Voltage Stabilisation

To provide feedback to SEAI on the proposed Triple E eligibility criteria changes and to submit your answers to specific questions of interest, please use the stakeholder engagement feedback form:

Feedback Form

Voltage Stabilisation

Summary of proposed Triple E eligibility criteria changes.

To facilitate a refinement of the eligibility criteria for voltage stabilisation it is proposed to make the following amendment:

- A new condition 7 is introduced to ensure best-in-class standards and requirements that products must be compliant with basic design and safety features as set out in the relevant directives or standards.

New Eligibility and test standards:

- Directive: 2014/35 EU – Low voltage Electrical Equipment
- EU EN 61439-1,2,3 – Low voltage switchgear & control assemblies
- EU EN 60076-11 – Power Transformers, Dry type Transformers

The proposed eligibility criteria document is contained on the following pages.

Please follow this link to view the currently published eligibility criteria.

Triple E Eligibility Criteria

Category: Electro-Mechanical Systems

Technology: Voltage Stabilisation

Voltage stabilisation is defined as equipment designed to control the delivered output voltages within a specific acceptable range. It also provides for efficient use of electrical energy in electro-mechanical devices when the supply voltage variations fall outside of the specific acceptable range. Typical voltage stabilisation equipment includes voltage optimisers, voltage regulators and voltage stabilisers.

Voltage Stabilisation Eligibility Criteria

In order to be included on the Triple E Specified List Voltage Stabilisation equipment must meet *all* of the requirements set out below

Note: *Supporting documentation that clearly demonstrates Triple E compliance according to the conditions below will be required as part of the Triple E checking process. Detailed information on the types of documents accepted can be found in the separate Supporting Documentation guidelines.*

No.	Condition
1	The device must provide a dynamic voltage optimisation system with stabilised output voltage. An optimisation by-pass system must be incorporated as standard.
2	The device must control the output voltage within a 1% range of set-point when the supply voltage falls between the levels of 207V and 243.8V single phase or associated 3-phase voltages if a 3-phase unit.
3	Where the unit is three-phase, the unit must be capable of providing an equal three-phase output (balanced) in cases where the input supply voltages are not equal.
4	Insertion losses of the unit must not exceed an overall average of 1% over the ranges of 20%, 40%, 60%, 80% and 95% rated output load. The average should be calculated as being the weighted average of each of the individual insertion losses in % terms. The defined connection profile is that the connected load will be: • 20% rated load for 10% of the time, • 40% rated load for 20% of the time, • 60% rated load for 30% of the time, • 80% rated load for 30% of the time, and

	• 95% rated load for 10% of the time.
5	The device must have a nominal output power rating of greater than or equal to 10kVA and less than or equal to 2MVA.
6	All equipment and/or components must be CE-marked as required by the specific EU Directive(s).
7	Where relevant the device must be compliant with basic design and safety features as set out in the following directives or standards: a) Directive 2014/35/EU – The Low Voltage Directive b) EU EN 61439-1,2,3 – Low voltage switchgear & control assemblies c) EU EN 60076-11 – Power transformers, Dry type transformers
8	Documentation must be supplied with the unit that provides clear indications to the purchaser of expected savings in sample installation situations, outlining (a) the initial supply voltage, (b) the final controlled voltage and (c) the type of equipment connected. This will also include situations where savings are minimal or zero for (a) the case where existing supply voltages lead to minimal savings, and also separately for (b) the case where the supply voltages are high but significant amounts of installed equipment do not readily lend themselves to energy savings. The documentation shall provide a clear indication to the end-user of the types of equipment that do NOT typically provide savings when connected to these devices.
9	Appropriate installation, operating and maintenance manuals, including a wiring diagram, must be available for the end-user as part of the main contract of sale, along with any specific software or commissioning tools required in order to maximise the achievement of any potential efficiency improvements when installed.

---------- End of Triple E eligibility criteria ----------

Please see next section for guidance on:

1. **Technical details required in product submission.**

2. Supporting documentation required

Guidance on product details and supporting documentation

NOTE: The following information is not part of the official criteria document published within the relevant Statutory Instrument. It has been added here for guidance purposes only in order to help you to provide (a) product details and (b) the required supporting documentation.

All information contained in this guidance document is subject to change without notice.

Technical information required in product submission

The following are the specific technical values required as part of the product submission for this technology:

Voltage Stabilisation Equipment type

You must select which type of equipment your product is, either single phase or three phase. Only one type can be chosen per submitted product.

Nominal Power Output Rating (kVA)

The nominal power output of the product in kVA is required as a value for the product submission. It must be entered as a number only without unit symbols. There should also be no spaces or full stops after the number submitted. The figure must be greater than 10kVA and less than 2000kVA.

Supporting documentation required

Described below is the list of documents that are accepted as proof of compliance for the specific Voltage Stabilisation condition.

Note: This information will only be requested AFTER you submit your product's basic details online

Important Notes to Product Providers

Please ensure that you read the "Important Notes for Product Providers" section at the end of this document prior to submitting documentation

