FASS: DASSA Top-Up Mechanism

Consultation Document

24 March 2025

EirGrid SONI

Executive Summary

In September 2024, the SEM Committee (SEMC) published its decision[1] with respect to the recommended design for the Day-Ahead System Services Auction (DASSA) that was submitted by the Transmission System Operators (TSOs) to the SEMC in July 2024. This decision did not approve a key component of the TSOs' recommendations – the Final Assignment Mechanism (FAM).

In its decision, the SEMC noted the TSOs' concerns around risks identified by the TSOs in operating a constrained system with high levels of renewable penetration and associated high levels of redispatch (which is further discussed in Section 4 of this consultation paper). As a result, the SEMC indicated that the Regulatory Authorities (RAs) were happy to work with the TSOs to develop alternative approaches to address the SEMC's concerns, which would need to comply with the following:

- A top-up auction should allow for the updating of bids up to gate closure of the latest market.
- Units should not be rewarded as a consequence of how they have been positioned post redispatch.
- Units should not be incentivised to withhold volumes from the initial DASSA auction.
- Ex post volume requirements should be set by real time volume requirements for each service rather than ex-ante forecasts.

The TSOs' view, consistent with the view expressed in the Future Arrangements for System Services – DASSA Design Recommendations Paper[2], remains that a DASSA top-up mechanism is required to bridge any gap between the outcomes of the daily auction, real-time system requirements and the actual service volume availability of DASSA Order Holders in real time. The TSOs consider that it is essential to incentivise service providers to make themselves available to provide services where they have availability in real-time beyond those volumes awarded via the DASSA. This would ensure that reserve volume requirements would continue to be met during operational timeframes (real-time), a key consideration for the TSOs in terms of system security.

Subsequent to the publication of SEM-24-066, the TSOs and Regulatory Authorities agreed to conduct a Joint Options Assessment to identify a solution which would address the SEMC concerns and ensure that appropriate incentives were in place to meet the real time system services needs of the TSOs.

The Joint Options Assessment was structured to be completed within 8 weeks, which was critical to ensure that the TSOs' IT systems requirements/design workstream would not be delayed.

The outcome of the assessment is that the Regulatory Authorities and TSOs agreed a minded to position on a suitable DASSA top-up mechanism option. The TSOs are herein consulting on the proposed mechanism, namely the "Residual Availability Determination" (RAD). This proposal features an ex-ante submission of offers (for each system service product) with an ex-post clearing based on service provider availability and real time volume requirements. The details of this proposal can be found in Section 7 of this document.

This consultation paper describes the Joint Options Assessment process and sets out the proposed option being consulted upon. The consultation will be open for 6 weeks, closing on **Friday 2 May**

[1] SEM-24-066 Future Arrangements for System Services DASSA Market Design Decision Paper (semcommittee.com)
[2] DASSA Design Recommendations Paper (EirGrid); DASSA Design Recommendations Paper (SONI)

2025. Responses to the consultation should be submitted to the EirGrid or SONI consultation portals.

Contents

Glossary

Term or Abbreviation	Meaning
DAM	Day Ahead Market
DASSA	Day Ahead System Services Auction
DS3	Delivering a Secure, Sustainable Electricity System
FAM	Final Assignment Mechanism
FASS	Future Arrangements for System Services
HLD	High Level Design
LPF	Layered Procurement Framework
PIR	Phased Implementation Roadmap
RAs	Regulatory Authorities
RAD	Residual Availability Determination
SEM	Single Electricity Market
SEMC	Single Electricity Market Committee
SSFA	System Services Future Arrangements
TSO	Transmission System Operator

Relevant SEMC Decisions

SEM-20-044 System Services Future Arrangements Scoping Paper
SEM-21-021 System Services Future Arrangements Decision Paper 1
SEM-22-012 System Services Future Arrangements High-Level Design Decision
SEM-23-103 System Service Future Arrangement Phase III: Detailed Design & Implementation Decision Paper
SEM-24-066 Future Arrangements for System Services DASSA Market Design Decision Paper

1 Introduction

1.1 Background

EirGrid plc is the licenced electricity Transmission System Operator (TSO) in Ireland, and SONI Ltd is the licensed TSO in Northern Ireland. It is our job to manage the electricity supply and the flow of power from generators to consumers. Electricity is generated from gas, coal and renewable sources (such as wind, solar and hydro power) at sites across the island. The high voltage transmission network then transports electricity to high demand centres, such as cities, towns and industrial sites.

We have a responsibility to facilitate connections to the power system, including increased levels of renewable sources, while continuing to ensure that the system operates securely and efficiently. The respective TSO licences include a requirement for the relevant TSO to contract for the provision of system services.

Currently, under the DS3 System Services (Volume Uncapped) Regulated Arrangements, the procurement of system services is based on technical qualification and availability-based tariffs. In enabling a transition to a low carbon energy system and ensuring efficient procurement of relevant services, while ensuring compliance with EU requirements, there is a need to move to a more competitive procurement process.

1.2 System Services Future Arrangements

The System Services Future Arrangements (SSFA) programme was officially launched by the SEM Committee (SEMC) in July 2020 with the publication of a Scoping Paper (SEM-20-044)[3] for public consultation.

As set out in the SEMC's SSFA Decision Paper 1 (SEM-21-021)[4], the objective of the programme 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.*"

In April 2022, the SEMC published the SSFA High-Level Design (HLD) Decision (SEM-22-012)[5]. The HLD set out a framework for the competitive procurement of system services, consisting of the following:

1. **Daily Auction Framework** for the procurement of some of the system services through a daily spot market
2. **Layered Procurement Framework (LPF)** comprising contracts with a term of more than a day and up to 12 months.
3. The existing **Fixed Contract Framework** to continue to be used to remove barriers to entry for new technologies with the use of more long-term contracts and ensure sufficient volumes of system services, as required.

[3] SEM-20-044 System Services Future Arrangements Scoping Paper.pdf (semcommittee.com)
[4] SEM-21-021 System Services Future Arrangements Decision Paper 1.pdf (semcommittee.com)
[5] SEM-22-012 System Services Future Arrangements High-Level Design Decision Paper (semcommittee.com)

In December 2023, the SEMC published its SSFA Phase III: Detailed Design & Implementation Decision Paper (SEM-23-103)[6], in which it decided that the commercial arrangements as described in the HLD should be progressed by the TSOs.

In September 2024, the SEMC published its Future Arrangements for System Services DASSA Market Design Decision Paper (SEM-24-066)[7] with respect to the TSOs' recommended design for the Day-Ahead System Services Auction (DASSA)[8] that was submitted to the SEMC in July 2024. This decision did not approve a key component of the TSOs' recommendations – the Final Assignment Mechanism (FAM).

As a result of the SEMC decision and the view of the TSOs that a DASSA top-up mechanism to incentivise availability of system services in real time is essential to the FASS arrangements, the TSOs and Regulatory Authorities (RAs) agreed to conduct a Joint Options Assessment to identify a solution which would address the SEMC concerns while ensuring that appropriate incentives were in place to meet the real time system services needs of the TSOs.

The outcome of the Joint Options Assessment is that the RAs and TSOs propose a mechanism called the Residual Availability Determination (RAD) for consultation.

1.3 Purpose of this Paper

This consultation paper sets out the proposals for the RAD, in accordance with SEMC decision SEM-24-066, and invites stakeholder feedback on this proposal. This consultation paper also describes the Joint Options Assessment process utilised by the RAs and TSOs in developing the proposed alternative top-up mechanism.

1.4 Structure of Paper

This paper is structured as follows:

- Section 1: Introduction
- Section 2: TSOs' Recommendations for FASS design
- Section 3: SEMC Decision RE: DASSA Top-Up Mechanism
- Section 4: Requirement for DASSA Top-Up Mechanism
- Section 5: Relevant Compliance Considerations
- Section 6: Joint RA-TSO Options Assessment for DASSA Top-Up Mechanism
- Section 7: Proposed Option: "Residual Availability Determination"
- Section 8: Summary of Consultation Questions
- Section 90: Next Steps
- Section 10: DASSA and RAD Worked Examples

[6] SEM-23-103 System Service Future Arrangement Phase III: Detailed Design & Implementation Decision Paper (semcommitte.com)
[7] SEM-24-066 Future Arrangements for System Services DASSA Market Design Decision Paper (semcommittee.com)
[8] DASSA Design Recommendations Paper (EirGrid); DASSA Design Recommendations Paper (SONI)

1.5 Next Steps

This consultation will be open for 6 weeks, closing on **2 May 2025**. Responses to the consultation should be submitted to the EirGrid (link) or SONI (link) consultation portals.

Should stakeholders have any questions or comments during the consultation period these can be submitted FASS@Eirgrid.com or FASSProgramme@soni.ltd.uk.

An industry workshop, at which the TSOs will present our proposals and facilitate a Q&A for interested parties, will take place in April 2025 (the date and location are to be confirmed and will be communicated to customers and stakeholders in due course).

Following this consultation, the TSOs will submit a recommendations paper to the SEMC for decision, timelines will be confirmed in the next iteration of the Phased Implementation Roadmap (PIR) V3.0.

2 TSOs' Recommendations for DASSA Design

Figure 1 below provides an overview of the components and processes of the FASS DASSA design as set out in the TSOs' DASSA Design Recommendations Paper[9]. [Note: the FAM element of the design was not approved by the SEMC decision].

