

Qualification Trial Process

Proven Technology List

26 June 2026



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Revision History						
Revision	Date	Description	Originator	Reviewer	Checker	Approver
R0	26 th June 2026	Updated version of the Proven Technology List	EirGrid	EirGrid & SONI	EirGrid & SONI	EirGrid & SONI

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1 Purpose and Scope

This document sets out the approach used by EirGrid and SONI to determine technology eligibility for the provision of System Services in Ireland and/or System Support Services in Northern Ireland. It explains the role of the Qualification Trial Process (QTP) in assessing new and emerging technologies, describes the purpose and use of the Proven Technology List, and outlines how technologies may be classified as proven. The document is intended to provide clarity to technology providers, developers, and system participants on the evidence-based processes used to support System Services / System Support Services delivery while maintaining the safe, secure, and efficient operation of the power system.

This document is descriptive in nature and does not alter existing regulatory, contractual, or Grid Code requirements. Classification as a proven technology does not confer any right to connect to the system, nor does it guarantee qualification or procurement under any System Services / System Support Services.

2 Background and Context

The evolution of the Irish electricity system towards high levels of non-synchronous generation has increased the importance of a diverse portfolio of System Services / System Support Services. Historically, many System Services / System Support Services were delivered by conventional synchronous plant, and operational confidence in these services was developed through long-term experience. As new technologies have emerged, it has become necessary to introduce structured mechanisms to assess their capability to provide System Services / System Support Services and to understand their interaction with existing TSOs operational, control, monitoring, and settlement processes.

Within this context, the TSOs maintain a Proven Technology List as a means of identifying technology classes that have demonstrated the capability to provide specific System Services / System Support Services. For technologies that are not yet proven, or that seek to provide services in a novel or modified manner, the Qualification Trial Process provides a controlled and transparent pathway for assessment.

3 Qualification Trial Process

The QTP is the mechanism used by the TSOs to assess the capability of new and emerging technologies to provide System Services / System Support Services and to understand their interaction with existing operational, control, monitoring, and settlement processes. The QTP supports innovation while ensuring that the secure and reliable operation of the electricity system is maintained as the technology mix evolves.

The process provides a structured and transparent pathway through which technologies that are not yet classified as proven may demonstrate compliance with System Services / System Support Services definitions under real system operating conditions. It also enables the TSOs to identify any technical or operational complexities associated with the integration of such technologies prior to large-scale deployment.

The QTP typically commences with the publication of a Call for Information, which is published annually, typically around Q2 (May-June), providing an opportunity for industry stakeholders to submit information on emerging technologies, proposed system service capabilities, and areas where additional system support may be required. As an example, EirGrid and SONI published a Call for Information in May 2025 to re-engage with stakeholders and to inform the design of future qualification trials ([EirGrid](#), [SONI](#)). Responses to this Call for Information were used to identify priority technology areas, including technologies proposing novel methods of system service delivery, and to shape the scope and objectives of subsequent trial activity (see the report for [EirGrid](#) and [SONI](#)).

Following consideration of the information received and engagement with regulatory authorities where required, the TSOs may proceed to design one or more qualification trials and initiate a competitive

procurement process. In this context, the most recent Request for Proposal (RfP) under the QTP was issued in January 2026 ([EirGrid](#), [SONI](#)) inviting submissions for participation in qualification trials focused primarily on the provision of System Services / System Support Services by new and emerging technologies. This RfP set out the scope of the trials, the services to be demonstrated, the evaluation framework, and the contractual arrangements governing participation.

During the qualification trial phase, participating technologies are required to demonstrate the provision of relevant System Services / System Support Services in accordance with applicable DS3 definitions. Performance is assessed through responses to real system events, disturbances, or dispatch instructions, supported by performance monitoring and data reporting in line with established TSO standards. In parallel, the TSOs assess the broader operational impacts of integrating the technology, including impacts on system operation, control room processes, performance monitoring, scheduling, and settlement.

On completion of a trial, the TSOs evaluate the technical and operational outcomes and document the learning obtained. These outputs may inform updates to standards, protocols, or operational processes, and may also support a decision to classify a technology class as proven for specific System Services / System Support Services. Participation in the Qualification Trial Process, or classification as a proven technology arising from it, does not of itself imply Grid Code compliance, nor does it guarantee qualification, procurement, or remuneration under regulated System Services / System Support Services arrangements.

