

Hybrids – MEC Sharing

Frequently Asked Questions (FAQ)

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NETWORKS

JSOP

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Contents

Glossary

3

Introduction

4

FAQs

5

1. Eligibility, Scope and Future Pathways

5

2. Readiness and Delivery

12

3. Priority Dispatch

12

4. Energy Sharing

15

5. Technical and Operational Arrangements

17

6. Implementation Timelines and Industry Engagement

19

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Glossary

Term	Definition
AAP	Available Active Power
BESS	Battery Energy Storage System
CRM	Capacity Remuneration Mechanism
CRU	Commission for Regulation of Utilities
DCEE	Department of Climate, Energy and the Environment
DSO	Distribution System Operator
EDIL	Electronic Dispatch Instruction Logger
EMS	Energy Management System
FAQ	Frequently Asked Questions
GoO	Guarantee of Origin
MEC	Maximum Export Capacity
MLE	Multiple Legal Entity
NPD	Non-Priority Dispatch
PD	Priority Dispatch
PPM	Power Park Module
RESS	Renewable Electricity Support Scheme
SCADA	Supervisory Control and Data Acquisition
SEM	Single Electricity Market
SOs	System Operators
TSO	Transmission System Operator

Introduction

Following recent publications and stakeholder engagements, including the webinar held on 25 June 2026 with approximately 300 participants, EirGrid and ESB Networks have received a range of questions from industry in relation to Hybrid MEC sharing. These questions were received during the past year through engagement with stakeholders and during the MEC Sharing webinar. This Frequently Asked Questions (FAQ) document captures and responds to 54 numbered questions, providing further clarity for industry on the implementation plan and roadmap for Hybrid Co-Located sites with MEC sharing.

The FAQ is intended to help explain the scope of the current MEC sharing implementation, the complexity of the changes required, and the further assessment that will be needed for adjacent areas such as Multiple Legal Entity (MLE) arrangements, integrated hybrids, energy sharing and cross-charging. Some questions received from industry were duplicated or closely related. Where this was the case, they have been grouped under the same numbered question to avoid repetition and to provide a more complete answer in one place.

As MEC sharing is introduced, some questions may not be fully answered at this stage. The first 12 months of the Implementation Roadmap are dedicated to developing solutions and refining processes to address technical, operational, and market arrangements for hybrid sites. During this period, the System Operators will focus on identifying challenges and optimal approaches. As practical experience is gained and further assessments are completed, more detailed answers and guidance will be provided, offering greater clarity on how MEC sharing will operate in practice.

EirGrid and ESB Networks thank industry participants for their constructive engagement and patience as the programme is developed and implemented. Continued dialogue may inform future clarifications or additional information, where appropriate and subject to relevant governance and regulatory processes.

FAQs

1. Eligibility, Scope and Future Pathways

1.1. What is MEC sharing and what problem does it address?

MEC sharing is an arrangement where multiple co-located generation and/or storage units share a single site-level MEC at a common connection point, rather than each unit holding its own MEC. This addresses the limitation that contracted MEC could not be dynamically shared across different technology types at the same site, and means that the site-level MEC would no longer need to accommodate the sum of the individual unit MECs. This can make connection of multiple different technologies behind a single connection point easier, optimising and maximising the use of the existing network leading to more efficient network development, and facilitating higher levels of Variable Renewable Energy (VRE) integration at a single connection point.

1.2. What types of hybrid projects are currently eligible for MEC sharing?

MEC sharing is available only for Hybrid Co-Located Projects, where each generation or storage unit is separately registered, sub-metered, and independently dispatched and settled, but all share a single site-level MEC at the connection point, and all with the same legal entity (i.e. multiple legal entities are not yet enabled). Integrated hybrids—where multiple technologies are registered and operated as a single market unit—are not yet enabled.

1.3. When will integrated hybrid projects (single combined market units) be enabled?

Will integrated hybrids continue to be progressed in parallel? Can this be a parallel workstream with industry participation?

Will work on integrated hybrid projects begin only after MEC sharing for Hybrid Co-Located Projects has been completed, or could both be progressed in parallel?

Integrated hybrid projects, where multiple technologies are registered and operated as a single combined market unit, are not enabled under the current MEC sharing implementation programme. The current roadmap is focused on Hybrid Co-Located Projects, where each unit remains separately registered, metered, dispatched and settled, while sharing a single MEC at the connection point.

The System Operators recognise the potential benefits of integrated hybrids and the interest from industry in this future model. However, integrated hybrids require a different level of technical, operational, market and regulatory development. In particular, this model would require a fundamentally different approach which affects areas such as unit-level visibility and control, market registration, dispatch, settlement, metering, Grid Code compliance, system services and operational tools. These impacts have not yet been scoped to the level required to define an implementation pathway or timeline. On these topics there is not the same understanding as there is for Sharing of MEC of the full extent of the technical challenges which need to be addressed. While a number of potential technical challenges have been identified, they have not been scoped to the full breadth required or all details of those

challenges understood, and there are also the “known unknowns” where there are very likely a number of technical challenges in areas that have not yet been identified. With the level of understanding that we currently have of the technical challenges, it is expected that implementing these other approaches would be much more complex than implementing Sharing of MEC.

The immediate priority is to progress the MEC sharing roadmap because this is the area where the challenges and solutions are sufficiently understood to move into implementation. Work progressed under the MEC sharing roadmap is expected to provide important learnings and enabling outputs that may support the future development of integrated hybrid arrangements. However, work on integrated hybrids will not wait until after MEC sharing is completed. In parallel, the System Operators will continue to assess adjacent areas that are relevant to future hybrid models, including energy sharing / cross-charging, integrated hybrids, and Multiple Legal Entity arrangements. At this stage, no implementation timeline can be confirmed for integrated hybrids, and further updates will be provided when the technical, operational and regulatory requirements are more clearly defined. Any future industry participation or engagement on integrated hybrids would need to be considered once the scope, issues and potential workstreams are sufficiently developed.