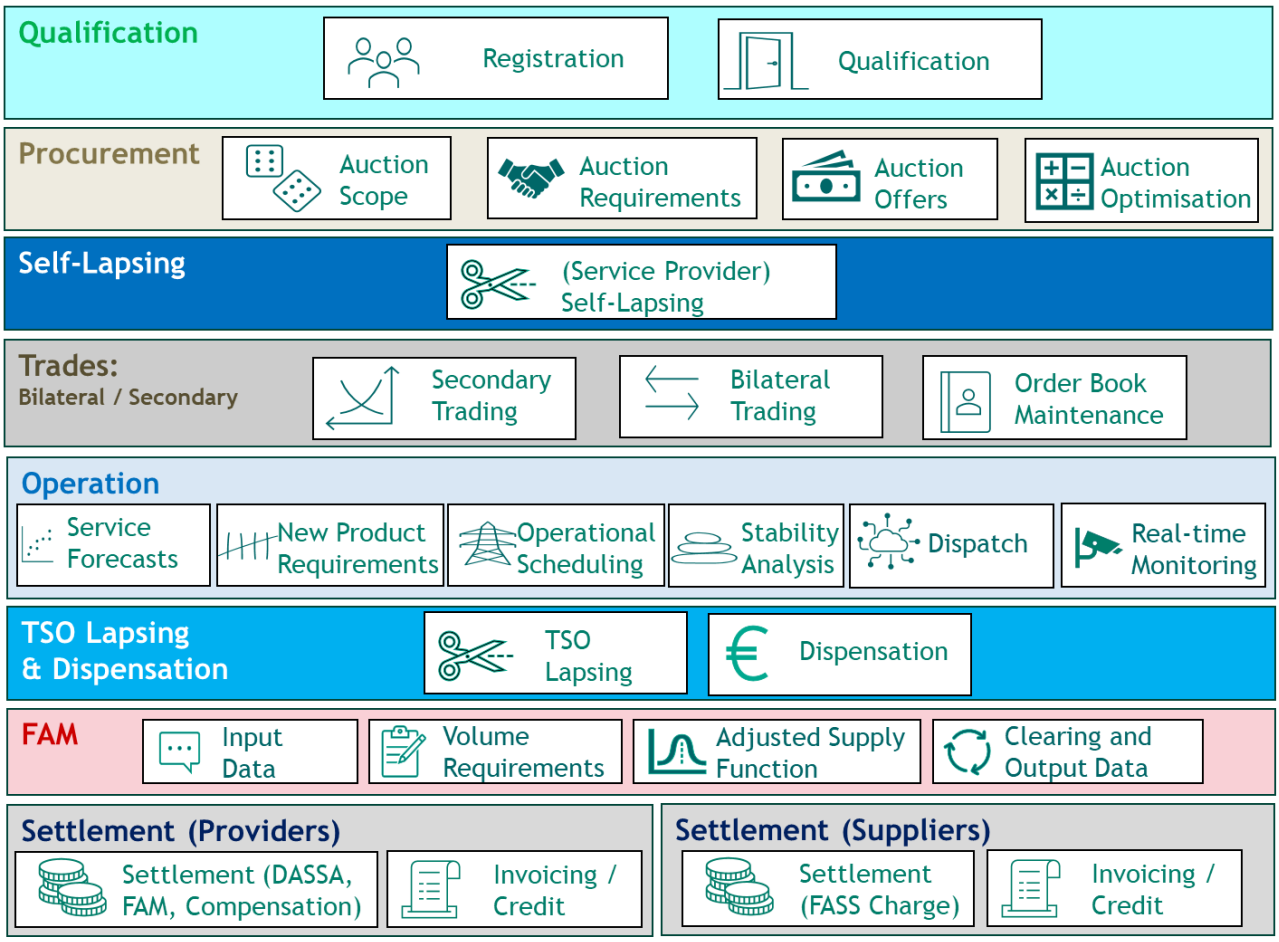


Figure 1: FASS components: original TSO recommendation

The FASS design components included in the TSOs' recommendation paper are summarised as follows:

- Qualification:
  - Process by which a party and unit register and qualify for system service products and be eligible for participation in the DASSA.
- Procurement:
  - Setting of the DASSA volume requirements, auction submission offers, creation of a supply curve, clearing of the auction (per product, zone and quality category) and award of a cleared DASSA Order to service providers.
- Self-Lapsing:

[9] DASSA Design Recommendations Paper (EirGrid); DASSA Design Recommendations Paper (SONI)

    - Ability of a service provider with a cleared DASSA Order to self-lapse (fully or partially) its DASSA Order.
- Secondary/Bilateral Trading:
    - Ability for qualified service providers to actively trade cleared DASSA Orders (fully or partially) via Buy or Sell orders in secondary / bilateral trading.
- Operations:
    - Maintaining scheduling and dispatch of the power system.
- TSO Lapsing and Dispensation:
    - Ability of the TSOs to lapse cleared DASSA Orders and grant dispensation of Compensation Payments (if applicable).
- Final Assignment Mechanism (FAM):
    - Ex-post determination of real-time system needs, creation of an adjusted supply curve based on available service providers and clearing of the FAM of available service providers, in merit, for a given real-time volume requirement.
- Settlement (Service Providers):
    - Managing invoicing and processing of DASSA, FAM and Compensation Payments.
- Settlement (Suppliers):
    - Managing invoicing and processing of the FASS supplier charge.

The recommendations paper on the DASSA design was submitted by the TSOs to the SEMC in July 2024, following industry consultation. Separate consultations have been conducted with respect to other aspects of the FASS design (including the FASS Charge, Volume Forecasting Methodology etc).

3 SEMC Decision on DASSA Top-Up Mechanism

As noted in previous sections, the TSOs submitted a DASSA Design Recommendations Paper to the Regulatory Authorities in late July 2024, which contained a component named the Final Assignment Mechanism (FAM). The proposed FAM was an ex-post reconciliation top-up auction, ensuring service volume needs would be met when there are additional real-time service needs or where service provider availability in real-time does not align with volumes awarded in the DASSA. The FAM allocates payments based on merit order to service providers available during the Auction Timeframe who did not hold a DASSA Order or had additional capacity above their DASSA Order volume. The FAM incentivises all service providers to be available, bridging the gap between auction outcomes and real-time service needs.

In the corresponding SEMC Decision Paper in September 2024, the SEMC indicated that the TSOs' proposals with the respect to the FAM were not approved:

- *SEMC Decision*[10]*: "The SEM Committee does not approve the introduction of the FAM. The TSOs may propose alternatives to the FAM for delivery either alongside the scheduled market go-live date or post go-live".*

The SEMC had a number of concerns with the FAM, as set out below:

- *"The SEM Committee considers the daily auction framework for procurement of system services does not robustly incentivise availability as intended by the TSOs. There is a need to ensure only units that position themselves ex-ante for service provision are rewarded through System Services markets. Moreover, given there will be no understanding of the FAM volume requirement ahead of time, there will be no certainty of achieving a FAM position for bidders. This is therefore unlikely to have any influence on how units enter the intra-day energy markets and does not provide any robust incentive to position a unit for ex-ante reserve availability. The SEM Committee considers that it would simply act as a compensation mechanism for units based on what their position ended up being at gate closure, as opposed to a mechanism which incentivises units to position their portfolio of assets across energy and system services provision.*
- *The inability to update bids in the FAM means that the true value of closer to real time service provision is not reflected in the FAM, as the DASSA bids are essentially outdated due to updated market positions.*
- *The introduction of a fully automated secondary market and the removal of compensation payment protections for providers mitigates the need for a top-up auction as the market mechanisms should now encourage outcomes which ensure providers are physically able to provide.*
- *The SEM Committee understands that units who are repositioned in real time will remain categorised as DASSA winners, but their volumes will be released into the FAM for further procurement. This does not align with the HLD that the total volume procured must not exceed the total volume requirement.*

[10] SEM-24-066, Section 5.1, page 31.

- *Measures such as the zero volume bid and volume capped bidding recommendations encourage reduced liquidity in both the DASSA and the secondary market. The SEM Committee considers that a secondary market which is fully automated and allows trading up to 60 minutes before a trading period adequately allows all technologies to participate, and the FAM risks reducing incentives for participation, reducing secondary market liquidity and reducing the likelihood of all technologies being able to establish an ex-ante market position.*
- *The FAM volume is intended to meet any deficit in the DASSA volume, however it would be more appropriate for it to make up any deficit in the real-time volume requirement once the available DASSA winning volumes have been accounted for. The third worked example in the HLD (SEM-22-012, page 95) illustrates this.*

The SEMC however noted the concerns around risks identified by the TSOs in operating a constrained system with high levels of renewable penetration and associated high levels of redispatch (which is further discussed in Section 4 of this consultation paper). In the decision paper, the SEMC indicated that the RAs were happy to work with the TSOs to develop alternative approaches to address the SEMC concerns, which would need to comply with the following:

- A top-up auction should allow for the updating of bids up to gate closure of the latest market.
- Units should not be rewarded as a consequence of how they have been positioned post redispatch.
- Units should not be incentivised to withhold volumes from the initial DASSA auction.
- Ex post volume requirements should be set by real time volume requirements for each service rather than ex-ante forecasts.

