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APPENDIX 1 DOCUMENTATION 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:

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, 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.

Contents Appendix 1

Documentation – category A

B1.1. Documentation for category A energy storage facilities

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

B1.1.1. 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.	
Storage medium – usable energy storage capacity [kWh]	

B1.1.2. Positive list

Only applies to facilities up to 50 kW.

Is the energy storage facility on the positive list? If No, B1.2. must also be filled in.	Yes ☐ No ☐

B1.1.3. Active power control

Is the frequency response function for overfrequency activated?	Yes ☐ No ☐
If Yes, with which settings? Frequency threshold (f_{RO}): Droop: Time for island operation detection (minimum response time):	 _____ Hz _____ % _____ ms

B1.1.4. Reactive power control

B1.1.4.1. Power factor control

Is the power factor control function activated?	Yes ☐ No ☐
If Yes, with which set point? (Value differing from cosϕ 1.0 must be agreed with the electricity supply undertaking.)	_____ cosϕ Inductive ☐ Capacitive ☐

B1.1.4.2. Automatic power factor control

Is the automatic power factor control function activated? (Not to be activated without agreement with the electricity supply undertaking.)	Yes ☐ No ☐
If Yes, with which set points? Point 1 – P/Pn Point 1 – Power factor (inductive) Point 2 – P/Pn Point 2 – Power factor (inductive) Point 3 – P/Pn Point 3 – Power factor (inductive)	_____ % _____ cosϕ _____ % _____ cosϕ _____ % _____ cosϕ

B1.1.4.3. Q control

Is the Q control function activated?	Yes ☐ No ☐
If Yes, with which set point? (Value differing from 0 kVAr must be agreed with the electricity supply undertaking.)	_____ kVAr

B1.1.5. Protection

B1.1.5.1. Relay settings

Please state current values at the time of commissioning in the table below.

Protective function	Symbol	Setting		Trip time	
Overvoltage (step 2)	$U_{>>}$		V		ms
Overvoltage (step 1)	$U_{>}$		V		s
Undervoltage (step 1)	$U_{<}$		V		s
Undervoltage (step 2)*	$U_{<<}$		V		ms
Overfrequency	$f_{>}$		Hz		ms
Underfrequency	$f_{<}$		Hz		ms
Change of frequency*	df/dt		Hz/s		ms

* At least one of the functions must be activated.

B1.1.6. Signature

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

B1.2. Documentation for category A energy storage facilities

Documentation must be filled in with data for the energy storage facility to be included on the positive list, or if the facility is not on the positive list.

B1.2.1. Identification

Facility	Description of the facility
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.	
Storage medium – usable energy storage capacity [kWh]	

B1.2.2. Normal operation

Can the facility be started and operate continuously within the normal operation range, restricted only by protective settings, c.f. requirements in section 7? Where to find documentation that this requirement has been met?	Yes ☐ No ☐

B1.2.3. 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? Where to find documentation that this requirement has been met?	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 ☐

B1.2.4. Start-up and automatic reclosing of an energy storage facility

Does start-up and automatic reclosing occur after three minutes following voltage and frequency coming within the areas specified in section 4.3.1? Where to find documentation that this requirement has been met?	Yes ☐ No ☐

B1.2.5. Power quality

Please state how each power quality parameter result was achieved.

B1.2.5.1. 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 ☐

B1.2.5.2. 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 ☐

B1.2.5.3. 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 ☐

B1.2.5.4. 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 ☐

B1.2.5.5. 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 ☐

B1.2.5.6. 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 ☐

B1.2.5.7. 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 I_n as required in section 5.1.1.7? Where to find documentation that this requirement has been met?	Yes ☐ No ☐

B1.2.6. Control functions

B1.2.6.1. Active power control

B1.2.6.1.1. Frequency response at overfrequency

Is the energy storage facility equipped with a frequency response function in case of overfrequency?	Yes ☐ No ☐

B1.2.6.1.2. Absolute power constraint

Is the energy storage facility equipped with an absolute power constraint function?	Yes ☐ No ☐