1.4. The enabling of fully integrated hybrids appears to be linked to learning from co-located hybrids. What impact would a limited uptake of co-located hybrids have on the development of fully integrated hybrids?

What level of uptake is expected for this phase of MEC sharing, and has this been assessed in terms of delivering the anticipated benefits?

Given the scale of workstreams required for this phase of MEC sharing, how will this work be future-proofed to avoid significant rework when moving towards full hybrid implementation?

The development of fully integrated hybrids is expected to build on the work completed through the MEC sharing implementation roadmap. MEC sharing for Hybrid Co-Located Projects needs to be progressed first because it addresses a number of key enabling areas, including metering, dispatch, settlement, operational visibility, system services, compliance, connection arrangements and site-level controls. In addition, in the design and implementation of MEC sharing the SOs will work to ensure that all approaches developed do not preclude other hybrid approaches from developing, and that the MEC sharing developments form a suitable basis on which to build that development.

While it has been mentioned that learnings from implementing MEC sharing will help inform the future assessment of fully integrated hybrids, where technologies would operate as a single combined unit, this does not necessarily mean learning from the point of operations onwards. It refers primarily to the learnings gained through the design and implementation phases of the MEC sharing project, where a number of issues would need to be addressed and solutions developed. Fully integrated hybrids would require further technical, operational, market and regulatory development beyond the current roadmap, and through the learnings gained in

working on the design and implementation of sharing of MEC greater understanding will be gained to help with this development.

Therefore, a lower level of participation in the initial MEC sharing arrangements would not, by itself, prevent future work on fully integrated hybrids. However, the System Operators will first need to complete the MEC sharing implementation work and use the outcomes and learnings from that process to support any future consideration of integrated hybrid models. Assessment of the potential level of uptake and level of anticipated benefits has not been directly considered in the implementation of Sharing of MEC – the SOs are required to implement Sharing of MEC on the basis of the direction outlined in the CRU's policy decision.

1.5. What are the complexities for enabling cross-charging and/or Integrated hybrids?

The current MEC sharing implementation has been designed on the basis that each unit remains separately registered, metered, dispatched, settled and visible to the System Operators. This is an important boundary, because it allows the shared MEC to be applied at the connection point while retaining existing unit-level operational and market arrangements.

Cross-charging would require changes to that model. The key issue is that the current systems and processes do not recognise internal energy transfers between units behind the connection point. If an instruction is issued to dispatch down the output of a renewable generator, but instead the energy that would otherwise be dispatched down is used to charge a co-located BESS, the System Operators and market systems would need to be able to distinguish clearly between energy that was exported, energy that was curtailed or dispatched down, energy that was imported by storage, and energy that moved internally between technologies. At present, the dispatch, metering and settlement frameworks are not designed to identify or settle those flows. This creates practical issues across several areas.

Firstly, instructions to renewable generators are in the form of direct control on the relevant renewable generation unit, where a maximum output limit is automatically applied to that unit following the issuance of the instruction in the TSO's systems. Under cross-charging, dispatch instructions and availability signals would need to reflect what each unit is capable of providing to the system, including where one unit's output is being used by another unit behind the connection point. This would need to be done in a way which also allows for the participant to have optionality in how they apply a dispatch instruction through the combination of resources on their site (e.g. turning down the renewable generator vs charging the BESS resource), so long as the net impact from an active power perspective on the power system is as required by the TSO's dispatch instruction. This would be a fundamentally different dispatch approach to what exists currently where one unit must respond to one instruction and cannot meet that requirement in an alternative way even if the net impact on the power system from an active power perspective is the same. This would require complex changes across operational policies, protocols, and systems from software and hardware perspectives.

There are also arrangements separately in development for changes required to enable non-priority dispatch renewables more generally. It would need to be clarified how the changes to dispatch required for hybrid implementation approaches beyond MEC sharing would interact

with the intended dispatch and other related operational approaches for non-priority dispatch renewables.

Metering arrangements would need to support the identification of internal transfers in a way that is consistent with settlement, imbalance calculations, redispatch treatment and compensation rules. Without this, there is a risk of unclear compliance positions, incorrect settlement outcomes, or potential double remuneration where energy is both treated as curtailed and also used commercially through storage.

There are also operational security considerations. The System Operators must retain sufficient real-time visibility of each technology behind the connection point, including output, availability, state of charge, reactive power behaviour and system services capability. If internal energy movements change the position of a unit without corresponding dispatch, availability and monitoring arrangements, it becomes more difficult to maintain reliable scheduling, dispatch, constraint management, system services assessment and post-event compliance review. The dynamic stability and response characteristics of different renewable generators and BESS resources would also be quite different, and therefore the choices a participant makes in turning down the renewable generator vs charging the BESS would change the dynamics of the power system. This would have a large impact on power system security, requiring the TSO to develop fundamentally different approaches whereby they can have suitable visibility, modelling, and potentially even the ability to retain control over requiring particular units to respond to an instruction to ensure a certain outcome from metrics other than net active power response. All of this is a large increase in complexity compared against the existing model and the model in development for MEC sharing.

Integrated hybrids would introduce a further level of complexity. Moving to a single combined market and dispatch unit would require decisions on how a site made up of different technologies should be registered, forecast, scheduled, modelled, dispatched, monitored and settled. It would also require clarity on how Grid Code obligations, technical offer data, commercial offer data, firm and non-firm access rights, system services capability, capacity market treatment, priority dispatch considerations and RESS-related treatment would apply to a combined unit.

The System Operators would also still need asset-level visibility behind the connection point, even if the market or dispatch model moved to a site-level arrangement. This is necessary for system security, modelling, voltage and reactive power management, state-of-charge monitoring, compliance testing and operational decision-making. Therefore, an integrated hybrid model cannot simply remove unit-level visibility; it would require a new framework that determines which obligations apply at site level and which information must continue to be provided at individual asset level. Other areas which would require clarity on the most appropriate approach for different levels of visibility between the market unit and the individual resources include the dynamic stability and response models, and contribution to various system services such as reserves and reactive power with different capability curves. Developing arrangements for cross-charging and integrated hybrids introduces potential operational uncertainty in what the anticipated contribution of each resource would be depending on how a participant decides to respond to an instruction and potentially change

their response to an instruction over time, all of which would have power system security implications in scheduling and real-time operational timeframes and processes.