4 Requirement for DASSA Top-Up Mechanism

SEM-22-012[11] provides for a DASSA top-up mechanism (ex-post), to address additional procurement requirements beyond those identified for the DASSA:

> *"The SEM Committee has decided to proceed on the basis of a daily ex-ante market auction to take place at some point after the closure of the DAM. This will then be followed by an ex-post physical top-up auction, based on the TSOs physical dispatch of the system, to take place if there are insufficient System Service volumes procured through the ex-ante market auction."*

The TSOs have consistently maintained that a DASSA top-up mechanism is required to be implemented for DASSA go-live to bridge any gap between the outcomes of the daily auction, real-time system requirements and the actual service volume availability of DASSA Order Holders in real time. The TSOs consider that it is essential to incentivise service providers to make themselves available to provide services where they have availability in real-time beyond those volumes awarded via the DASSA. This would ensure that reserve volume requirements would continue to be met during operational timeframes (real-time), a key consideration for the TSOs. In addition to an incentive to be available, the System Services Code will capture service providers' obligations to declare their availability to provide a service to the TSOs if they are technically capable of doing so, irrespective of whether they hold a DASSA Order for the service volume.

There may be several reasons for a discrepancy between the outcomes of the DASSA and the availability of DASSA Order Holders in real-time, including:

- Holders of a DASSA Order may not meet their commitment obligation (i.e. a submitted FPN may not be compatible with the DASSA Order) and may be lapsed by the TSOs
- Holders of a DASSA Order may lapse their Order.
- Holders of a Confirmed DASSA Order may declare themselves unavailable to provide a service.
- Holders of a DASSA Order may be moved away from a compatible position by the TSOs for system reasons.

The TSOs are being supported by external partners who are independently analysing whether there is a need for a DASSA top-up mechanism to ensure that real time operational reserve requirements continue to be met.

In addition, an ex-post DASSA top-up mechanism will enable service providers such as wind, solar and demand response units, that only know their availability close to real-time, to be paid for the provision of services where there is a real-time need, the service providers are available, and they are in merit.

It is also important that the same constraints (e.g., quality, zone) utilised in the DASSA and secondary / bilateral trading are observed in any DASSA top-up mechanism.

[11] SEM-22-012, Section 4.3, page 44.

5 Relevant Compliance Considerations

The TSOs recognise that all elements of the FASS arrangements must be aligned with relevant EBGL provisions. As part of the Joint Options Assessment, a summary of the relevant provisions was utilised to enable a compliance assessment of each option considered. The summary of the compliance provisions is found in Table 1: Key compliance provisions.

Table 1: Key compliance provisions

Compliance Requirement	Compliance Definition / Interpretation
EBGL 3.1.(a)	Fostering effective competition, non-discrimination and transparency in balancing markets;
EBGL 3.1.(e)	Ensuring that the procurement of balancing services is fair, objective, transparent and market-based, avoids undue barriers to entry for new entrants, fosters the liquidity of balancing markets while preventing undue distortions within the internal market in electricity
EBGL 3.1.(f) & (g)	Facilitating the participation of demand response & renewables.
EBGL 3.2.(e)	Ensure that the development of the forward, day-ahead and intraday markets is not compromised;
EBGL 3.2.(f)	Respect the responsibility assigned to the relevant TSO in order to ensure system security, including as required by national legislation;
EBGL 4.1	It is the responsibility of TSOs to propose Ts & Cs, methodologies.
EBGL 18.4.(a)	TSOs proposed Ts & Cs shall define reasonable and justified requirements for the provisions of balancing services;
EBGL 32.2.(b)	Ts & Cs for procuring BC shall be: 1) On short-term basis 2) Market based to the extent possible and where economically efficient
EBGL 44.1 & Recital 17	The settlement processes shall: ensure that imbalances are settled at a price that reflects the real time value of energy; imbalance prices should reflect the real-time value of energy.
2019/943 3.(b)	Market rules shall encourage free price formation and shall avoid actions which prevent price formation on the basis of demand and supply;
2019/943 6.1.(d)	Balancing markets, including prequalification processes, shall be organized in such a way as to respect the need to: accommodate the increasing share of variable generation, increased demand responsiveness and the advent of new technologies.
2019/943 6.3	Balancing markets shall ensure operational security.
2019/ 943 6.5	The imbalances shall be settled at a price that reflects the real-time value of energy.

6 Joint RA-TSO Options Assessment for DASSA Top-Up Mechanism

6.1 Introduction

Consequent to the SEMC decision and the consistent view of the TSOs that a DASSA top-up mechanism to incentivise system services availability in real time is essential to the FASS arrangements, the TSOs and RAs agreed to conduct a Joint Options Assessment to identify an option which would address the SEMC concerns and ensure that appropriate incentives were in place to meet the system services needs of the TSOs.

The Joint Options Assessment was structured to be completed within 8 weeks, which was critical to ensure that the TSO IT systems requirements/design workstream would not be delayed. In summary, the approach to the Joint Options Assessment was as follows:

- Determination of Assessment Criteria (see Section 6.2).
- Determination of Options (see Section 6.3).
- Completion of Options Assessment (see Section 0).
- Alignment on Proposed Option (see Section 6.5).

6.2 Determination of Assessment Criteria

To determine how the options would be assessed, the TSOs selected a set of criteria that had previously been used in evaluating FASS design proposals; these were discussed, weighted appropriately and agreed with the RAs. The assessment criteria are summarised in Table 2: Assessment Criteria.

Table 2: Assessment Criteria

Criteria	Score Range
Consumers	1 = Inefficient economic outcomes and/or not aligned across markets 5 = Delivers full efficiency and alignment across markets
System Need	1 = No contribution towards system security 5 = Fully aligned with support to system security
Compliance	1 = No level of compliance[12] 5 = Fully compliant
Deliverability	1 = Complex / high risk to deliver to timelines and not adaptable 5 = Simple, easy to deliver per timelines and highly adaptable
Enable the Energy Transition	1 = No enablement of energy transition 5 = Full enablement of energy transition
Investors	1 = Complex to understand, unclear investment clarity, not transparent 5 = Simple to understand, clear investment information and transparent

[12] Any assessment of non-compliance with the applicable code(s) did not account for whether it was possible that a derogation could be granted.

6.3 Determination of Options

The options in Table 3 below were considered as part of the options assessment conducted by the TSOs and RAs, covering a broad range of approaches.

Note: Some of the options refer to procurement based on "availability". In these options, "availability" means that there is no obligation for a service provider to withhold volumes from other markets (unlike the DASSA with its associated commitment obligations). Instead, procurement of "availability" means that a service provider is paid if it is available to provide a specific system services product in real-time.

Table 3: Joint Options Assessment: considered options

Option	Key Features
1: No Additional Procurement Mechanism	This option proposed that the DASSA would be the only procurement mechanism for reserve services, with no other mechanism to procure additional volume to meet real-time system service needs. • DASSA is the only means of procuring reserve services. • DASSA is the only means of payment for service providers, therefore they are incentivised to participate in the DASSA and secondary trading. • No additional top-up mechanism.
2: Grid Code Enhancements	Option 2 proposed that the Grid Code be enhanced such that service providers would be required to declare and make availabe their full technical system service capability to the TSOs to meet any additional real-time system service requirement above that procured in the DASSA. There would be no procurement mechanism other than the DASSA and service providers would not be remunerated for providing any volume above any awarded DASSA volume. Service providers would not be obligated to withhold from other markets. • Grid Code updated to require all service providers to declare and make available their full technical system services capability. • All available system services capability will be accessible by the TSOs in real-time. • Service providers will not be rewarded for being available for additional volumes.
3: Over Procure in DASSA	Under this approach, the TSOs would significantly over-procure in the DASSA so that sufficient additional volumes would be available to ensure real-time system needs would be met. The DASSA would remain the only procurement mechanism for system services. • Over procure system service volume. • DASSA is the only means of procuring system services. • DASSA is the only means of payment for service providers. • No additional top-up mechanism.
4: Procure Baseload Services via LPF Auction	Option 4 proposed that a baseload volume of system services would be procured on a monthly, quarterly or bi-annual basis (through an LPF auction) ahead of the DASSA, with an obligation on a service provider to be available for any awarded volume, supported by an incentive regime. The DASSA would remain the primary procurement mechanism in terms of service volume, with the procured baseload volumes aimed at meeting additional real-time system requirements. • Monthly/quarterly/bi-annual auctions for TSO-defined system services volumes. • Auctions in advance of DASSA, procuring "baseload" volumes i.e. a certain volume of system service. • DASSA remains primary auction. • Regular procurement auction cycles.