B1.2.6.1.3. Ramp rate constraint function

Is the energy storage facility equipped with a ramp rate constraint function?	Yes ☐ No ☐

B1.2.6.2. Reactive power control

B1.2.6.2.1. Work area

Can the energy storage facility supply reactive power at P_n and varying operating voltages, as specified in section 6.3? Where to find documentation that this requirement has been met?	Yes ☐ No ☐
Can the energy storage facility supply reactive power at varying active power as specified in section 6.3? Where to find documentation that this requirement has been met?	Yes ☐ No ☐

B1.2.6.2.2. Power factor control

Is the energy storage facility equipped with a power factor control function as specified in sections 6.3.2 and 6.3.2.1?	Yes ☐ No ☐

B1.2.6.2.3. Automatic power factor control

Is the energy storage facility equipped with automatic power factor control as specified in sections 6.3.4 and 6.3.4.1?	Yes ☐ No ☐

B1.2.6.2.4. Q control

Is the energy storage facility equipped with a Q control function as specified in sections 6.3.1 and 6.3.1.1?	Yes ☐ No ☐

B1.2.7. Protection against electricity system faults

B1.2.7.1. Relay settings

The table below lists default values for relay settings. If default values deviate from the values specified in section 7.2.1, documentation must be provided to ensure that relay settings can be set to the correct values upon commissioning.

Protective function	Symbol	Setting		Trip time	
Overvoltage (step 2)	$U_{>>}$		V		ms
Overvoltage (step 1)	$U_{>}$		V		s
Undervoltage (step 1)	$U_{<}$		V		s
Undervoltage (step 2)	$U_{<<}$		V		ms
Overfrequency	$f_{>}$		Hz		ms
Underfrequency	$f_{<}$		Hz		ms
Frequency change	df/dt		Hz/s		ms

B1.2.8. Signature

Date	
Company	
Person responsible for commissioning	
Signature (person responsible for commissioning)	
Facility owner	
Signature (facility owner)	

Documentation – category B

B1.3. Documentation for category B energy storage facilities (Part 1)

Please fill in the documentation form with data for the facility, valid before commissioning, and submit it to the electricity supply undertaking.

B1.3.1. Identification

Facility	Description of the facility
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.	
Storage medium – usable energy storage capacity [kWh]	

B1.3.2. Normal operation

Can the energy storage facility be started and operate continuously within the normal operation range, restricted only by grid protection settings, c.f. requirements in section Figure 6? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.3. 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? 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 ☐

B1.3.4. Tolerance of voltage deviations (FRT)

Will the energy storage facility remain connected to the public electricity supply grid during voltage dips as specified in section 4.4? If Yes, reference to documentation:	Yes ☐ No ☐
Will the energy storage facility remain connected to the public electricity supply grid during voltage increases as specified in section 4.4? If Yes, reference to documentation:	Yes ☐ No ☐
After a voltage dip, the energy storage facility is able to return to normal operation no later than 5 s after operating conditions have returned to the normal operating range.	Yes ☐ No ☐

B1.3.5. Additional reactive current

Does the energy storage facility deliver additional reactive current as specified in section 4.4.4? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.6. Start-up and automatic reclosing of an energy storage facility

Do connection and synchronisation occur as specified in section 4.3.1? If Yes, reference to documentation:	Yes ☐ No ☐
Is it possible to circumvent automatic synchronisation? If No, reference to documentation:	Yes ☐ No ☐

B1.3.7. Active power control

B1.3.7.1. Frequency Response – Overfrequency

Is the energy storage facility equipped with a frequency response function for overfrequency as specified in section 6.2.2.1? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.7.2. Absolute power constraint function

Is the energy storage facility equipped with an absolute power constraint function as specified in section 6.2.4.1.1? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.7.3. Ramp rate limit

Is the energy storage facility equipped with a ramp rate constraint as specified in section 6.2.4.2.1? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.8. Reactive power control

B1.3.8.1. Work area

Can the energy storage facility supply reactive power at P_n and varying operating voltages, as specified in section 6.3? Where to find documentation that this requirement has been met?	Yes ☐ No ☐
Can the energy storage facility supply reactive power at varying active power as specified in section 6.3.5.2? Where to find documentation that this requirement has been met?	Yes ☐ No ☐