[something about the above representing the known unknowns, that we expect there are unknown unknowns that would arise when we investigate the potential issues further and as we gain learning from implementing MEC sharing] The areas outlined above represent some of the currently identified issues and uncertainties – in other words, the “known unknowns” associated with cross-charging and integrated hybrid arrangements. As the System Operators investigate these matters in more detail, and as learning is gained through the design and implementation of MEC sharing, it is expected that further issues may emerge which are not yet fully visible at this stage. These “unknown unknowns” will also need to be identified, assessed and addressed before any future implementation pathway for cross-charging or integrated hybrids can be confirmed.

Therefore the appropriate route for cross-charging has not yet been determined. It may be possible to assess whether aspects of cross-charging can be enabled within a co-located model, or it may be that cross-charging can only be enabled as part of a broader integrated hybrid framework. This will depend on the outcome of further technical, operational, market, settlement and regulatory assessment.

For these reasons, the current priority is to implement MEC sharing for Hybrid Co-Located Projects first, where the key issues are sufficiently understood to progress into implementation. The outcomes and learnings from that work will inform the future assessment of cross-charging and integrated hybrid arrangements. At this stage, no implementation pathway or timeline can be confirmed for cross-charging or fully integrated hybrids.

- 1.6. Can you please confirm if the future definition of an Integrated Hybrid site would include Demand facilities alongside generation and/or storage assets? This was alluded to in the recent CRU decision paper where a number of respondents had sought such inclusion. While not in scope for the current decision paper, it was confirmed no unintended barriers to future hybrid development would be inadvertently created.

From the CRU Sharing of MEC Decision Paper: 'While a number of respondents sought inclusion of demand within the definition of co-located hybrid projects, the definitions above are for the purposes of this policy which is focussed on the sharing of export capacity for generation and/or storage technologies. These definitions are only applicable to this MEC sharing decision and should not create any unintended barriers to future hybrid development.'

Demand facilities are not currently included within the Hybrid Co-Located or Integrated Hybrid definitions established under the MEC Sharing decision. However, the CRU has stated that these definitions were developed solely for the purposes of MEC sharing and are not intended to create unintended barriers to future hybrid development. EirGrid and ESB Networks are currently progressing separate workstreams relating to demand facilities with on-site generation, and any future inclusion would be subject to further policy, regulatory and operational assessment.

1.7. Does MEC sharing apply to both new and existing sites?

Yes, provided the site meets all requirements for sub-metering, registration, and operational control. Existing sites may need modifications to connection agreements, updates to their SEM registration and upgrades to metering and controls.

1.8. Are all technology combinations supported under MEC sharing?

Are wind, solar, and BESS configurations (all PPMs) in scope of MEC sharing under the current implementation, or subject to further technology-neutrality assessment?

The CRU decision indicates that not all MEC sharing applications may be accepted. Can clarity be provided on the criteria that will be applied?

Not all technology combinations are automatically supported under MEC sharing. The current implementation is focused on Hybrid Co-Located Projects where each unit remains separately registered, metered, dispatched and settled, while sharing a single MEC at the connection point.

Wind, solar and BESS configurations are included in the current MEC sharing implementation roadmap on the basis of technology mix where the relevant units are Power Park Modules and can comply with the applicable technical, operational, metering, market registration and control requirements. The further technology assessment referenced in the roadmap is primarily aimed at configurations that introduce additional complexity, particularly where different technology types are subject to materially different Grid Code or operational frameworks, such as combinations of conventional synchronous generation and Power Park Modules.

However, all configurations will still need to be capable of operating within the shared MEC limit and meeting the detailed requirements developed through the implementation work. The System Operators will continue to assess any technology-specific considerations in parallel with the roadmap, and further guidance will be provided as the implementation arrangements are developed.

1.9. Will MEC sharing allow for the same technology to be added as a new unit at an existing site (e.g. additional turbines), or is this excluded?

The addition of the same technology as a new unit at an existing site, for example additional wind turbines at a wind site, is not considered MEC sharing and is therefore outside the MEC sharing framework. MEC sharing is intended to facilitate hybrid co-located projects involving different technologies sharing a single MEC at the connection point.

However, this does not mean that the scenario is precluded. The addition of further capacity of the same technology may be accommodated through over-installation arrangements ([link](#)), following the removal of the Installed Capacity Cap. Under those arrangements, developers may install additional capacity as a commercial decision, provided the site continues to operate within its contracted MEC/export limit and complies with the applicable connection, operational and technical requirements.

1.10. Is there coordination between the MEC sharing programme and the DCEE MLE workstream to ensure current developments are aligned and avoid rework in the future?

How will the timing of MEC sharing align with RESS and CRM timelines (e.g. RESS6)?

We have engaged with DCEE on the interaction between hybrid developments in general, and MEC sharing in particular, with the development of RESS terms and conditions. Therefore, from these engagements, it is our understanding that nothing in the roadmap for MEC sharing, or the associated development timelines, should have a negative impact on the ability of resources to meet obligations that they enter into for storage under the RESS scheme. In particular, participants would not be able to enter into any obligations under the RESS6 terms and conditions that would be dependent on implementation of aspects of the MEC sharing implementation roadmap to enable them to meet those obligations. Further engagement will be needed and is intended in future to understand the interaction between hybrids and the terms and conditions of future RESS iterations as progress is made and further understanding of hybrid developments is developed.

1.11. Can MEC-sharing projects participate in ECP-GSS batches before MEC-sharing go-live?

At present, MEC sharing has not yet been implemented and the associated application, assessment and connection processes have not been established. As a result, there is currently no mechanism for a project to apply as a MEC-sharing project.

Projects may continue to participate in ECP-GSS processes under the existing connection arrangements available at the time of application. However, any such applications would be assessed under the current arrangements in place and not as MEC-sharing projects.