Option	Key Features
4ii: LPF with Availability Commitment	Under this option, the TSOs would procure additional system service volumes on a monthly, quarterly or bi-annual basis (through an LPF auction) ahead of the DASSA. Service providers would be able to participate in other markets but would be required to make available any residual volumes to be utilised in real-time. Service providers awarded contracts under this mechanism would receive payments irrespective of eventual availability. The DASSA would remain the primary procurement mechanism for services. • Monthly/quarterly/bi-annual auctions for TSO-defined system services volumes. • Contracted service providers maintain volumes not cleared in other markets available. • DASSA remains primary auction. • Regular procurement auction cycles.
5: Procure Baseload Services via LPF Contracts <6 Months	Option 5 proposed that a baseload volume of system services would be procured competitively via fixed contract arrangements of up to six months in duration, with an obligation on a service provider to be available for any awarded volume, supported by an incentive regime. The DASSA would remain the primary procurement mechanism in terms of service volume, with the procured baseload volumes aimed at meeting additional real-time system requirements. • Contractual arrangement for volumes procured prior to the DASSA. • Volumes procured competitively via Request for Proposal (RFP) every <=6 months. • DASSA remains the primary mechanism for procurement of reserve.
6: Procure Baseload Services via LPF Contracts >13 Months	Option 6, like Option 5, proposed that a baseload volume of system services would be procured competitively via fixed contract arrangements, with an obligation on a service provider to be available for any awarded volume, supported by an incentive regime. However, in this case the contracts would be for periods greater than 13 months. The DASSA would remain the primary procurement mechanism in terms of service volume, with the procured baseload volumes aimed at meeting additional real-time system requirements. • Contractual arrangement for volumes procured prior to the DASSA. • Volumes procured competitively via Request for Proposal (RFP) every >13 months. • Must be re-procured/renewed every 13 months. • DASSA remains the primary mechanism for procurement of reserve.
7: Reconciliation of Real-Time Needs	Option 7 proposed that an analysis of real-time system needs be performed ex-post to identify any additional volumes that needed to be procured via an ex-post reconciliation mechanism. Service providers would be paid a reconciliation payment if in merit (which would be determined based on price submission) in addition to any DASSA Order payment. • Identify real-time system needs not procured in the DASSA (residual needs). • Identify assets that meet real-time needs and assign volumes. • Determine the remuneration rate applicable for residual needs. • Remunerate assets providing residual needs.
8: Changes to BM Rules	With this approach, the Balancing Market rules would be amended such that simple offers rather than complex offers would be used. The effect of this change would be that service providers would be remunerated on a pay-as-clear basis in the Balancing Market, in addition to any DASSA Order payment. The DASSA would remain the primary procurement mechanism. Service providers would not be required to withhold capacity from other markets. • No additional top-up mechanism. • Use simple instead of complex BM offers for system services.

Option	Key Features
	• DASSA remains the primary means of procuring system services. • Reserve re-positioning remunerated pay-as-clear instead of pay-as-bid.

6.4 Completion of Options Assessment

In order to ensure that the Joint Options Assessment would take all views into account, the options assessment was first carried out separately and independently by the TSOs and RAs. To ensure that the options were sufficiently described to ensure consistent assessment, each considered all the following:

- Key benefits
- Key challenges
- Compliance assessment (see applicable requirements in Section 5)
- "Day in the Life" overview
- Worked example

A summary of the TSO-identified benefits and challenges is set out in Table 4, which was used as an input to the discussions with the RAs during the Joint Options Assessment.

Table 4: Key benefits/challenges

Option	Key benefits	Key challenges
1: No Additional Procurement Mechanism	• Simpler IT solution, eliminating the need for a new top-up mechanism. • Encourages stronger participation and commitment from service providers during the DASSA auction, as no other mechanism exists. • Reduces TSO operational overhead and administrative burden associated with running a separate top-up mechanism. • Unlikely to have impact on FASS PIR or IT delivery timelines.	• Lack of flexibility to adjust for unforeseen system constraints, leading to potential system security issues. • Technologies with less predictable availability (e.g., wind, solar) will be unable to fully participate as positions not known until close to real-time. • Relies on the secondary market and Balancing Market to address any shortfalls post-DASSA. • Increased risk of reserve shortfalls in real-time with no mechanism to correct volume deficits. • Potential imbalance costs may arise due to insufficient reserve procurement. • Greater reliance on the Balancing Market to resolve system service product needs in real-time could lead to inefficient dispatch and operational costs. • Service providers may lack incentives to maintain availability beyond DASSA commitments and (minimum) grid code obligations, risking system reliability.

Option	Key benefits	Key challenges
		• Difficulties in managing renewable integration without the ability to adjust reserves post auction. • Potential increase in costs to consumers due to less competitive procurement processes. • No clear investment signal to investors (as no remuneration for services delivered in addition to Final DASSA Orders).
2: Grid Code Enhancements	• Explicit obligation on all system services providers. • Ensures system security needs are met. • No effect on IT solution requirements. • Unlikely to have an impact on FASS PIR or IT delivery timelines.	• Additional volumes which must be available / required will not be remunerated. • May be difficult to enforce / monitor and could result in additional operational costs to undertake such activities. • May not receive industry support. • No incentive to remain available (beyond the Grid Code provisions). • No clear investment signal to investors (as no remuneration for services delivered in addition to Confirmed DASSA Orders). • Grid Code changes may be difficult to clearly define, given that not all units are available for all system services. • Significant additional effort required to progress Grid Code modifications through the mod panel.
3: Over Procure in DASSA	• Simpler IT solution, eliminating the need for separate (e.g., ex-post) top-up mechanism. • Encourages stronger participation and commitment from service providers during the DASSA auction, as no other mechanism exists. • Reduces TSO operational overhead and administrative burden associated with running a separate top-up mechanism. • Unlikely to have impact on FASS PIR or IT delivery timelines. • Additional volume of services procured increases likelihood of system needs being met.	• Less predictable technologies (e.g., wind, solar) will be unable to fully participate as positions not known until close to real-time. • Relies on the secondary market and Balancing Market to address any shortfalls post-DASSA. • Inefficient process as may lead to TSOs over procuring at additional cost; pollutes imbalance costs and balancing energy / capacity. • Potential volume deficit in real-time. • Potential imbalance costs may arise due to insufficient reserve procurement.

Option	Key benefits	Key challenges
		• Greater reliance on the Balancing Market could lead to inefficient dispatch and operational costs. • Lack of flexibility to adjust for unforeseen system constraints, leading to potential system security issues. • Service providers may lack incentives to maintain availability beyond DASSA commitments and (minimum) Grid Code obligations, risking system reliability. • Difficulties in managing renewable integration without the ability to adjust reserves post auction. • Potential increase in costs to consumers (imperfections). • No clear investment signal to investors (as no remuneration for services delivered in addition to Final DASSA Orders).
4: Procure Baseload Services via LPF Auction	• Structured mechanism for procuring (balancing capacity) system services ahead of day-ahead procurement (DASSA) and (energy) Balancing Market. • Facilitates additional revenue certainty for service providers, in advance of day-ahead stage. • Enables some additional confidence for the TSOs regarding volumes secured. • Reduces reliance on last minute procurement mechanisms, enhancing operational efficiency. • Creates a predictable market environment for service providers. • Contributes to overall security as some volumes are secured well in advance and with a predictable cost.	• Potential liquidity issues in DASSA as LPF may remove volumes from DASSA. • Relies on the secondary market and Balancing Market to address any shortfalls post-DASSA. • Increased risk of reserve shortfalls in real-time with no mechanism to correct volume deficits; provides no guarantee of meeting real-time requirements. • Significant reserve capacity may be excluded from DASSA and energy markets, leading to inefficiencies. • Additional code development and IT upgrades increase FASS implementation complexity. • Not aligned with baseline IT solution requirements; changes could impact on DASSA Go-Live and costs to be passed on to consumers. • Renewables may be challenged to effectively participate in system services market, which may limit overall market participation and the goal of decarbonisation.

Option	Key benefits	Key challenges
4(ii): LPF with Availability Commitment	• No distortion to energy market as LPF obligation only applies to volumes not cleared in other markets. • LPF contract provides investment incentive with little risk / cost to investors. • Incentivises the entry and performance of plant in locations of higher system need through sub-region capacity requirements. • Prevents service providers from actively making themselves unavailable to respond to instructions (e.g., batteries disabling their frequency control loop). • Non-discriminatory: any service provider can commit to keeping their (unspecified) MWs not cleared in other markets available.	• No guarantee that sufficient volumes will be available. Absent a real-time procurement mechanism, there is no guarantee that real-time needs will be met. Therefore, a risk of under- or over-procurement remains. • Not deliverable by FASS go-live in December 2026. • A contract duration of six months may not provide sufficient investment incentives.
5: Procure Baseload Services via LPF Contracts <6 Months	• Provides a structured mechanism for procuring system services ahead of short-term energy and balancing markets. • Facilitates additional revenue certainty for service providers. • Ensures volume certainty for the TSO, allowing for improved management of system needs. • Reduces reliance on last minute procurement solutions, enhancing operational efficiency. • Creates a predictable market environment for service providers. • Improves economic efficiency by securing essential services in advance, contributing to overall security.	• Longer-term contracts limit flexibility to adapt to changing market conditions. • May not represent most cost-efficient procurement of reserves. • Potential liquidity issues in DASSA as LPF may draw from the same participant pool. • No guarantee of meeting real time requirements. • Significant reserve capacity may be excluded from DASSA and energy markets, leading to inefficiencies. • Additional procurement development extra overhead. • Additional costs may be passed on to consumers. • Renewables may be challenged to effectively participate in system services market, which may limit overall market participation and the goal of decarbonisation.
6: Procure Baseload Services via LPF Contracts >13 Months	• Provides a structured mechanism for procuring system services ahead of short-term energy and balancing markets. • Facilitates additional revenue certainty for service providers.	• Longer-term contracts limit flexibility to adapt to changing market conditions. • May not represent most cost-efficient procurement of reserves.