No	Condition	Supporting Documentation Requirements
1	The device must provide a dynamic voltage optimisation system with stabilised output voltage. An optimisation by-pass system must be incorporated as standard.	Official and published manufacturer's technical data sheet or brochure that demonstrates compliance with the requirements of this condition.
2	The device must control the output voltage within a 1% range of set-point when the supply voltage falls between the levels of 207V and 243.8V single phase or associated 3-phase voltages if a 3-phase unit.	Official and published manufacturer's technical data sheet or brochure that demonstrates compliance with the requirements of this condition.
3	Where the unit is three-phase, the unit must be capable of providing an equal three-phase output (balanced) in cases where the input supply voltages are not equal.	Official and published manufacturer's technical data sheet or brochure that demonstrates compliance with the requirements of this condition.
4	Insertion losses of the unit must not exceed an overall average of 1% over the ranges of 20%, 40%, 60%, 80% and 95% rated output load. The average shall be calculated as being the weighted average of each of the individual insertion losses in % terms. The defined connection profile is that the connected load will be 20% rated load for 10% of the time, 40% rated load for 20% of the time, 60% rated load for 30% of the time, 80% rated load for 30% of the time, and 95% rated load for 10% of the time.	Official and published manufacturer's technical data sheet or brochure that demonstrates compliance with the requirements of the condition. The values used for determining the insertion losses must be shown in these documents. An overview of how the insertion losses were calculated according to the method detailed in the condition must also be supplied, e.g. copy of excel spreadsheet detailing calculation.
5	The device must have a nominal output power rating of greater than or equal to 10kVA and less than or equal to 2MVA.	Official and published manufacturer's technical data sheet or brochure that demonstrates compliance with the requirements of this condition.
6	All products and/or components must be CE marked as required by the specific EU directive.	Official and published manufacturer's technical data sheet or brochure that demonstrates CE marking compliance.

		OR A copy of an official signed declaration on headed paper which confirms CE marking compliance. Official declarations should explicitly state the product for which CE marking is being confirmed (i.e. do not provide a letter simply stating general compliance with the relevant Triple E Condition). Where a document is used to demonstrate conformance for a number of products or range of products it should clearly specify each individual product covered by that document.
7	Where relevant the device must be compliant with basic design and safety features as set out in the following directives or standards: a) Directive 2014/35/EU – The Low Voltage Directive b) EU EN 61439-1,2,3 – Low voltage switchgear & control assemblies c) EU EN 60076-11 – Power transformers, Dry type transformers	Official and published manufacturer's technical data sheet or brochure that demonstrates compliance with the requirements of this condition.
8	Documentation must be supplied with the unit that provides clear indications to the purchaser of expected savings in sample installation situations, outlining (a) the initial supply voltage, (b) the final controlled voltage and (c) the type of equipment connected. This will also include situations where savings are minimal or zero for (a) the case where existing supply voltages lead to minimal savings, and also separately for (b) the case where the supply voltages are high but	A copy of an official signed declaration on headed paper which confirms CE marking compliance. Official declarations should explicitly state the product for which the requirements are being confirmed (i.e. do not provide a letter simply stating general compliance with the relevant Triple E Condition). Where a document is used to demonstrate conformance for a number of products or range of products it should clearly specify each individual product covered by that document.

	significant amounts of installed equipment do not readily lend themselves to energy savings. The documentation shall provide a clear indication to the end-user of the types of equipment that do NOT typically provide savings when connected to these devices.	
9	Appropriate installation, operating and maintenance manuals, including a wiring diagram, must be available for the end-user as part of the main contract of sale, along with any specific software or commissioning tools required in order to maximise the achievement of any potential efficiency improvements when installed.	A copy of an official signed declaration on headed paper which confirms that the appropriate operating and maintenance manuals are provided. Where possible, a link to technical documentation available to download online should be included. **NB:** A signed declaration is required to comply with this condition in all cases. Submitting copies of user manuals is not sufficient and not required by this condition.

Important Notes to Product Providers

General

There should be a clear link between all supporting documentation supplied and the product being submitted. This will typically take the form of a product code or product name that can be cross referenced between the submitted product and relevant supporting documentation. If product codes / names have been changed since publication of the supporting documentation, then official evidence of this must be provided with the supporting documentation supplied.

Any deviation from these requirements will result in the supporting documentation not being considered adequate for the purposes of demonstrating compliance with the criteria conditions. This will in turn delay the submission and/or result in the product not being considered eligible.

Where the Triple E criteria or help documentation references compliance to appropriate rather than specific standards, the onus is on the product provider to ensure that supporting documentation supplied references recognised standards that apply to the submitted product, i.e. the product must be covered under the scope of a recognised standard.

If any product submitted is later found not to meet the performance or specification criteria, then this product will cease to be considered eligible for the Triple E.

Note: When supplying the supporting documentation through the online process you must ensure that the correct page number(s) of the document is referenced when demonstrating compliance with the relevant condition. An explanatory note should also be given where more than one page number is referenced.

Test Report

A test report must include an outline of the complete test, including:

- √ Introduction
- √ Details on test conditions
- √ The specific model details of the product tested
- √ The steps taken in the test
- √ The results
- √ Graphical representations
- √ Conclusion

All documents should be on headed paper and the document should be officially signed off.

All documentation must be in English or include adequate translation.

Certification

Where certificates are provided, all tests must be carried out by an organisation that is accredited by a national accreditation body recognised via the European Cooperation for Accreditation (preferred) or the International Accreditation Forum. **All documentation must be in English** or include adequate translation.

Scientific Equivalence

Some Triple E criteria conditions allow for scientifically equivalent tests and/or standards to be used. In the event that a product has not been designed, manufactured or tested to the specific standard named, then documentation relating to an equivalent internationally recognised standard may be used (where the phrase 'Or scientific equivalent' is included in the Triple E condition or help documentation). In such applications, the onus will be on the product submitter to demonstrate satisfactory equivalence of the standards. However, submissions which reference such supporting documentation may take longer to process, and if the product provider does not provide satisfactory evidence of equivalence, then the product will not be considered eligible for the Triple E register.

All documentation must be in English or include adequate translation.

Note: Where specific standards are cited in a condition or in the Triple E help documentation, then documentation demonstrating that the relevant products have been designed, manufactured or tested to these specific standards is preferred. Scientific equivalence is considered the exception rather than the norm.