The System Operators are currently assessing how future MEC-sharing arrangements will interact with connection application processes, including ECP-GSS. In parallel, the SOs are actively seeking opportunities to accelerate delivery where possible. The relevant subject Matter Experts are currently assessing whether projects intending to avail of MEC Sharing could apply through ECP-GSS prior to MEC Sharing go-live, with the aim of reducing connection timelines while maintaining alignment with the final MEC Sharing implementation framework. Any such approach would need to be technically robust, operationally secure and consistent with the final design. Further information will be provided as this assessment progresses. **If an existing contracted project wants to share MEC and reduce its MEC, will it be charged?**

The charging treatment for an existing contracted project seeking to share MEC and reduce its contracted MEC will depend on the relevant connection modification process, applicable charging methodology, connection agreement provisions and regulatory framework in place at the time of application.

The detailed MEC sharing application and modification arrangements have not yet been finalised – intended work on this area is included in the implementation roadmap. Further guidance on any studies, charges, securities or timelines will be provided as the implementation roadmap progresses.

1.12. How will MEC-sharing modification applications be processed and what charges or timelines will apply?

MEC-sharing modification applications will be considered through the relevant connection modification process. The detailed application process, assessment requirements, charges, securities and timelines have not yet been finalised and will be confirmed through the roadmap scoping and impact assessment phase.

In principle, any application will depend on the specific site configuration, whether additional studies or works are required, and the applicable connection agreement, charging methodology and regulatory framework in place at the time. Further guidance will be provided as the implementation roadmap progresses.

1.13. Does MEC sharing apply to offshore projects?

No. The current arrangements are limited to onshore sites.

1.14. Will the technical assessments submitted to the CRU in support of MEC sharing be published, and will further detail on MEC allocation between units be provided?

No. The technical assessment undertaken by the System Operators informed the CRU's decision on MEC Sharing. The principal conclusions and considerations arising from that assessment are reflected in the CRU Decision Paper and the published Implementation Roadmap.

2. Readiness and Delivery

2.1. What is required for MEC sharing to be implemented at a site?

Sites must be individually sub-metered, separately registered, and have operational controls to ensure aggregate export never exceeds the shared MEC. Implementation depends on changes across connections, operations, market arrangements, settlement, metering, codes/compliance, and IT systems.

2.2. Who is responsible for compliance with the shared MEC?

The participant is responsible for ensuring aggregate export from the site does not exceed the shared MEC at any time. This extends across other trading and data submission requirements, including ensuring that the aggregate trading positions, physical notification submissions, and availability declarations do not exceed the shared MEC at any time. More information on this is available in the CRU's policy decision paper ([CRU202643](#)).

3. Priority Dispatch

3.1. Can priority dispatch units participate in MEC sharing?

No. Priority dispatch configurations are not enabled under the current MEC sharing arrangements. Only non-priority dispatch units are supported.

3.2. What happens if an existing priority dispatch site adds another technology and shares MEC?

Connection Agreement modification applications submitted for the purpose of MEC sharing shall be processed on the basis that PD status is not retained. In the absence of regulatory clarity, including in relation to SEM-20-072 and the treatment of material modifications, further guidance will be developed. This position reflects the significant operational and regulatory complexity associated with accommodating Priority Dispatch within MEC sharing arrangements, including multiple dispatch and curtailment scenarios with differing system, market, and compensation implications.

3.3. Why is the interaction between PD and NPD units at a shared connection point not being considered within the current roadmap?

Before the interaction between Priority Dispatch (PD) and Non-Priority Dispatch (NPD) units at a shared connection point can be considered, further regulatory clarity is required. In particular, clarity is needed on the treatment of significant modifications under SEM-20-072 and the application of Article 12 of Regulation (EU) 2019/943, before arrangements involving PD units can be supported.

In addition to this regulatory clarification, further assessment would be required to understand the changes needed to allow PD and NPD units to operate behind a shared MEC. This would include, for example, how dispatch and curtailment priorities would be preserved where units at the same connection point have different priority treatment. Under the current arrangements, the SOs do not currently have an implemented operational framework, control model or market arrangements that would allow PD and NPD curtailment priorities to be reliably preserved behind a shared MEC.

There are also a number of gaps, such as control and allocation, and issues with how priority dispatch resources are operated, that would make it unlikely, or potentially impossible, for priority dispatch resources to meet the combined requirements of MEC sharing and other policies relevant to priority dispatch. The System Operators do not currently have the internal allocation control needed to determine how the shared MEC should be allocated between PD and NPD units in real time, particularly where dispatch, curtailment, scheduling and settlement treatment differ between those units.

The existing arrangements also are such that priority dispatch resources have their real-time availability provided based on SCADA measurements of their true technical availability without any user-defined amendments, such as those that would be anticipated from participants deciding how to declare their availability across multiple units in such a way that the aggregate does not exceed the shared MEC. This availability signal is also used in the market arrangements as that unit's physical notification profile. There would be a difference between priority dispatch resources whose PN would change in real-time in ways that are not fully within their control, and non-priority dispatch resources who would be required to submit a final physical notification prior to the Gate Closure time 1hr ahead of the relevant Imbalance Settlement Period. This creates a timing and coordination problem, as there is no guarantee that the PN on the non-priority dispatch resource locked-in an hour ahead of time will be sufficient to ensure the real-time changing PN from the priority dispatch resource would not

cause the aggregate of the PNs to exceed the shared MEC. This operational barrier does not arise for combinations of non-priority dispatch resources alone, where both would be able to guarantee final PN submissions that are aligned with the sharing of MEC obligations. This issue is recognised in the CRU's decision paper as an operational barrier to priority dispatch resources being able to in scope for sharing of MEC.

Similar to the issues with cross-charging and integrated hybrids, the areas outlined above represent some of the currently identified issues and uncertainties – in other words, the “known unknowns”, where there may be further “unknown unknowns” that arise and would need further work to address as we investigate these matters in more detail, and as learning is gained through the design and implementation of MEC sharing. Addressing these issues would require further technical, operational, market and regulatory assessment before any implementation approach could be defined. For this reason, PD and NPD interaction is not included within the current MEC sharing roadmap.