Option	Key benefits	Key challenges
	• Ensures volume certainty for the TSO, allowing for improved management of system needs. • Reduces reliance on last minute procurement solutions, enhancing operational efficiency. • Creates a predictable market environment for service providers. • Improves economic efficiency by securing essential services in advance, contributing to overall security.	• Potential liquidity issues in DASSA as LPF may draw from the same participant pool. • No guarantee of meeting real time requirements. • Significant reserve capacity may be excluded from DASSA and energy markets, leading to inefficiencies. • Additional procurement development extra overhead. • Additional costs may be passed on to consumers. • Renewables may be challenged to effectively participate in system services market, which may limit overall market participation and the goal of decarbonisation.
7: Reconcilliation of Real-Time Needs	• Enables all technologies to effectively participate. • Financial incentive to remain available in real-time, beyond Final DASSA Order volumes. • Service providers paid for DASSA Orders and additional volumes required in real-time. • Remuneration for volumes beyond Final DASSA Order volumes is procured competitively (based on submitted prices). • Mechanism already within FASS IT solution requirements and PIR timescales. • Provides clear investment signals to investors, as services provided will be remunerated.	• Potential for service providers to withhold trading in DASSA to benefit from reconciliation mechanism. • Substantial ex-post analysis to determine volume requirements, availability determination & Adjusted Supply Curve. • Minor additional operational overhead (running the additional processes). • Moderate IT system complexity to operate. • Service providers unable to update their bids (remuneration derived from DASSA bids).
8: Changes to BM Rules	• Simpler IT solution as it eliminates the need for a separate top-up mechanism. • Encourages stronger participation and commitment from service providers in the DASSA. • Reduces TSOs' operational overhead and administrative burden associated with running an extra top-up mechanism. • Allows for inframarginal rents.	• Unclear whether such changes would provide sufficient additional revenues to incentivise investment into system services provision due to the size and uncertainty of Balancing Market payments for system services. • Potential imbalance costs may arise due to insufficient reserve procurement. This could result in a reduction in transparency as costs might be shifted to the imbalance price.

Option	Key benefits	Key challenges
		• Could increase costs for consumers in the short term because the mechanism allows for infra-marginal rents. In the long term, this should facilitate greater entry and competition resulting in lower costs. • This mechanism might exclude potential system service providers that are not Balancing Market units. However, for non-BM units to be balancing capacity providers it must be possible to activate them for balancing energy. It is not clear how non-BM units are currently activated for balancing energy.

6.5 Alignment on Proposed Option

Following the initial options assessment conducted independently by both the TSOs and RAs, there were a series of meetings to provide clarifications and to discuss the respective assessments. The assessment and discussions primarily centred around elements of two of the options, namely:

- Option 4(ii): LPF with availability commitment.
- Option 7: Ex-post top-up mechanism.

As a result of the options assessments and input from TSOs and RAs, an extension of Option 4(ii) was proposed and discussed, namely the RAD.

The RAD features an ex-ante submission of bids ahead of the Auction Timeframe and an ex-post clearing based on RAD submissions, service provider availability, and real-time volume requirement. Payment is made for any residual availability from service providers, net of any other markets, with no commitment obligation to be available). This option is described in detail in Section 7.

The benefits and challenges of this option are summarised in Table below:

Table 5: Benefits and challenges of Residual Availability Determination

Option	Key benefits	Key challenges
Residual Availability Determination	• Provides additional confidence for the TSO regarding system security. • No disincentive to participate in DASSA. • No distortion to energy markets, as RAD payment only applies to volumes not cleared in other markets. • Enables all technologies to effectively participate.	• Some additional requirements would be added to the FASS IT baseline (RAD bid/offer submission). • Risk remains real time needs may not be met.

Option	Key benefits	Key challenges
	• Financial incentive to remain available in real-time, beyond Final DASSA Order volumes. • Only real-time requirements will be remunerated via RAD (volume and price for RAD cleared ex-post). • Remuneration for volumes beyond Final DASSA Order volumes is procured competitively (based on submitted prices). • Provides clear investment signals to investors, as services provided will be remunerated. • Consistent with EBGL obligation to competitively procure all volumes required. • Non-discriminatory: any service provider can commit to keeping their (unspecified) MWs not cleared in other markets available.	

The differences between Option 4(ii) and the Residual Availability Determination option are shown in Table 6 below:

Table 6: Option 4(ii) and Residual Availability Determination comparison

DASSA Design Component	Option4(ii): LPF with availability commitment	Residual Availability Determination
Registration and Qualification	Requires registration and qualification for LPF contract mechanism.	Utilise existing qualification mechanism for DASSA qualification.
Procurement	Additional ex-ante procurement contract mechanism required to procure LPF volumes. LPF procures on 6-month basis. Ex-ante clearing of LPF contracts.	Separate RAD auction required for clearing of RAD. Submission of Price Quantity pairs for all system service products. Ex-post clearing of RAD auction.
Self-Lapsing of DASSA Orders	No difference between options 4(ii) and RAD; as per SEMC decision.	
Operations	No difference between options 4(ii) and RAD; as per SEMC decision.	
TSO Lapsing of DASSA Orders	No difference between options 4(ii) and RAD; as per SEMC decision	
Ex-post reconciliation	No determination of actual real-time needs.	Determination of real-time system needs. Ex-post clearing of real-time system needs volume.

DASSA Design Component	Option4(ii): LPF with availability commitment	Residual Availability Determination
		Service providers awarded based on merit and availability.
Settlement	Inclusion of LPF contract payments within Settlement processing and invoicing.	Inclusion of RAD payments for service providers, awarded based on merit and availability, meeting specific real-time volume requirements within Settlement processing and invoicing.

The outcome of the Joint Options Assessment by the TSOs and Regulatory Authorities is that the proposed RAD addresses:

- Concerns expressed by the SEMC in its decision regarding the DASSA design, particularly with respect to (a) any incentive to withhold volumes from the DASSA, and (b) separate costs / prices for the DASSA and DASSA top-up mechanism.
- TSOs' concerns regarding the need for an appropriate top-up mechanism to ensure that incentives to meet real-time needs are in place.

Question #1: Do you have any comments on the Joint Options Assessment conducted by the RAs and TSOs?

7 Proposed Option: Residual Availability Determination

This section sets out the proposed design for the Residual Availability Determination preferred option, which is summarised in Figure 2 below:

Section 10 below sets out some high-level examples of how the RAD will function in tandem with the DASSA.

7.1 RAD Overview

Figure 2: Process changes for inclusion of Residual Availability Determination

- The RAD is aimed at incentivising service providers to make any residual capacity – net of other market commitments, including the DASSA – available in real-time. There will not be a commitment obligation for service providers to set aside capacity for system services provision (unlike the DASSA).
- The RAD will be a separate auction to the DASSA: service providers may submit offers into both the RAD and/or DASSA.
- The RAD will procure the same system services as will be auctioned in the DASSA, including upward and downward reserve, also reflecting any requirements for dynamic service provision and other service qualities to be defined.
- The RAD will satisfy the same locational constraints as the DASSA i.e. jurisdictional minimum volume requirements.
- There will be a dedicated RAD Gate Window (Opening and Closing Window) associated with each Auction Timeframe, i.e. an operational day from 23:00 D-1 to 23:00 D, which aligns with the DASSA Auction Timeframe.
- RAD Offers will be submitted in advance of the target Auction Timeframe and cannot be updated following the RAD Gate Closure (as explained in Section 7.2.1).
- Ex-post, the mechanism will determine the real-time availability of DASSA Order Holders and determine any additional volume required (above that procured in the DASSA) to meet real-time system needs. The RAD volume requirement per service will be made up of:
  - System service needs in real-time

    MINUS
  - DASSA service volume requirement (as procured in the DASSA)

    PLUS
  - System service volumes that were cleared in the DASSA but unavailable due to self-lapsed DASSA Orders, TSO-lapsed DASSA Orders and service providers who were unavailable in real-time.

- Ex-post execution of the RAD auction will be based on:
    - Identified real time volume requirement (as above), and
    - Supply curve derived from submitted RAD bids and service providers' availability to provide system services in real-time.
- RAD outcomes:
    - The RAD auction will then clear, and award service providers in merit at the RAD clearing price, for a given zone, quality category and system service product.
- FASS Settlement runs to include:
    - Payment of awarded RAD holders based on the RAD clearing price.

7.2 RAD Ex-Ante Design

The following FASS components remain unchanged from the TSOs' DASSA Design Recommendations Paper and SEMC decision:

- Registration and qualifications processes
- DASSA volume requirement determination and Auction Pack publication
- DASSA bid/offer submission
- DASSA time, process, optimisation, publication
- Secondary/bilateral trading of DASSA Orders
- Self-lapsing of awarded DASSA Orders
- TSO lapsing of DASSA Orders and dispensation

In considering the proposed ex-ante design of the RAD, please also refer to the worked examples in Section 10.

7.2.1 RAD Bidding Timeframe

Under this proposal, RAD Offers may be submitted by service providers before the submission of DASSA offers, i.e. prior to 15:30 day ahead of the target Auction Timeframe.