Figure 1 provides an overview of the Qualification Trial Process, illustrating the key stages from the Call for Information through to trial execution and evaluation, together with an indicative timeline. The timeline shown is indicative only and reflects typical assumptions and dependencies; actual durations may vary depending on the scope of the trial and the technologies involved.

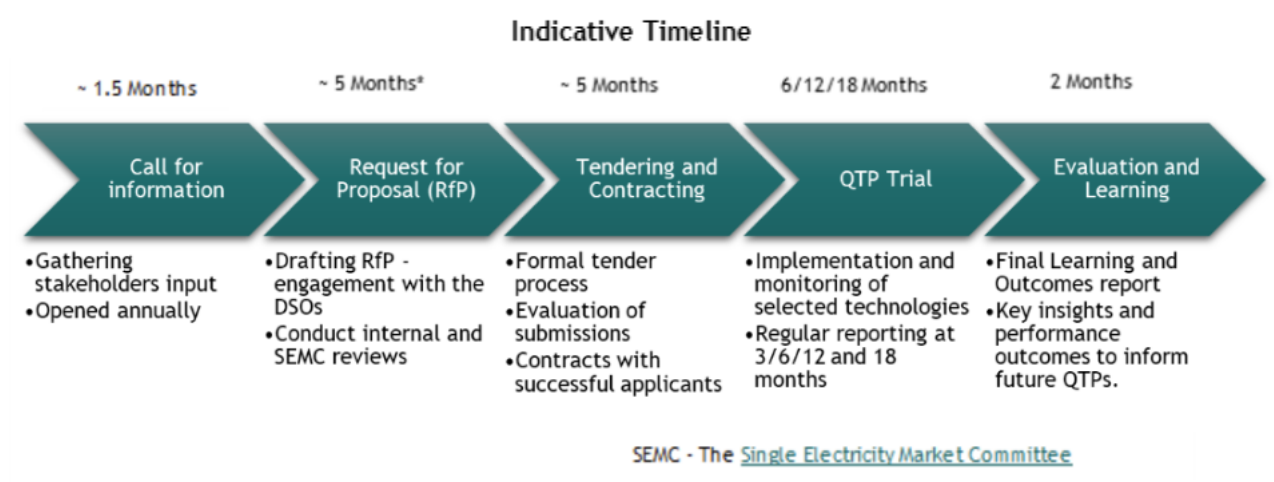


Figure 1: Overview of the Qualification Trial Process and indicative timeline.

4 Proven Technology List

4.1 Purpose

The Proven Technology List identifies technology classes that are considered by EirGrid and SONI to have sufficiently demonstrated the capability to provide specific System Services / System Support Services on the All Island electricity system. The list is evidence-based and reflects learning obtained through historical operational experience and, where applicable, through the Qualification Trial Process.

The primary purpose of the Proven Technology List is to provide clarity and consistency in the assessment of technology eligibility for System Services / System Support Services. By identifying technology classes whose performance characteristics and operational behaviour are understood, the list supports efficient and secure system operation while reducing the need to repeatedly assess the same technology type

through qualification trials. The list, therefore, plays an important role in balancing innovation with system reliability as the generation and demand portfolios continue to evolve.

Inclusion on the Proven Technology List is technology-class specific rather than project-specific and is service-specific rather than general. A technology may be considered proven for the provision of certain System Services / System Support Services but not others, depending on the evidence available and the outcomes of any qualification trials or operational assessments undertaken. The Proven Technology List does not remove the requirement for individual units to meet all applicable qualification, testing, performance, and compliance requirements set out in the DS3 System Services / System Support Services Arrangements ([EirGrid](#), [SONI](#)), nor does it imply compliance with the Grid Code or confer any right to connect to the electricity system.

Technologies are included on the Proven Technology List where there is sufficient evidence to demonstrate that they can reliably deliver the relevant System Services / System Support Services in accordance with the applicable definitions and performance standards, and where any associated operational complexities have been identified and addressed. In many cases, this evidence is obtained through the Qualification Trial Process, particularly for new or emerging technologies, while in other cases, long-standing operational experience may be sufficient to support classification as proven.