3.4. Is the exclusion of Priority Dispatch (PD) units from MEC sharing a permanent design decision?

Does this mean that, subject to future regulatory clarity, the programme will consider how to integrate Priority Dispatch within MEC sharing?

Does uncertainty regarding Priority Dispatch create risks for the implementation of MEC sharing?

Any future consideration of PD within MEC sharing would first require regulatory clarity, including in relation to SEM-20-072, the treatment of significant modifications and the application of Article 12 of Regulation (EU) 2019/943. Once that clarity is available, the SOs will assess the changes that would be required to support PD and NPD units within a shared MEC arrangement, including dispatch, curtailment priority, scheduling, settlement, compliance and operational control requirements, in parallel while working on those elements for the general implementation of MEC sharing following the roadmap. The outcome of that assessment will be communicated to industry, where appropriate, through future programme updates or engagement channels. At this stage, no implementation approach or timeline for PD integration can be confirmed, but the implementation of MEC sharing following the implementation roadmap will not be dependent on an approach or timeline for PD integration.

3.5. Does the further assessment of different technology configurations mean that the System Operators will determine how the CRU decision is implemented?

The further assessment of technology configurations does not change the policy framework established by the CRU decision on MEC Sharing. Rather, it relates to specific technology configurations that require additional technical consideration, such as arrangements involving both asynchronous (PPMs) and synchronous (conventional) generation technologies sharing a single MEC.

4. Energy Sharing

4.1. Is cross-charging or behind-the-meter energy sharing allowed?

No. Under the current arrangements, energy sharing or cross-charging between co-located units behind the meter is not permitted. Each unit operates independently, and curtailed or dispatched-down energy cannot be redirected to storage or other units behind the meter.

4.2. Why is cross-charging not allowed even though MEC sharing is allowed?

Cross-charging cannot be supported today because the required operational visibility and control approaches to enable a participant to charge a storage resource through behind-the-meter flows rather than dispatching down or controlling the maximum output of a generator are not available, and enabling it would require significant changes across dispatch/forecasting, metering, settlement, technical standards, and SCADA/site controls. More details on the complexity relating to such changes are outlined in the response to Question 1.5

4.3. When could cross-charging or behind-the-meter energy sharing be enabled?

How does cross-charging differ from integrated hybrids, and could cross-charging be enabled ahead of fully integrated hybrids?

Is cross-charging completely excluded under the current MEC sharing arrangements, and could it be reconsidered in the future?

Cross-charging and behind-the-meter energy sharing are not enabled under the current MEC sharing arrangements. Under the initial implementation, each unit must remain separately registered, metered, dispatched and settled, and curtailed or dispatched-down energy cannot be redirected between technologies at a hybrid site. More details on why this is the case are outlined in the response to Question 1.5.

Cross-charging is different from a fully integrated hybrid model. Cross-charging could allow energy to move internally between separately registered units behind the connection point, for example from a renewable unit to a co-located storage unit. Integrated hybrids would go further and involve multiple technologies being registered and operated as a single combined market and dispatch unit. Integrated hybrids therefore require a broader framework covering market registration, dispatch, settlement, metering, Grid Code compliance, operational visibility, system services and related regulatory treatment.

The SOs have already started to consider the challenges associated with both cross-charging and integrated hybrids, including whether any form of cross-charging could potentially be enabled before a fully integrated hybrid model. This assessment will need to consider, among other things, how internal energy flows would be measured and distinguished from export, import, curtailment or dispatch-down actions and how such flows could be enabled through changes to operational dispatch and control approaches. It will also need to consider how they would be reflected in settlement, imbalance, compensation, and compliance arrangements.

At this stage, no implementation pathway or timeline can be confirmed for cross-charging or behind-the-meter energy sharing. The outcome of the assessment will determine whether cross-charging can be progressed as a separate future capability within a co-located model, or whether it must be considered as part of a wider integrated hybrid framework. Further updates will be provided to industry when the scope, methodology and potential pathway are more clearly defined.

4.4. Will the scope, methodology, and timeline for the cross-charging assessment referenced in the roadmap be published?

Yes, the SOs intend to provide further information to industry on the scope, methodology and indicative timing of the cross-charging assessment once these have been sufficiently developed. At this stage, the assessment is still at an early stage and the detailed scope, approach and timing have not yet been confirmed.

The SOs have already started to consider the challenges associated with cross-charging and integrated hybrids, including whether any form of cross-charging could potentially be enabled before a fully integrated hybrid model. This work will need to assess the technical, operational, market, metering, settlement, compliance and regulatory changes that would be required to support internal energy flows between technologies behind a shared connection point.

Further updates will be provided through appropriate industry engagement channels when the assessment scope and methodology are more clearly defined. At this stage, no implementation pathway or timeline for cross-charging can be confirmed.

4.5. The decision states that energy sharing between co-located technologies behind the connection point is not permitted. Can you confirm whether dispatched-down energy can be redirected between technologies at a hybrid site?

No. Under the current MEC sharing arrangements, dispatched-down or curtailed energy cannot be redirected between technologies at a hybrid site. Each unit must remain separately registered, metered, dispatched/controlled and settled, and energy sharing or cross-charging behind the connection point is not permitted.

4.6. For MEC Sharing, can Guarantees of Origin (GoOs) be issued for energy that is dispatched down, stored (e.g. in a BESS), and later exported?

No. Under the current MEC sharing arrangements, dispatched-down or curtailed energy cannot be redirected to a BESS and later exported. As cross-charging is not permitted, this scenario is not supported for GoO issuance under the current design.

4.7. With the roadmap now published - can I please ask to confirm how this may work in practice with it seemingly ruling out generation exporting to onsite BESS? Is the view that dispatch down will lessen as the BESS will be a new local demand source that can be met from the shared renewable resource and therefore it's Dispatch Down will be lessened and the BESS can import with all of this being metered and done through the market?