The TSOs therefore propose that the deadline (gate closure) for the submission of the RAD Offers will be 14:30 D-1.

This proposed timing ensures that the RAD bidding process will be independent from the submission of the DASSA offers. A DASSA Order commits the holder to withhold that capacity from other markets, whereas the RAD has no such commitment, and so the offers for each correspond to two different opportunity costs.

The proposal for RAD offers to be submitted prior to the DASSA but cleared ex-post means that service provides will not know whether they will be in receipt of a RAD payment before bidding into the DASSA and so will not be incentivised to withhold capacity when bidding into the DASSA. Furthermore, service providers will not have information on the DASSA positions of their competitors, which will restrict the ability of service providers to leverage market power when submitting an offer for the RAD.

The above represents the only ex-ante changes to FASS components relating to the RAD proposal. The TSOs welcome industry feedback on the timing of the RAD gate closure, noting that it must be before the DASSA gate closure for the applicable Auction Timeframe.

The RAD bid format will largely follow the DASSA format and is further explained in Section 7.2.2.

7.2.2 RAD Bidding Format and Process

Similar to the DASSA design, under this proposal service providers may submit – in the form of one or more price/quantity pairs (up to a maximum of 10) - a RAD offer for each individual service for each Trading Period within the Auction Timeframe.

A typical stepwise linear offer curve is illustrated in Figure 3 below. This offer curve contains non-decreasing steps that are made up of price/quantity pairs offered by the service providers, which are represented by the gold circles.

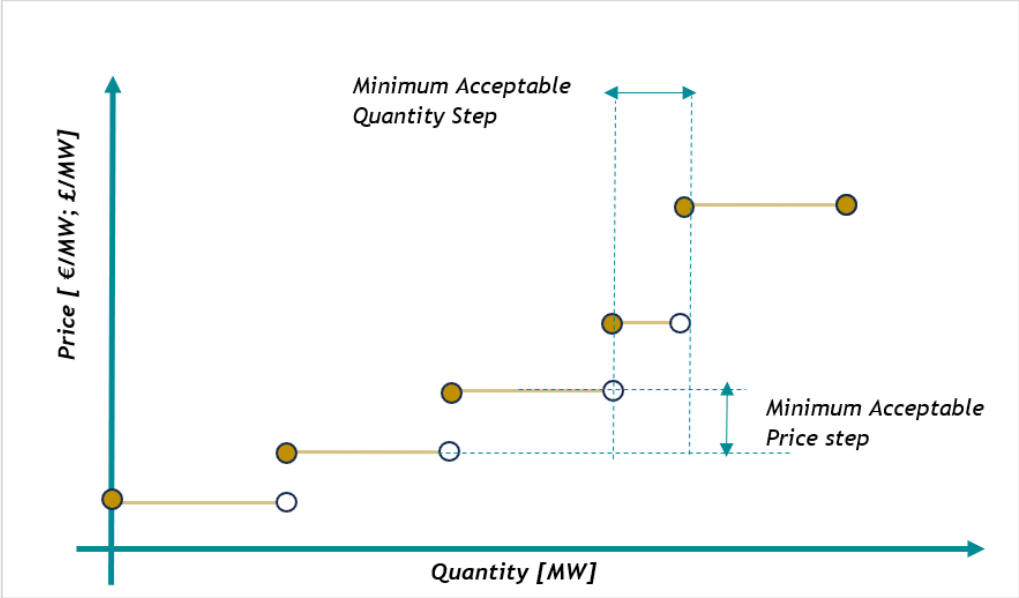


Figure 3: Stepwise Linear Supply Function

The TSOs propose the following bidding structure and process:

- Service providers may submit a bid for each individual service for each Trading Period within the RAD Auction Timeframe.
- Service providers may submit one or more price/quantity pairs (max of 10).
- Price/quantity pairs must be non-decreasing.
- Minimum acceptable values for quantity and price for each step may be implemented, as represented in Figure 3 above.
- RAD price caps / floors may be implemented; the value of any maximum bidding price is to be determined, which may involve quantitative analysis and approval by the RAs.
- Bids may be updated up to the time of the RAD gate closure. After gate closure, the bids will persist through to real-time and settlement; rebids / updating of bids will not be permitted. The primary rationale for this relates to market power concerns and the risk of asymmetric knowledge of the market: service providers from larger portfolios with knowledge of the outcome of the DASSA and the Long-Term Schedule (LTS), may be able to infer the position of

other service providers and utilise that information in their bidding into the RAD. This proposal is consistent with the SEMC decision on the DASSA bidding process.

- There will be no interdependency between bids i.e. each bid will be submitted for an individual system service per Trading Period.
- All bids submitted to the RAD will be categorised as divisible.

TSO Proposal: Bid/offer submission for the RAD will be permitted up to a RAD Gate Closure, which is proposed to be 14:30 day-ahead. Bids may not be updated after RAD Gate Closure.

Question #2: Do you have any comments on the proposed timings for the submission of bids for the RAD?

7.2.3 Auction Platform

Similar to the DASSA, the proposals set out in this section assume that a central auction platform, including an interface for service providers, will be implemented for the RAD. The delivery of the auction platform, including a roll-out to service providers, will be subject to separate industry engagement, as required.

7.2.4 Bidding Code of Practice

Similar to the DASSA, given the close interaction between the energy and system services markets, the TSOs are of the view that an evaluation of the potential for the exertion of market power in the RAD should be undertaken. In our view, consideration should also be given to the development of a tailored Bidding Code of Practice (BCOP) for the DASSA arrangements (including RAD) that would facilitate appropriate monitoring of the system services market.

Any market power evaluation, the need for licence changes to mandate accession to the code, and BCOP development/enforcement will be the responsibility of the RAs, with support to be provided by the TSOs as required.

7.3 Scheduling/Dispatch timeframes (Real-Time)

No change would be required to scheduling/dispatch processes as a result of the proposed RAD. The TSOs would continue to implement scheduling and dispatch processes to ensure that the system is dispatched economically, and that system security is maintained.

7.4 RAD Ex-Post Design

The proposed RAD would be based on an ex-post determination of the volume of additional system services required (real-time need in excess of the outcome of the DASSA) and an ex-post clearing mechanism. This would ensure that there is no disincentive to participate in the DASSA and that only volumes that are required in addition to the DASSA procured volumes are remunerated.

The proposed RAD steps required in ex-post are explained further in Sections 7.4.1 to 7.4.5 In considering the proposed ex-post design, please also refer to the worked examples in Section 10.

The RAD does not change any design with respect to the FASS Charge; this proposal does not alter the All-Island System Services Supplier Charge Recommendations Paper that was submitted to the SEMC for consideration in November 2024, or subsequent the SEMC Decision[13] published in March 2025.

7.4.1 Determine RAD Volume Requirements

A key feature and benefit of the proposed RAD mechanism is that it will only procure sufficient volumes to meet real-time system needs in ex-post clearing. It is proposed that the TSOs will conduct real time system needs assessments as follows:

- Determine any real-time system requirements beyond the initial forecasted DASSA requirements procured ex-ante.
- Identify any lapsed DASSA orders.
- Perform real-time availability checks on Confirmed DASSA Orders.
- In the event of an additional volume requirement to meet real-time system needs being identified, the RAD auction will be run based on the RAD submitted price-quantity curves.

7.4.2 RAD: Derivation of RAD Merit Order

Prior to clearing of the RAD, the RAD Merit Order must be created for each system service requirement. The RAD Merit Order will be derived from relevant RAD Offer price-quantity pairs and the availability of service providers in real-time.

7.4.3 RAD: Auction Execution

If a real-time volume requirement has been identified, the RAD auction will execute and clear per system service. The RAD auction will apply those constraints that have been defined for the DASSA, as well as accounting for the ability of service providers to physically deliver a service i.e. taking account of local network issues.

7.4.4 RAD Clearing Price

A RAD clearing price, which is proposed to be pay-as-clear, will be determined per system service product / zone / quality category, as per the DASSA.

The RAD clearing price per service will be based on the RAD Merit Order up to the RAD system service volume requirement. For the avoidance of doubt, bids on the RAD Merit Order beyond the RAD volume requirement will not influence the RAD clearing price.

The RAD clearing price will be capped at the value of the DASSA clearing price for the relevant Trading Period. This measure is intended to disincentivise strategic lapsing of DASSA Orders to avail of a potentially higher price in the RAD.

7.4.5 RAD: Auction Outcomes

The RAD auction outcomes will be similar to the DASSA auction outcomes, in that:

- Confirmed RAD Orders will be awarded to service providers who cleared in the RAD auction.
- Auction participants will be notified of the result of the auction i.e. what volume they were awarded per service and at what clearing price.
- Auction results will be published.

[13] SEM-25-007 All-Island System Services Supplier Charge - Decision Paper

7.4.6 FASS Settlement Runs

The Settlement process would require updating for the inclusion of the RAD payments, but the timing of settlement for the DASSA would remain the same:

- FASS settlement (Providers) runs monthly in arrears, determining:
    - (a) DASSA payments (based on final DASSA Orders after trading/lapsing), subject to availability and performance scalars
    - (b) Compensation payments (compensation owed by providers to TSOs based on incompatible FPNs)
    - (c) RAD Settlement (based on volumes secured in the RAD auction for units that were available in real time. Performance scalars will also apply for volumes not delivered during frequency events)

TSO Proposal: Clearing (including submitted RAD offers, unit availability based on real-time data and determination of both price and residual volume requirements) of the RAD mechanism will be an ex-post process prior to FASS settlement.