B1.3.8.2. Power factor control

Is the energy storage facility equipped with a power factor control function as specified in section 6.3.2.1? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.8.3. Q control

Is the energy storage facility equipped with a Q control function as specified in section 6.3.1.1? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.8.4. Automatic power factor control

Is the automatic power factor control function activated? (Not to be activated without agreement with the electricity supply undertaking.)	Yes ☐ No ☐
If Yes, with which set points?	_____ %
Point 1 – P/Pn	_____ cosϕ
Point 1 – Power factor (inductive)	_____ %
Point 2 – P/Pn	_____ cosϕ
Point 2 – Power factor (inductive)	_____ %
Point 3 – P/Pn	_____ cosϕ
Point 3 – Power factor (inductive)	

B1.3.9. Power quality

Are stated emission values calculated values?	Yes ☐ No ☐
Are stated emission values measured values?	Yes ☐ No ☐
Is a report enclosed, documenting that calculations or measurements comply with emission requirements? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.9.1. Rapid voltage changes

Does the energy storage facility comply with the threshold for rapid voltage changes specified in section 5.1.1.3? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.9.2. DC content

Does DC content at normal operation exceed 0.5% of rated current? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.9.3. Voltage unbalance

Is the facility three-phase balanced? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.9.4. Flicker

Is the flicker contribution for the entire energy storage facility below the threshold specified in section 5.1.1.4? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.9.5. Harmonics

Are all harmonics for the entire energy storage facility below the thresholds specified in section 5.1.1.5? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.9.6. Interharmonics

Are all interharmonics for the entire energy storage facility below the thresholds specified in section 5.1.1.6? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.9.7. Disturbances in the 2-9 kHz range

Is the emission of disturbances with frequencies in the 2-9 kHz range lower than 0.2% of I_n as required in section 5.1.1.7? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.10. Protection

Is the facility protected with the functions required in section 7.2.2? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.10.1. Island operation detection

Is the facility protected with the functions required in section 7.2.2? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.11. Information exchange requirements

Can the facility exchange information as required in section 8.2? If Yes, reference to documentation:	Yes ☐ No ☐

B1.3.12. Signature

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

B1.4. Documentation for category B energy storage facilities (part 2)

Please fill in the documentation form with data for the energy storage facility, valid after commissioning, and submit it to the electricity supply undertaking.

B1.4.1. Identification

Facility	Description of the facility
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.	
Storage medium – usable energy storage capacity [kWh]	

B1.4.2. Active power control

B1.4.2.1. Active power control at overfrequency

Is the frequency response function for overfrequency activated?	Yes ☐ No ☐
If Yes, with which settings?	
Frequency threshold (f_2):	_____ Hz
Droop:	_____ %
Time for island operation detection (minimum response time):	_____ ms

B1.4.2.2. Absolute power constraint function

Is the absolute power constraint function activated?	Yes ☐ No ☐ Online control ☐
If Yes, with which value?	_____ kW

B1.4.2.3. Ramp rate limit

Is the energy storage facility's ramp rate constraint activated?	Yes ☐ No ☐ Online control ☐
If Yes, with which value?	_____% P_n/min

B1.4.3. Reactive power control

B1.4.3.1. Q control

Is the Q control function activated?	Yes ☐ No ☐ Online control ☐
If Yes, with which set point? (Value differing from 0 kVAr must be agreed with the electricity supply undertaking.)	_____ kVAr

B1.4.3.2. Power factor control

Is the power factor control function activated?	Yes ☐ No ☐ Online control ☐
If Yes, with which set point? (Value differing from cosϕ 1.0 must be agreed with the electricity supply undertaking.)	_____ cosϕ Inductive ☐ Capacitive ☐

B1.4.4. Protection

B1.4.4.1. Relay settings

Please state current values at the time of commissioning in the table below.