The current MEC sharing arrangements do not enable direct energy sharing or cross-charging between the renewable generation unit and the onsite BESS behind the connection point. Under the co-located MEC sharing model, each unit remains separately registered, metered, dispatched/controlled and settled, and operates independently for market, settlement and dispatch purposes. Therefore, renewable energy that is curtailed or dispatched down cannot be redirected to the BESS behind the meter, this is not treated as direct behind-the-meter transfer of energy from the renewable unit.

In practice, there are potential benefits of MEC sharing on RES dispatch down, where the renewable generator and BESS can share the same site MEC at the connection point which may help with the BESS unit's ability to connect and therefore participate in the market arrangements, subject to the aggregate export remaining within the contracted MEC and the required metering, control, dispatch and settlement arrangements being in place. The BESS may trade to charge/import and participate in the market like any other BESS unit in accordance with its own registration and applicable market arrangements, and in this way can contribute towards the general reduction of RES dispatch down. However, based on energy sharing not being possible, this would not be based on a "local demand source that can be met from the shared renewable resource", it is the participation in the market that enables this general RES dispatch down benefit.

5. Technical and Operational Arrangements

5.1. How are system services metered and assessed for each resource at a hybrid site?

System services are metered and assessed individually for each resource. Each unit must have separate sub-metering, and service delivery is monitored and settled based on individual performance and availability. There is no aggregation for system services; each unit's contribution is tracked and rewarded or penalized independently.

5.2. Can the contribution of one resource compensate for the deficit of another in system services delivery (e.g., POR)?

No. Each resource is assessed independently for system services. A deficit or underperformance in one unit cannot be compensated by another unit; penalties, rewards, and compliance are applied at the individual unit level.

5.3. How are penalties, rewards, or compliance obligations assigned for shared connections?

Penalties, rewards, and compliance obligations are assigned to the individual unit that is registered and metered. Each resource is accountable for its own performance and obligations, and settlement is managed per unit.

5.4. How would firm and non-firm access work if conventional units were allowed to share a connection?

How will firm access be assessed for new units under MEC sharing, given that existing units retain their firm access status?

Firm and non-firm access arrangements for units participating in MEC sharing, including any new units and conventional units, will be considered during implementation stage in line with the recently published MEC sharing roadmap ([link](#)). Further detail will be provided as the implementation work progresses.

5.5. Is a new HV compound or transformer required for hybrid sites, or can resources share existing infrastructure?

This will be assessed as part of the implementation tasks and communicated further as the programme progresses.

5.6. How does the SCADA signals work for shared connections?

Each unit is individually sub-metered and must provide operational signals (such as availability) independently. Operational policies and system changes are being developed to ensure compliance with shared MEC arrangements, including updates to SCADA and EMS signals, but specific technical details will be provided at a later stage as the implementation work progresses.

5.7. How does the EDIL commands work for shared connections?

Each unit at a hybrid site declares its availability independently and will be dispatched individually. For batteries and conventional units, real-time availability is declared in EDIL. For wind and solar, availability is managed via EMS signals. The operational arrangements for EDIL commands are being developed as part of implementation, but detailed procedures will be provided at a later stage as the implementation work progresses.

5.8. Will existing units that have already achieved operational certification be required to undergo additional compliance assessments to operate under a shared MEC arrangement?

This will be assessed during the implementation phase in line with the MEC sharing roadmap. Existing operational certification will be taken into account, but additional compliance assessment may be required where changes are needed to operate under a shared MEC arrangement, including changes to controls, metering, signalling or site-level compliance requirements.

Will technical specifications for sub-metering, SCADA visibility, and aggregate MEC control logic be published in advance of implementation to support developer readiness?

Metering, Sub-metering and Protection specifications are issued as part of the connection process.

5.9. What technical requirements will apply for control systems, protection systems, and metering under MEC sharing?

The detailed technical requirements for SCADA visibility, aggregate MEC control logic, control systems, have not yet been finalised. These requirements will be developed during the scoping phase of the MEC sharing roadmap, which covers the first 12 months of implementation.

Further detail will be communicated to industry through the appropriate engagement channels as soon as the requirements are sufficiently developed and confirmed.

5.10. Will the metering arrangements for MEC sharing will follow current sub-metering approaches? (e.g. a single main meter at site level with sub-metering for individual units)

Main and Check HV Metering will be installed for total output per site as per current arrangements and Main and Check Sub-Metering for one or more Market units as per site and Market sub-metering configurations.

5.11. Has there been consideration of how MEC sharing will interact with CRM participation, including prequalification and derating factors?

Capacity Market participation, including prequalification and derating factors, will be considered and assessed during the scoping phase of implementation in line with the MEC sharing roadmap ([link](#)). Further detail will be provided as the relevant market and capacity arrangements are developed.

5.12. Can further detail be provided on the requirement for separate units for dispatch, settlement and system services, particularly where certain services are assessed at site level (e.g. reactive power)?

This will be assessed during implementation in line with the MEC sharing roadmap. Further detail will be provided as the requirements for separate units for dispatch, settlement and system services, including any site-level assessment considerations, are developed.

5.13. Will details on additional technical studies or requirements for MEC sharing between synchronous and non-synchronous technologies be provided?

Yes. This question relates to technology mix, particularly configurations that combine PPMs with conventional synchronous technologies, which may have different Grid Code and operational requirements. The SOs will progress the technical assessment of these configurations in parallel with the MEC sharing roadmap. Further details on any additional studies, requirements or conditions will be provided as the technical assessment and implementation work progresses.

6. Implementation Timelines and Industry Engagement

6.1. How will industry be kept informed during and after the implementation?

How will industry engagement be structured going forward, and will there be opportunities for more formal collaboration (e.g. via dedicated groups or forums such as SOEF)?