Question #3: Do you have any comments with respect to the clearing proposals for the RAD mechanism?

Question #4: Do you have any additional comments with respect to proposed RAD?

8 Summary of Consultation Questions

Table 6: Summary of Consultation Questions

Section	TSOs' Questions
Section 6.5	**Question #1: Do you have any comments on the Joint Options Assessment conducted by the RAs and TSOs?**
Section 7.2.2	**Question #2: Do you have any comments on the proposed timings for the submission of bids for the RAD?**
Section 7.4	**Question #3: Do you have any comments with respect to the clearing proposals for the RAD mechanism?**
Section 7.4	**Question #4: Do you have any additional comments with respect to the proposed RAD?**

9 Next Steps

This consultation will be open for 6 weeks, closing on **2 May 2025**. Responses to the consultation should be submitted to the EirGrid (link) or SONI (link) consultation portals.

Should stakeholders have any questions or comments during the consultation period these can be submitted to FASS@Eirgrid.com or FASSProgramme@soni.ltd.uk.

An industry workshop, at which the TSOs will present these proposals and facilitate a Q&A for interested parties, will take place in April 2025 (the date and location are to be confirmed and will be communicated to customers and stakeholders in due course).

Following this consultation, the TSOs will submit a recommendations paper to the SEMC for decision, timelines will be confirmed in the next iteration of the Phased Implementation Roadmap (PIR) V3.0.

10 DASSA and RAD Worked Examples

This section sets out worked examples for how service providers may submit to both the DASSA and the RAD. These examples are for a single system service product, for ease of understanding.

10.1 Example 1: Simple Illustration

Step 1:

1

RAD Offer Submission			
No ex-ante RAD volume requirement			
Unit	Unit A	Unit B	Unit C
Price	€0.50	€0.75	€1.00
Quantity	30MW	20MW	25MW

Units submit RAD offers for a given system service product. These offers constitute price quantity pairs.

Note: There is no pre-determined RAD volume requirement.

Step 2:

2	DASSA Offer Submission and Auction			
	DASSA Volume Requirement 60MW			
	Unit	Unit A	Unit B	Unit C
	Price	€2.50	€4.50	€5.00
	Quantity	30MW	20MW	25MW
	Cleared DASSA Order	30MW	20MW	10MW
	DASSA Clearing Price		€5.00	

Units submit DASSA offers for a given system service product. These offers constitute price quantity pairs. It is an important distinction that there will be a DASSA volume requirement: in this scenario it is set at 60MW by the TSOs.

The DASSA auction execution begins and clears 60MW across Unit A, B and C. As Unit A submits the lowest price quantity offer, its volume clears first (for 30MW). The optimisation then also clears Unit B for its full quantity (20MW). Finally, Unit C is cleared until the DASSA volume requirement of 60MW is met (for 10MW).

As a result of the DASSA clearing, the following is awarded:

- Unit A has a Cleared DASSA order of 30MW
- Unit B has a Cleared DASSA order of 20MW
- Unit C has a Cleared DASSA order of 10MW

This DASSA Auction execution results in a DASSA Clearing Price of €5.00.

Step 3:

3

DASSA (Ex-Post Availability Checks)			
Real Time Volume Requirement = DASSA Volume Requirement (60MW)			
Unit	Unit A	Unit B	Unit C
Cleared DASSA Order	30MW	20MW	10MW
Real Time Availability	25MW	20MW	20MW
Additional real time volume requirement	5MW		

Following execution of the DASSA, the TSOs will perform real time availability checks on units. The real-time volume requirement is equal to the DASSA volume requirement of 60 MW, indicating that the system's real-time needs match the volume procured in the DASSA.

As we see in Step 3, Unit B and Unit C have sufficient availability when compared to their Cleared DASSA Orders. Unit A however has a 5MW discrepancy when compared to its DASSA Order due to submission of an incompatible FPN.

This results in an additional real time volume requirement of 5MW, which initiates the RAD auction.

Step 4:

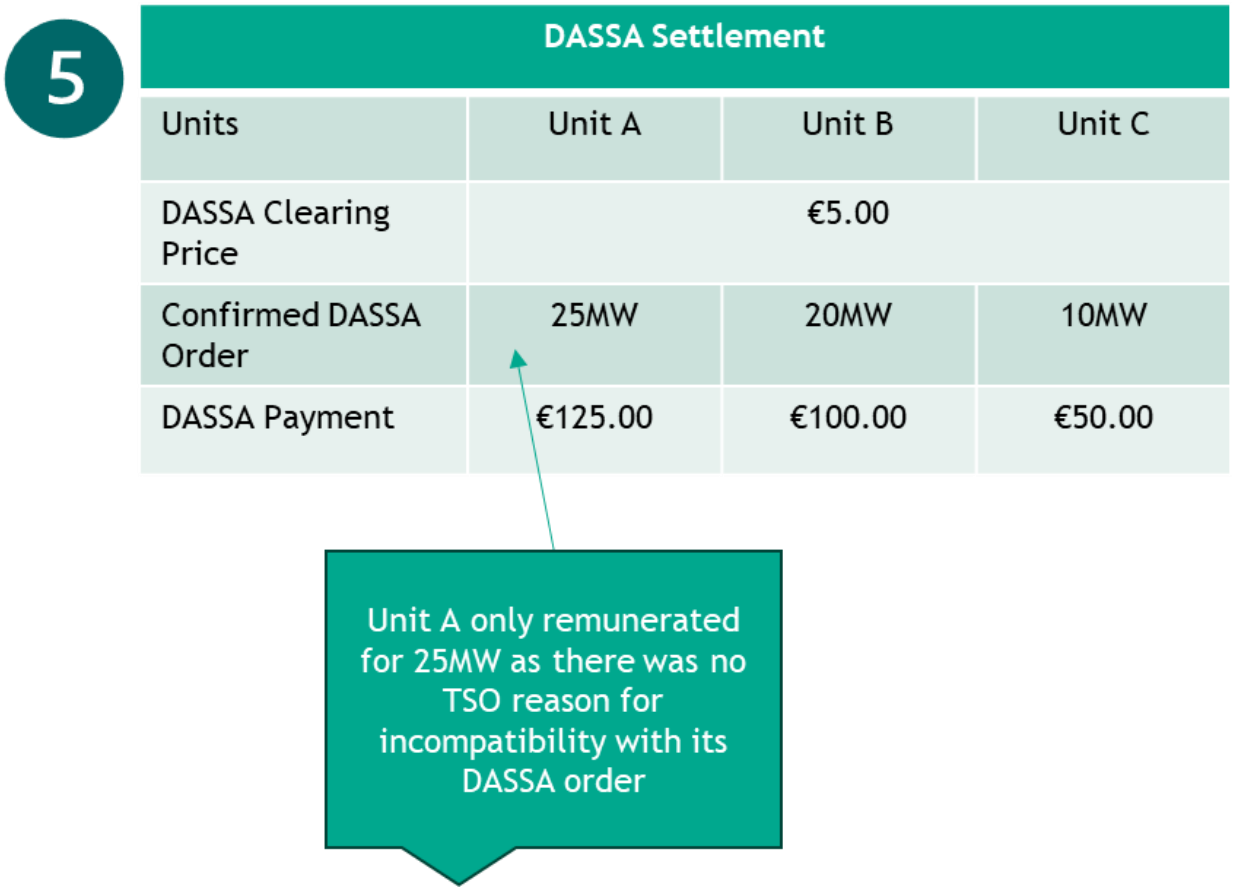
4

RAD Auction Clearing			
RAD Volume Requirement (5MW)			
Unit	Unit A	Unit B	Unit C
Real Time availability (Real time availability - DASSA order)	0MW	0MW	10MW
RAD Awarded Quantity	N/A	N/A	5MW
RAD Submitted Price	€0.50	€0.75	€1.00
RAD Clearing Price		€1.00	

As there is an additional real time volume requirement of 5MW the RAD auction will execute based on the RAD offers submitted in Step 1 above.

As Unit C is the only unit that has additional real time availability of 10MW, the RAD auction clears 5MW at a clearing pricing of €1.00.

Step 5



Settlement of the DASSA payment for each unit. The payment will be the DASSA clearing price multiplied by the quantity of Confirmed DASSA order. Settlement of the DASSA is as follows:

- Unit A receives payment of €125.00
    - Unit A had an incompatible quantity of 5MW so is only paid the 25MW DASSA volume
    - Unit A is subject to a Compensation Payment for the lapsed quantity of 5MW of its DASSA Order
- Unit B receives payment of €100.00
- Unit C receives payment of €50.00

Step 6:

RAD Settlement			
Units	Unit A	Unit B	Unit C
RAD Clearing Price		€1.00	
Confirmed RAD Order	0MW	0MW	5MW
RAD Payment	€0	€0	€5.00

Settlement of the RAD calculates the RAD Clearing price multiplied by the Confirmed RAD order.