Protective function	Symbol	Setting		Trip time	
Overvoltage (step 2)	$U_{>>}$		V		ms
Overvoltage (step 1)	$U_{>}$		V		s
Undervoltage (step 1)	$U_{<}$		V		s
Overfrequency	$f_{>}$		Hz		ms
Underfrequency	$f_{<}$		Hz		ms
Change of frequency*	df/dt		Hz/s		ms

* Used for island operational detection in the distribution grid

B1.4.5. Signature

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

Documentation – categories C and D

B1.5. Documentation for category C and D energy storage facilities (part 1)

Please fill in the documentation form with data for the facility, valid before commissioning, and submit it to the electricity supply undertaking.

B1.5.1. Identification

Facility	Description of the facility
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.	
Storage medium – usable energy storage capacity [kWh]	

B1.5.2. Normal operating conditions

Can the energy storage facility be started and operate continuously within the normal operation range, restricted only by grid protection settings, c.f. requirements in Figure 6-Figure 10?	Yes ☐ No ☐

B1.5.3. 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 for categories C and D?	Yes ☐ No ☐
Will the facility remain connected in the event of frequency changes of 2.0 Hz/s in the POC?	Yes ☐ No ☐

B1.5.4. Tolerance of voltage deviations (FRT)

Will the energy storage facility remain connected to the public electricity supply grid at the voltage dips, as specified in **Fejl! Henvisningskilde ikke fundet.** and **Fejl! Henvisningskilde ikke fundet.** for categories C and D, respectively?	Yes ☐ No ☐
After a voltage dip, the energy storage facility is able to return to normal operation no later than 5 s after operating conditions have returned to the normal operating range.	Yes ☐ No ☐

B1.5.4.1. Additional reactive current

Does the energy storage facility deliver additional reactive current as specified in sections 4.4.4 or 4.4.5 for categories C and D, respectively?	Yes ☐ No ☐

B1.5.5. Connection and synchronisation

Do connection and synchronisation occur as specified in section 4.3.1 for categories C and D?	Yes ☐ No ☐

B1.5.6. Active power control

B1.5.6.1. Active power control at overfrequency

Is the energy storage facility equipped with a frequency response function for overfrequency as specified in section 6.2.2.1 for categories C and D?	Yes ☐ No ☐

B1.5.6.2. Active power control at underfrequency

Is the energy storage facility equipped with a frequency response function for underfrequency as specified in section 6.2.2.3**Fejl! Henvisningskilde ikke fundet.** for categories C and D? If Yes, reference to documentation:	Yes ☐ No ☐

B1.5.6.3. Frequency control

Is the energy storage facility equipped with a frequency control function as specified in section 6.2.3.2 for categories C and D? If Yes, reference to documentation:	Yes ☐ No ☐

B1.5.6.4. System protection

Is the energy storage facility equipped with a system protection function as specified in section 6.4.2? If Yes, reference to documentation:	Yes ☐ No ☐

B1.5.6.5. Absolute power constraint function

Is the energy storage facility equipped with an absolute power constraint function as specified in section 6.2.4.1.1 for categories C and D? If Yes, reference to documentation:	Yes ☐ No ☐

B1.5.6.6. Ramp rate constraint function

Is the energy storage facility equipped with a ramp power constraint function as specified in section 6.2.4.2.1 for categories C and D? If Yes, reference to documentation:	Yes ☐ No ☐

B1.5.7. Reactive power control functions

B1.5.7.1. Requirements for reactive power control area

Can the facility supply reactive power at P_n and varying operating voltages, as specified in sections 6.3.5.3, 6.3.5.4 and 6.3.5.5 for categories C, D and D*, respectively?	Yes ☐ No ☐
Can the energy storage facility supply reactive power at varying active power as specified in sections 6.3.5.3, 6.3.5.4 and 6.3.5.5 for categories C, D and D, respectively?	Yes ☐ No ☐

B1.5.7.2. Q control

Is the energy storage facility equipped with a Q control function as specified in section 6.3.1.1 for categories C and D?	Yes ☐ No ☐

B1.5.7.3. Power factor control

Is the energy storage facility equipped with a power factor control function as specified in section 6.3.2.1 for categories C and D?	Yes ☐ No ☐

B1.5.7.4. Voltage control

Is the energy storage facility equipped with a voltage control function as specified in section 6.3.3.2 for categories C and D?	Yes ☐ No ☐
Where is the voltage reference point located?	