Industry will be kept informed through existing engagement channels as the MEC sharing implementation progresses. The SOs will provide quarterly updates to the CRU on progress against the roadmap, as set out in the CRU decision paper, and the SOs will continue to engage with industry through channels such as the monthly Future Markets Industry Workshop and the

Industry Governance Group. The initial phase of the roadmap is focused on scoping and impact assessment, so detailed updates may be limited during the first 12 months until key enabling details have been sufficiently assessed. Further updates will be provided when there are concrete outcomes or decisions to share.

6.2. What does Go-live mean in the Roadmap? At that time, the industry will be able to apply for MEC Sharing?

Go-live means the point at which the required processes, systems, codes, agreements and operational arrangements are in place to enable MEC sharing to be implemented. It does not mean that applications for MEC sharing can be accepted before the necessary implementation work has been completed.

Industry will be able to seek MEC sharing once the relevant application and modification processes are available and the required enabling arrangements are in place. Further detail on how and when applications can be made will be provided as the roadmap progresses.

6.3. Why can't MEC sharing be implemented immediately?

What is the rationale for the implementation timeline, given that hybrid development has been under consideration for several years.

Given the length of time this work has been under development, is the current implementation timeline considered acceptable?

There are already examples of multiple technologies at a single connection point, why is further development required?

Given that MEC sharing was previously identified as a more straightforward step towards integrated hybrids, how has this translated into the current implementation timeline?

Although hybrid development has been under consideration for several years, the current roadmap moves the work from technical assessment and policy development into detailed design, implementation and testing. A key dependency for progressing to implementation was the publication of the CRU decision paper on MEC sharing. Until that decision was available, the SOs did not have the confirmed policy basis needed to organise the programme, confirm the implementation scope, and secure the appropriate internal and cross-organisational resources. Starting a detailed roadmap before that point would have carried a risk of developing workstreams, requirements or timelines that were not aligned with the final regulatory decision.

For that reason, the SOs sought to publish the roadmap as soon as reasonably practicable following the CRU decision, while also allowing time to establish the resources needed to begin delivery in a controlled way. The planned start date therefore reflects the practical steps required to move from a regulatory decision into an organised implementation programme, rather than a decision to defer work unnecessarily. The first phase is intended to confirm the detailed requirements, dependencies, risks and delivery approach before implementation

activities progress further. There are already sites with multiple technologies at a single connection point, but MEC sharing cannot be implemented immediately because it introduces a different arrangement where separate units share a single site-level MEC while remaining independently registered, metered, dispatched and settled. This requires changes across several areas, including connection processes and agreements, market registration, dispatch and scheduling, settlement, metering, modelling, system services, Grid Code and related compliance arrangements, rules, processes and controls to ensure the shared MEC is not exceeded and that each unit can continue to be operated, monitored and settled correctly.

MEC is a fundamental and important metric at the heart of the entire market, operational, and commercial arrangements in Ireland and the SEM, with particular conceptual meaning and intent, and based on that conceptual meaning and intent it has been woven into all of the various arrangements mentioned. Changing or adding to the conceptual meaning and intent of MEC, which introducing the concept of shared MEC would do, will therefore require careful work to ensure it is done in a way which is consistent across all arrangements and where all changes necessary to implement the approach are aligned in that consistency. Making one proposed change in one area will require checking the impact across all other areas, which drives the complexity of this implementation.

For a brief example to illustrate this, one of the main areas that will need to be changed to introduce sharing of MEC is the Grid Code, where the concept of individual unit and shared site MEC would need to be outlined in some way. These MEC metrics are then used for aspects such as signals (for instance for renewable generator availability), reactive power testing, the main startpoint for determining qualified capacity market bid volumes, input to the firm access policy implementation, etc. (just to name a few areas highlighted in the roadmap), so ensuring that the concepts are correctly reflected in those areas would need to be assessed.

Through that assessment it may need to be determined whether changes are needed in those arrangements to correctly implement those changes, and from there an impact assessment for the downstream areas of work, for example in the sample areas mentioned from the roadmap:

- For signals, how those signals are used in the control centre operational security systems, and for other activities such as calculating forecast availabilities over time;
- For reactive power testing, how that impacts the capabilities of those units to participate and be settled for provision of reactive power support services;
- For capacity market, if changes would be needed to the models used to determine the capacity requirements and de-rating factors;
- For firm access, if changes are needed to the modelling approaches for determining firm access quantities.

These assessments may actually determine that adjustments and amendments may be needed upstream in the approach originally intended to introduce sharing of MEC in the Grid Code to ensure that consistency, which would then require further assessments across all of the impacted areas.

When this is applied across all areas identified in the roadmap as being impacted by the introduction of the new concept of a shared MEC, this becomes a complicated exercise, which is the main driver for the timeline in the roadmap for the initial scoping and design phase. Understandably there will be elements of uncertainty about how exactly those processes will need to be followed until that detailed technical work can begin in earnest, and if it is found that there are approaches to those processes that can expedite the timelines the SOs will look to follow them, but based on the expertise of those working in the SOs in the relevant areas identified in the roadmap, the timelines were identified as what it is believed will be required for this exercise.

For the implementation phase, many of these timelines are driven by factors outside of the control of the SOs. This is particularly the case for the standard timelines associated with governance processes where code modifications are considered. These activities need to follow certain processes for engagement with relevant modifications panels, following the available timelines for those processes, and then go to the relevant regulatory bodies to make a decision, which will follow the relevant timelines of those regulatory bodies.

While MEC sharing may be “more straightforward” than other approaches to hybrid connections, this does not mean that it is quick and easy to implement – in fact that is more of a comment on the greater complexity of the other approaches than the simplicity of the MEC sharing approach. MEC sharing remains a more defined and achievable step than fully integrated hybrids, because it preserves unit-level visibility and independent operation – to change this would be a fundamental change in how the power system and market are organised and operated. However, MEC sharing still requires coordinated implementation across multiple workstreams before it can go live. The timeline reflects the need to complete that work in a controlled way, subject to dependencies such as code changes, system updates, testing and regulatory approvals.

6.4. What is the planned M1 start date, does the pre-M1 ramp-up period have a defined end date, and how should developers consider this timing when making commitments linked to RESS milestones?