The Proven Technology List is maintained as a living document and may be updated from time to time to reflect system learning, changes in System Services / System Support Services arrangements, and technological developments. Updates are published by EirGrid/SONI to ensure transparency and to provide stakeholders with an up-to-date view of technology eligibility for System Services / System Support Services.

4.2 Pathway to classification as a Proven Technology

Classification of a technology class as proven is based on an evidence-based assessment of its ability to provide specific System Services / System Support Services and its interaction with system operational processes. For new or emerging technologies, this evidence is typically obtained through the Qualification Trial Process, as described in Section 3 of this document.

The outcome of Qualification Trial Process, together with relevant operational experience where applicable, may inform a decision by EirGrid and SONI to classify a technology class as proven for specific System Services / System Support Services. Such classification is made at a technology-class level and is service-specific.

Inclusion on the Proven Technology List reflects the availability of sufficient evidence at the time of assessment and does not imply Grid Code compliance, unit-level qualification, or entitlement to procure or be procured for System Services / System Support Services.

4.3 Scope and definitions of Proven Technologies

The Proven Technology List is technology-class specific and service-specific. A technology may be included on the list for one or more System Services / System Support Services while remaining unproven for others. Inclusion on the list indicates that the technology class has demonstrated the capability to deliver the specified services and that its interaction with TSO operational processes is sufficiently understood.

Inclusion on the Proven Technology List does not guarantee qualification for System Services / System Support Services, eligibility for procurement, or remuneration under regulated System Services / System Support Services arrangements. It does not imply Grid Code compliance, nor does it confer any right to connect to the electricity system. These matters are governed separately through established connection, compliance, and qualification processes.

The Proven Technology List is maintained as a living document and will be reviewed and updated annually, ahead of the publication of the Call for Information. Any updates to, or confirmation of no change in, the Proven Technology List will be communicated through the Call for Information to provide transparency to stakeholders on the current status of proven technologies. For the current update cycle, changes associated with the Future Arrangements for System Services / System Support Services (FASS) will not be

incorporated into the Proven Technology List and will be considered in a future update, subject to the relevant policy and implementation timelines.

All System Services / System Support Services referenced in this document, and therefore in Tables 1 and 2, have the meaning set out in the DS3 System Services / System Support Services Regulated Arrangements ([EirGrid](#), [SONI](#)).

4.4 Grid Code Applicability

The Proven Technology List identifies technology classes that are considered capable of providing specific System Services / System Support Services. However, demonstrated or assessed service capability alone is not sufficient to enable participation. Technologies must also be aligned with the applicable Grid Code and have a System Support Services Agreement in place (and, where relevant, the Distribution Code) before they can apply to provide System Services / System Support Services.

For clarity to industry stakeholders, technologies are therefore presented in two categories.

Table 1 includes technology classes that are considered proven for the provision of specific System Services/System Support Services, based on available evidence and operational experience. These technologies may proceed to apply to provide the relevant services, subject to meeting applicable Grid Code, contractual and qualification requirements.

Table 2 includes technology classes that may be capable of providing certain System Services / System Support Services, but for which further work is required before participation can be enabled, including development of Grid Code and/or Distribution Code requirements, market arrangements, or further assessment through the QTP. These technologies have not been subject to qualification trials under the Qualification Trial Process and have not been demonstrated through trial activity on the All-Island electricity system. Their inclusion reflects TSOs' technical assessment that, for technologies ticked as capable, based on established technology characteristics and known operational behaviour, these technology classes are considered capable in principle of delivering the specified System Services / System Support Services in accordance with DS3 service definitions.

The purpose of Table 2 is to provide transparency and early visibility to industry on technology classes that are not considered out of scope from a System Services / System Support Services capability perspective, while clearly signalling that further work is required before participation can be enabled, including the development of appropriate Grid Code (and, where relevant, Distribution Code) frameworks and, where applicable, qualification trial activity.

In the absence of qualification trials and the necessary code frameworks, technologies listed in Table 2 cannot currently be enabled to provide System Services / System Support Services, and inclusion in this table should not be interpreted as validation through trial activity, Grid Code compliance, or eligibility for participation.

