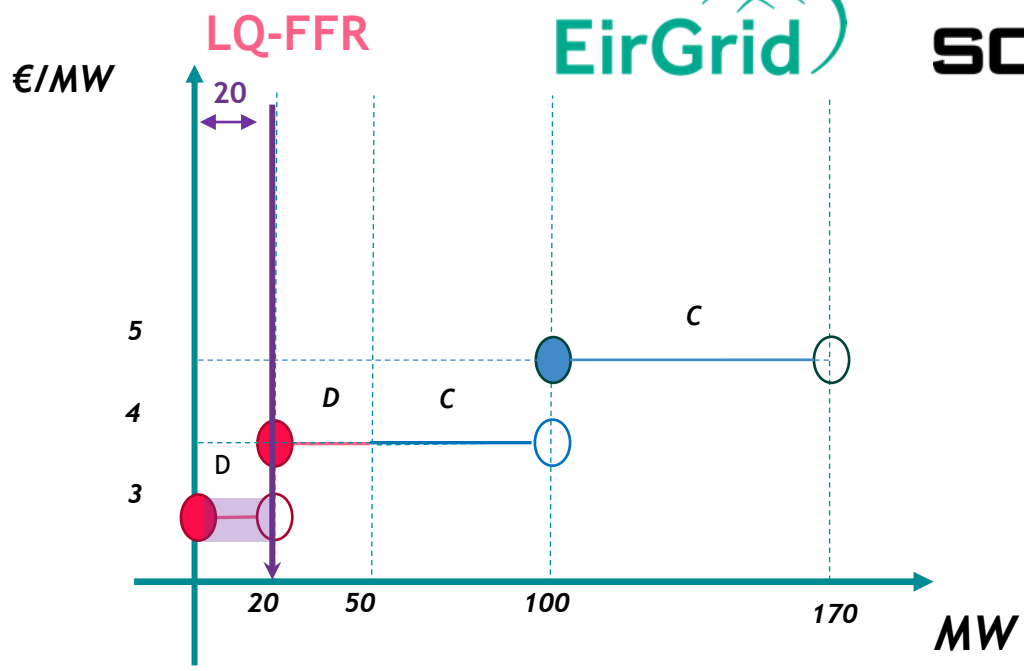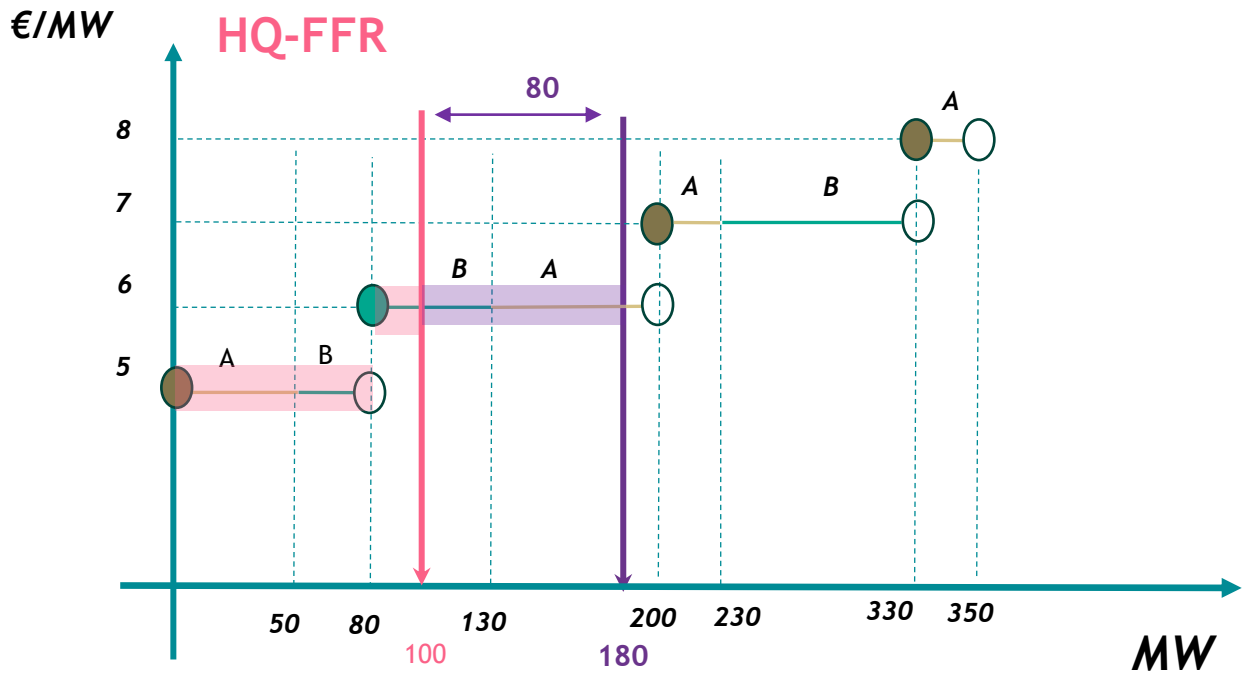
	Volume [MW]
HQ-FFR	100
+Mix	79