The planned M1 start date for the MEC sharing implementation roadmap is September 2026, Following completion of the preparatory ramp-up activities required to establish the programme, confirm resourcing and mobilise the relevant workstreams. The period before M1 is intended to support mobilisation and planning rather than to represent the start of the formal implementation timeline.

The pre-M1 ramp-up period does not have a separate fixed end date beyond the commencement of M1. Its purpose is to ensure that the SOs are ready to begin the roadmap in a controlled way, including identifying dependencies, confirming governance arrangements and aligning the relevant internal and cross-organisational resources.

Developers should not treat the roadmap dates as a basis for making binding commercial, contractual or RESS-related commitments unless and until the relevant enabling arrangements, application processes and timelines have been confirmed. The roadmap provides an indicative implementation pathway for MEC sharing, but individual project

timelines will depend on the finalised process, project readiness, connection requirements, studies, regulatory approvals and any site-specific dependencies.

In relation to RESS milestones, developers should continue to assess their obligations under the relevant RESS terms and conditions and should not assume that MEC sharing will be available in time to support any specific project milestone unless this has been confirmed through the applicable processes. Further information on the relationship with RESS terms and conditions is available in the answer to Question 1.10, and further information on the application process and timing for MEC sharing will be provided as the roadmap progresses.

6.5. The roadmap allocates 11 months to the System Services workstream. Can the SOs explain the rationale and interdependencies?

The 11-month duration reflects the level of assessment and design required to integrate a shared MEC framework into the System Services arrangements. Under MEC sharing, each unit at the hybrid co-located site is expected to remain a separate provider of System Services, while the site as a whole must continue to operate within the shared MEC limit. This creates additional complexity because availability, reserve capability, dispatch positions and service delivery need to remain consistent both at individual unit level and at the shared connection point.

The System Services workstream is therefore interdependent with several other roadmap areas, including dispatch and scheduling, forecasting, market registration, settlement, metering, SCADA/signalling, compliance and operational monitoring. For example, the treatment of availability signals, AAP, state of charge, reactive power capability and service performance may need to be reviewed to ensure that System Services can be assessed and settled correctly without creating a risk of MEC breaches or inconsistent operational positions.

The duration also reflects the need to assess whether existing System Services protocols, tools, testing arrangements, monitoring processes and settlement interfaces require updates. The detailed design of the System Services workstream, including any interaction with DASSA arrangements, will be developed through the roadmap scoping and impact assessment phase before implementation requirements can be confirmed.

6.6. Given the number of Ireland-specific, SEM, and retail workstreams identified in the roadmap, have the required resources and dependencies across organisations been identified and accounted for?

Yes. The roadmap identifies the key workstreams, organisational dependencies and areas requiring cross-functional and cross-organisational coordination. Resourcing and dependencies will continue to be reviewed as implementation progresses, particularly where detailed design, approvals, system changes or cross-jurisdictional coordination are required. Further updates will be provided through existing engagement channels where material dependencies affect delivery.

6.7. Will detailed programme plans and risk registers be developed and shared with stakeholders to support transparency and delivery of the roadmap?

Updates on roadmap progress will be shared with industry through existing engagement channels as the programme develops. At this stage, detailed programme plans and risk registers are not intended to be published separately, but relevant updates will be communicated where there are material developments to share.

6.8. Why are approaches used in other markets (e.g. Great Britain) not being directly applied to MEC sharing in Ireland?

Approaches used in other markets cannot be directly applied without assessing their compatibility with the Irish context. MEC sharing must be implemented within the Irish connection, Grid Code, market, settlement, metering, system services and regulatory frameworks, including all-island SEM arrangements where relevant. The SOs will therefore develop an approach that is appropriate for Ireland rather than directly adopting another market's model.

6.9. As MEC sharing modapps won't open until after Go-Live (2+ years away). Given connection, build-out and delivery timelines, does this mean the first MEC sharing projects won't connect until the early 2030s?

It is not possible to confirm connection dates for the first MEC sharing projects at this stage. Go-live means the enabling arrangements are in place; individual connection timelines will then depend on the relevant application process, project readiness, studies and any site-specific requirements.

6.10. The CRU decision references storage-related workstreams; is there a risk that these could delay MEC sharing implementation?

The storage-related workstreams referenced in the CRU decision are not expected to delay the implementation of MEC sharing. MEC sharing is progressing through its planned development and implementation process, while related workstreams continue in parallel. Any interactions with these workstreams will be managed through normal implementation activities and are not currently anticipated to impact the planned delivery timeline.

6.11. MLE is referenced in the CRU decision as being delivered under private wires legislation, can a roadmap or timeline for this be shared?

MLE arrangements are not enabled under the current MEC sharing implementation and remain outside the current roadmap. MLE would require a separate workstream and further regulatory direction before detailed design or a timeline can be confirmed. The SOs are engaging with the CRU on this area, and any roadmap or timeline would depend on the outcome of that engagement and the relevant regulatory framework. Further updates will be provided when there are concrete outcomes to share.

6.12. The CRU has indicated that progress will be tracked on a quarterly basis. Can the process between the SOs and CRU be documented and published, and will regular updates to industry be provided?

The SOs will provide quarterly updates to the CRU on progress against the MEC sharing roadmap. These updates are part of the engagement process between the SOs and the CRU and are not intended for separate publication. Industry updates will continue to be provided through existing engagement channels where there are relevant updates to share.

6.13. What governance and approval processes apply to MEC sharing, including the role of the CRU and SEMC?

The SEMC will have a key role in the governance and approval of any All-Island elements of the programme, particularly where changes to market rules, codes (TSC and CMC) or settlement arrangements are required. The timing and sequencing of SEMC engagement will be aligned with when such approvals are required within the roadmap. We will continue engagement with SONI on whether there are areas where NI or all-island policy discussions or decisions would be needed to enable all-island aspects, otherwise we will also continue such engagements with SONI on the implementation of aspects which impact all-island aspects that are enabled within the existing policy decision. CRU will also have a key role in approving aspects requiring local governance approvals, in particular for Grid Code modifications.