Inclusion in Table 2 is not exhaustive. Technology classes not listed in this table should not be interpreted as being out of scope for the provision of System Services / System Support Services. New or emerging technologies, or technologies proposing novel approaches to service delivery, may be assessed separately through appropriate engagement with EirGrid/SONI, including via the Qualification Trial Process or future Calls for Information.

The status of technologies in Tables 1 and 2 is reviewed annually, and any changes are communicated through the Call for Information.

4.5 Current Proven Technology Classes

This section sets out the Proven Technology List for DS3 System Services / System Support Services as applicable at the time of publication and reflects TSOs' current position on proven technologies, distinguishing between technologies that are currently proven for the provision of specific services and those that may be capable of providing such services but require further work before participation can be enabled. Capability and proven status are indicated on a service-by-service basis in Tables 1 and 2 below.

Table 1 - Technologies which are recognised in the Grid Code and are proven for providing the following DS3 system services

Proven Technology List																
Grid Code technology	No	Sub-technology (fuel / operational specific)	DS3 System Services *													
			FFR	POR	SOR	TOR1	TOR2	RR(S)	RRD	RM1	RM3	RM8	SSRP	DRR	SIR	FPFAPR
Generation Unit excluding PPM (EirGrid Grid Code v16: CC.7.3, PPM1.3; SONI Grid Code version in force as of 1Sept2025: CC12 & CC.S1.1.)	1a	Coal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1b	Combined Cycle Gas Turbine - CCGT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1c	Open Cycle Gas Turbine - OCGT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1d	Distillate Oil	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1e	Peat	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1f	Combined Heat and Power	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1g	Hydro	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1h	Pumped Storage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1i	Aggregated Generation Units (fossil-fuel based) - AGU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗
	1j	Waste to Energy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Power Park Module (PPM)** (EirGrid Grid Code v16: PPM1;	2a	Wind Farm	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✗	✓
	2b	Solar Photovoltaic	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗
	2c	Energy Storage Power Station (ESPS)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓

Proven Technology List																
Grid Code technology	No	Sub-technology (fuel / operational specific)	DS3 System Services *													
			FFR	POR	SOR	TOR1	TOR2	RR(S)	RRD	RM1	RM3	RM8	SSRP	DRR	SIR	FPFAPR
SONI Grid Code version in force as of 1Sept2025: CC.S2.1.)																
HVDC Interconnector (Grid Code, v16, CC.7.5; SONI Grid Code version in force as of 1Sept2025: CC.S3.1.)	3a	Direct Current – Voltage Source Converters - VSC	✓	✓	✓	✓	✓	×	×	×	×	×	✓	✓	×	✓
	3b	Direct Current – Line Commutated Converter LCC	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	✓
Demand Side Unit (Grid Code, v16, CC.7.4; SONI Grid Code version in force as of 1Sept2025: CC13 & CC14)	4a	Industrial Demand Side Units (demand response) - DSU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×
													Legend			
													✓	Proven		
													×	Not Proven		

*References to System Services are based on the definitions set out in the System Services Regulated Arrangements published by [EirGrid](#) and [SONI](#); these references are indicative only, and the applicable final definitions will be those set out in the relevant contractual arrangements.

**Connected to the Network non-synchronously through power electronics

Table 2 - Technologies requiring further work, including Grid/Distribution Code Requirements and/or market modifications

			Proven Technology List													
Grid Code technology	No	Sub-technology (fuel / operational specific)	DS3 System Services *													
			FFR	POR	SOR	TOR1	TOR2	RR(S)	RRD	RM1	RM3	RM8	SSRP	DRR	SIR	FPFAPR
Generation Unit excluding PPM	1a	Anaerobic Digester	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1b	Biomass	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Compressed Air Energy Storage	2a	Compressed/Liquid Air Energy Storage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Energy Storage	3a	Flywheels (Non- Synchronous)	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×
Synchronous Compensator	4a	Synchronous Compensator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Demand Side Unit	5a	Residential Demand Side Management (demand response) - RDSM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
													Legend			
													✓	Capable		
													×	Not Capable		

*References to System Services are based on the definitions set out in the System Services Regulated Arrangements published by [EirGrid](#) and [SONI](#); these references are indicative only, and the applicable final definitions will be those set out in the relevant contractual arrangements.