Units	Volume [MW]
Unit A	50+49
Unit B	50+30

LQ-FFR	Volume [MW]
Mix	21

Units	Volume [MW]
Unit C	1
Unit D	20

Next 1 MW | of LQ-FFR ·······○ € 4 per MW

Next 1 MW | of HQ-FFR ·······○ € 6 per MW

Value Difference: 6-4=2

Total Cost ·······○ € 1074+ 21x4=1158

Supplementary Considerations

Migration to DASSA

EirGrid **SONI**

Initial DASSA Implementation: Reserve Services

DS3 Tariffs
Terminate Apr 2026

Transition
May – Dec 2026

DASSA
Commence Dec 2026
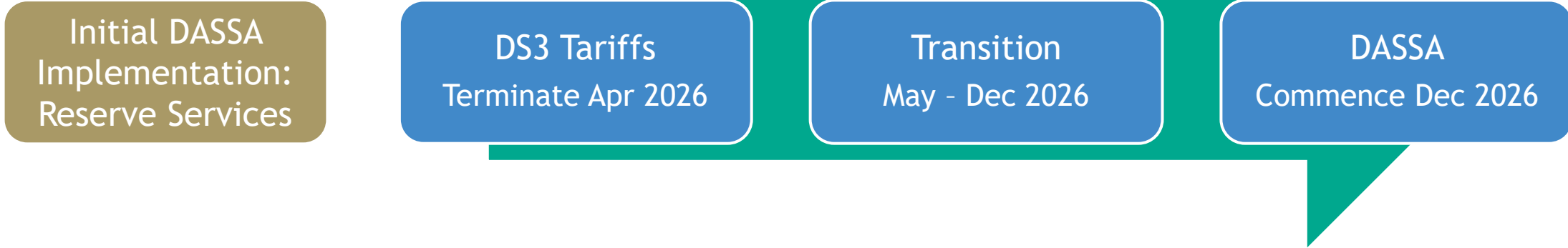
Readiness workstream: detailed market trial, training, and further engagement with industry

Migration Procurement Considerations (feedback sought from industry):
- Frequency of initial auctions and volume of services to be procured
- Default price in the FAM (to incentivise participation in DASSA)
- Value of the compensation payment
- Transfer of existing service providers' data and service capabilities to the System Services Register
- Implementation of new system services charge

Service Availability Obligation
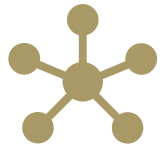
Proposal:
That a service provider will be obliged to declare its total availability to provide a service to the TSOs if it is technically capable of doing so, irrespective of whether it holds a DASSA Order.

Rationale:
o DASSA will be a partially constrained auction, all system constraints will not be accounted for.
o Post DASSA contingencies may arise that change service requirements.
o Ensuring sufficient service capability is available within the scheduling and dispatch process will be crucial for maintaining system security.
o Availability declarations reflecting the technical characteristics of service providers are important for the TSOs' real-time modelling of the behaviour of the power system.

Codified:
Proposed that requirement be stipulated in System Services Code.

Locational Considerations

Proposal Constraints Summary:

Constraint	Example	Long-run	Imposed in the DASSA	Imposed in Secondary Trading	Imposed in the FAM
Jurisdictional / zonal minima	Minimum service provision for IE/ NI	✓	✓	✓	✓
Quality / implicit bundle minima (jurisdictional/zonal)	Minimum dynamic service provision for IE/NI	✓	✓	✓	✓
Transmission line restrictions (to be considered as maxima for unit/s or zone/s)	Maximum service provision for a unit due to line congestion	✕	✕	✕	✓

System Services Firm Access:

o In SEM-22-012, the SEMC decided that Firm Access should be implemented for system services.

o TSOs' understanding is that available service providers which would not be able to physically deliver services if they were called upon to do so should not be paid.

o Subject of a separate design and industry consultation process.

Interaction of DASSA with Other Markets

Single Electricity Market (SEM)

- ❑ Proposals do not include any changes to all-island wholesale electricity market
- ❑ Proposed design accounts for SEM mechanics, e.g:
  - ▪ DASSA is to run daily after the DAM.
  - ▪ DASSA Auction Timeframe aligns with the SEM Trading Day.
  - ▪ FPNs - or alternatives, where not submitted - are to be utilised in the evaluation of service providers' commitment obligations at Balancing Market gate closure (1 hour before DASSA Trading Period).

Capacity Market

- ❑ Proposals do not alter existing Capacity Market obligations for a service provider that has also been contracted to provide system services.

European Markets

- ❑ All-island electricity market will integrate with Europe in 2026 when Celtic Interconnector comes on stream.
- ❑ Proposed design of the DASSA is intended to be compatible with the exchange of balancing capacity and balancing energy in Europe.

Q & A

Close & Next Steps

Next Steps

- ✓ Responses to the consultation should be submitted via the EirGrid or SONI consultation portals by 10 May 2024

- ✓ Post workshop, queries can be emailed to EirGrid Plc: to *FASS@Eirgrid.com* and SONI Limited: *FASSProgramme@soni.ltd.uk*

- ✓ The presentation slides will be made available on the EirGrid and SONI websites.

- ✓ Written answers to queries submitted by email will be published after the workshop.

Appendix