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Appendix 1 Documentation

Energy storage facility category T

Technical regulation 3.3.1 for electrical energy storage facilities

EFFECTIVE FROM 18 December 2019

Please note: This is a translation. In case of inconsistencies, the Danish version applies.

# Appendix 1 Documentation

Appendix 1 specifies the documentation requirements for the five facility categories, see section 1.1.4 in the regulation:

A. Energy storage facilities up to 125 kW

B. Energy storage facilities from and including 125 kW up to 3 MW

C. Energy storage facilities from and including 3 MW up to 25 MW

D. Energy storage facilities from and including 25 MW or connected at voltages above 100 kV

SX. Category A or B energy storage facilities

T. Temporarily connected energy storage facilities

Documentation, see specifications in section 9 of the regulation, must be sent electronically to the electricity supply undertaking.

The technical documentation must include configuration parameters and configuration data applicable to the energy storage facility at the time of commissioning.

All appendix subsections must be filled in for the facility in question.

If information changes after the time of commissioning, updated documentation must be submitted as required in section 2.2.

Templates for Appendix 1 for the various facility categories are available on Energinet's website [www.energinet.dk](http://www.energinet.dk). It is thus possible to print only the appendix to be filled in.

Documentation – category T

* 1. Documentation for category T energy storage facilities

Documentation must be filled in with data for the energy storage facility and sent to the electricity supply undertaking.

* + 1. Identification

|  |  |
| --- | --- |
| Facility  | Description of the facility |
| GSRN no.  |  |
| Facility owner name and address |  |
| Facility owner telephone no. |  |
| Facility owner e-mail |  |
| Inverter – manufacture |  |
| Inverter – model |  |
| Inverter – rated power |  |
| Storage medium – manufacture |  |
| Storage medium – model no. |  |
| Charger’s rated active power, Pnl og Pno [kW] |  |

* + 1. Normal operation

|  |  |
| --- | --- |
| Can the energy storage facility be started and operated continuously within the normal operation range, restricted only by grid protection settings, c.f. requirements in sections Figure 5 or Figure 6?  | Yes [ ] No [ ]  |
| If Yes, reference to documentation: |  |

* + 1. Tolerance of frequency deviations

|  |  |
| --- | --- |
| Will the energy storage facility remain connected to the public electricity supply grid during frequency deviations as specified in section 4.1? If Yes, reference to documentation:  | Yes [ ] No [ ]  |
| Will the facility remain connected in the event of frequency changes of 2.0 Hz/s in the POC? If Yes, reference to documentation:  | Yes [ ] No [ ]  |

* + 1. Power quality

Please state how each power quality parameter result was achieved.

* + - 1. Rapid voltage changes

|  |  |
| --- | --- |
| Does the energy storage facility comply with the rapid voltage changes threshold specified in section 5.1.1.3? Where to find documentation that this requirement has been met?  | Yes [ ] No [ ]  |

* + - 1. DC content

|  |  |
| --- | --- |
| Does DC content at normal operation exceed 0.5% of rated current? Where to find documentation that this requirement has been met?  | Yes [ ] No [ ]  |

* + - 1. Current imbalance

|  |  |
| --- | --- |
| Does the current imbalance at normal operation exceed 16 A? Where to find documentation that this requirement has been met?  | Yes [ ] No [ ]  |
| If the facility is made up of single-phase energy storage units, have measures been taken to ensure that the above threshold is not exceeded? Where to find documentation that this requirement has been met?  | Yes [ ] No [ ]  |

* + - 1. Flicker

|  |  |
| --- | --- |
| Is the flicker contribution for the entire facility below the threshold specified in section 5.1.1.4? Where to find documentation that this requirement has been met?  | Yes [ ] No [ ]  |

* + - 1. Harmonics

|  |  |
| --- | --- |
| Are all harmonics for the entire facility below the thresholds specified in section 5.1.1.5? Where to find documentation that this requirement has been met?  | Yes [ ] No [ ]  |

* + - 1. Interharmonics

This part must only be filled in for energy storage facilities larger than 50 kW.

|  |  |
| --- | --- |
| Are all interharmonics for the entire energy storage facility below the thresholds specified in section 5.1.1.6? Where to find documentation that this requirement has been met?  | Yes [ ] No [ ]  |

* + - 1. Disturbances in the 2-9 kHz range

This part must only be filled in for energy storage facilities larger than 50 kW.

|  |  |
| --- | --- |
| Is the emission of disturbances with frequencies in the 2-9 kHz range lower than 0.2% of rated current In as required in section 5.1.1.7? Where to find documentation that this requirement has been met?  | Yes [ ] No [ ]  |

* + 1. Signature

|  |  |
| --- | --- |
| Date of commissioning  |  |
| Installation contractor  |  |
| Person responsible for commissioning  |  |
| Signature (person responsible for commissioning) |  |
| Facility owner |  |
| Signature (facility owner) |  |