As only Unit C clears in the RAD auction, it is the only unit to receive the RAD payment. Settlement of the RAD is as follows:

- Unit C receives payment of €5.00

Step 7:

System Requirements	
System Volume Requirement	60MW
DASSA Volume Procured	55MW
RAD Volume Procured	5MW
Total Volume Procured	60MW

As we can see in Step 7, the TSOs had a system volume requirement of 60MW. This volume requirement was met by both the DASSA and RAD procurement mechanism.

10.2 Example 2: Incorporating Secondary Trading

Step 1

RAD Offer Submission			
No ex-ante RAD volume requirement			
Unit	Unit A	Unit B	Unit C
Price	€0.55	€0.85	€0.65
Quantity	30MW	20MW	25MW

Units submit RAD offers for a given system service product. These offers constitute price quantity pairs.

Note: There is no pre-determined RAD volume requirement.

Step 2:

2

DASSA Offer Submission and Auction Clearing			
DASSA Volume Requirement 60MW			
Unit	Unit A	Unit B	Unit C
Price	€3.50	€3.75	€2.75
Quantity	30MW	20MW	25MW
Cleared DASSA Order	30MW	5MW	25MW
DASSA Clearing Price		€3.75	

Units submit DASSA offers for a given system service product. These offers constitute price quantity pairs. It is an important distinction that there will be a DASSA volume requirement, in this scenario it is set at 60MW by the TSOs.

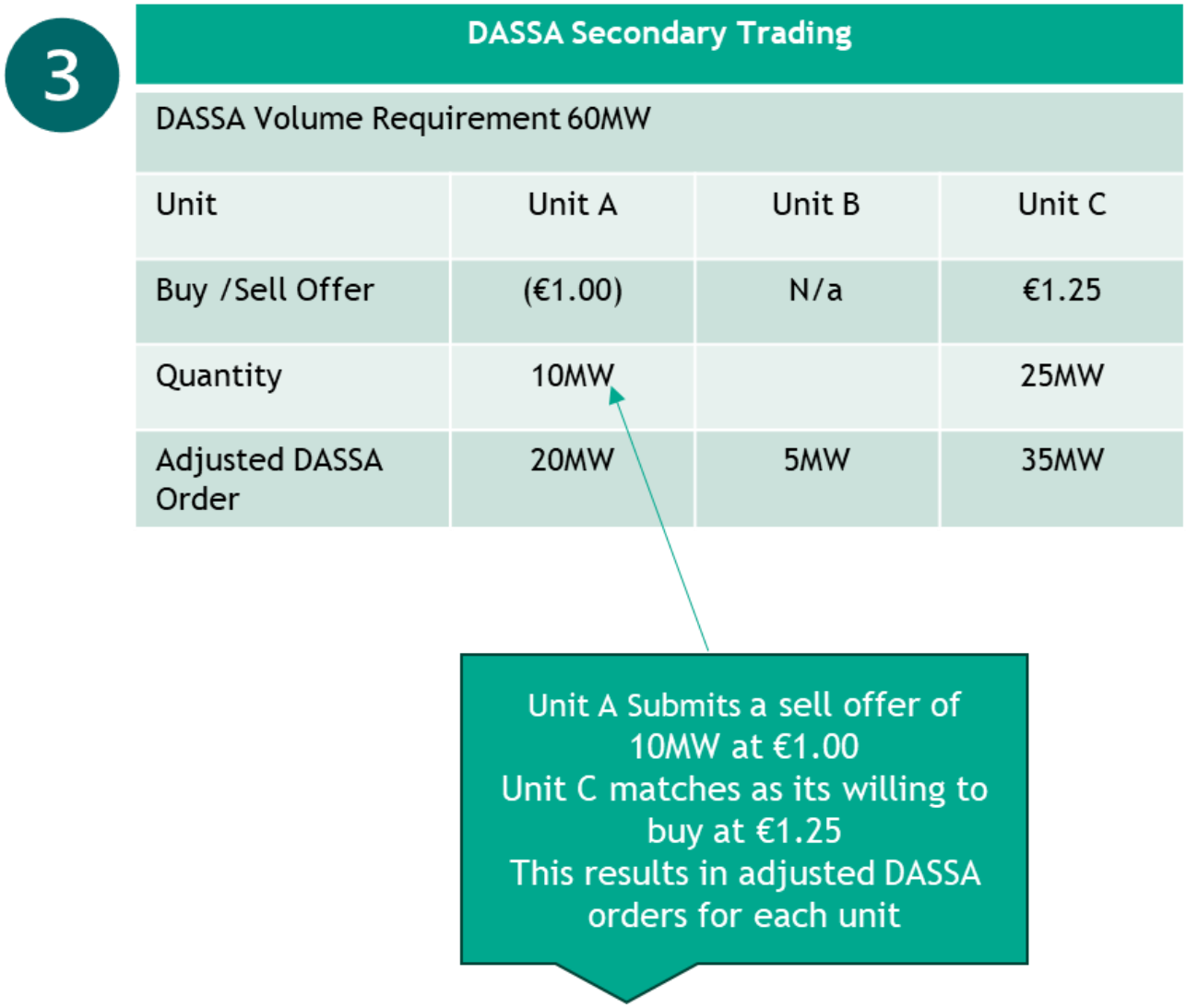
The DASSA auction execution begins and clears 60MW across Unit A, B and C. As Unit C submits the lowest price quantity offer, its volume clears first (for 25MW). The optimisation then also clears Unit A for its full quantity (30MW). Finally, Unit B is cleared until the DASSA volume requirement of 60MW is met (for 5MW).

As a result of the DASSA clearing, the following is awarded:

- Unit A has a Cleared DASSA order of 30MW
- Unit B has a Cleared DASSA order of 5MW
- Unit C has a Cleared DASSA order of 25MW

This DASSA Auction execution results in a DASSA Clearing Price of €3.75.

Step 3



Unit A submits a sell order of 10MW at €1.00 to the order book. Unit C submits a buy order of 25MW at €1.25. These trades are then batch matched within the order book, leading to an adjusted DASSA order for each unit as follows:

- Unit A's adjusted DASSA Order: 20MW (from 30MW)
- Unit B's adjusted DASSA Order: 5MW (no change)
- Unit C's adjusted DASSA Order: 35MW (from 25MW)

Step 4

4

DASSA Real Time Availability Checks			
Unit	Unit A	Unit B	Unit C
Adjusted DASSA order following Secondary Trading	20MW	5MW	35MW
Real Time Availability	25MW	0MW	35MW
Additional real time volume requirement		5MW	

Following execution of the DASSA, the TSOs will perform real time availability checks on units.

As we see in step 4, Unit A and Unit C have at least sufficient availability when compared to their Cleared DASSA orders. Unit B however has a 5MW discrepancy when compared to its DASSA obligation due to a TSO dispatch instruction.

This results in an additional real time volume requirement of 5MW, which initiates the RAD auction. This additional 5 MW does not increase the total requirement beyond the original DASSA volume requirement of 60 MW; it simply addresses the shortfall from Unit B.

Step 5

5

RAD Auction Clearing			
RAD Volume Requirement (5MW)			
Unit	Unit A	Unit B	Unit C
Real Time availability (Real time availability - DASSA order)	5MW	0MW	0MW
RAD Awarded Quantity	5MW	N/a	N/a
RAD Submitted Price	€0.55	€0.85	€0.65
RAD Clearing Price		€0.55	

As there is an additional real time volume requirement of 5MW the RAD auction will execute based on the RAD offers submitted in Step 1 above.

As Unit A is the only unit that has additional real time availability of 10MW, the RAD auction clears 5MW at a clearing pricing of €0.55. This means that the RAD auction uses the available capacity from Unit A to meet the additional 5 MW requirement.

Step 6

6

DASSA Settlement			
Units	Unit A	Unit B	Unit C
DASSA Clearing Price		€3.75	
Confirmed DASSA Order	20MW	0MW	35MW
DASSA Payment	€75.00	€0	€131.25

Unit B is not remunerated as its DASSA Order for 5MW has lapsed.

Settlement of the DASSA payment for each unit. The payment will be the DASSA clearing price multiplied by the quantity of Confirmed DASSA order. Settlement of the DASSA is as follows:

- Unit A receives DASSA payment of €75.00
- Unit B receives no DASSA payment as its DASSA Order of 5MW is lapsed and may be subject to a Compensation Payment (subject to the outcome of Parameters & Scalars consultation)
- Unit C receives a DASSA payment of €131.25

Step 7

RAD Settlement			
Units	Unit A	Unit B	Unit C
RAD Clearing Price	€0.55		
Confirmed RAD Order	5MW	0MW	0MW
RAD Payment	€2.75	€0	€0

Settlement of the RAD calculates the RAD Clearing price multiplied by the Confirmed RAD order.

As only Unit A clears in the RAD auction, it is the only unit to receive the RAD payment. Settlement of the RAD is as follows:

- Unit A receives payment of €2.75

Step 8

System Requirements	
System Volume Requirement	60MW
DASSA Volume Procured	55MW
RAD Volume Procured	5MW
Total Volume Procured	60MW

As we can see in Step 8, the TSOs had a system volume requirement of 60MW. This volume requirement was met by both the DASSA and RAD procurement mechanisms, with 55MW met by the DASSA and 5MW through the RAD.