B1.5.8. Power quality

Are stated emission values calculated values?	Yes ☐ No ☐
Are stated emission values measured values?	Yes ☐ No ☐
Is a report enclosed, documenting that calculations or measurements comply with emission requirements?	Yes ☐ No ☐

B1.5.8.1. Rapid voltage changes

Does the energy storage facility comply with the rapid voltage changes thresholds specified in sections 5.2.1.3 and 5.3 for categories C and D distribution connections and category D* transmission connections, respectively?	Yes ☐ No ☐

B1.5.8.2. DC content

Does DC content at normal operation exceed the thresholds set out in sections 5.2.1.1 and 5.3 for categories C and D distribution connections and category D* transmission connections, respectively?	Yes ☐ No ☐

B1.5.8.3. Voltage unbalance

Is the facility three-phase balanced?	Yes ☐ No ☐

B1.5.8.4. Flicker

Is flicker contribution for the energy storage facility below the thresholds set out in sections 5.2.1.4 and 5.3 for categories C and D distribution connections and category D* transmission connections, respectively?	Yes ☐ No ☐

B1.5.8.5. Harmonics

Are all harmonic distortions for the energy storage facility below the thresholds set out in sections 5.2.1.5 and 5.3 for categories C and D distribution connections and category D* transmission connections, respectively?	Yes ☐ No ☐

B1.5.8.6. Interharmonics

Are all interharmonics for the energy storage facility below the thresholds set out in sections 5.2.1.6 and 5.3 for categories C and D distribution connections and category D* transmission connections, respectively?	Yes ☐ No ☐

B1.5.8.7. Disturbances in the 2-9 kHz range

Emission of distortions with frequencies in the 2-9 kHz range is determined by the electricity supply undertaking. Is the requirement met?	Yes ☐ No ☐

B1.5.9. Protection

Is the facility protected with the functions required in sections 7.2.3 and 7.2.4 for categories C and D, respectively?	Yes ☐ No ☐

B1.5.9.1. Island operation detection

Is the facility protected with the functions required in section 6.2.3.2 for categories C and D?	Yes ☐ No ☐

B1.5.10. Information exchange

B1.5.10.1. Data communication

Have data communication protocols and data security factors been implemented as specified in section 8.2?	Yes ☐ No ☐
Are signals as specified in section 8.2 available in the PCOM interface?	Yes ☐ No ☐

B1.5.10.2. Fault incident recording

Only for category D facilities

Have logging equipment been installed in the POC as specified in section 8.3 for category D?	Yes ☐ No ☐
Has it been agreed with the transmission system operator which incidents should be logged? If 'Yes', which?	Yes ☐ No ☐

B1.5.11. Simulation model requirements

Only for facilities with power output above 10 MW

Has a simulation model been prepared as specified in section 10.1 for categories C and D? If Yes, reference to documentation and model:	Yes ☐ No ☐

B1.5.12. Conformity testing

Has a conformity testing plan been prepared as specified in section 9.2.11 for categories C and D? If Yes, reference to documentation:	Yes ☐ No ☐

B1.5.13. Signature

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

B1.6. Documentation for category C and D energy storage facilities (part 2)

Please fill in the documentation form with data for the facility, valid before final commissioning, and submit it to the electricity supply undertaking.

B1.6.1. 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.	
Storage medium – usable energy storage capacity [kWh]	

B1.6.2. Active power control

B1.6.2.1. Active power control at overfrequency

Is the frequency response function for overfrequency as specified in section 6.2.2.1 for categories C and D activated?	Yes ☐ No ☐
If Yes, with which settings?	
Frequency threshold:	_____ Hz
Droop:	_____ %
Time for island operation detection (minimum response time):	_____ ms

B1.6.2.2. Active power control at underfrequency

Is the frequency response function for underfrequency as specified in section 6.2.2.3 for categories C and D activated?	Yes ☐ No ☐
If Yes, with which settings?	
Frequency threshold:	_____ Hz
Droop:	_____ %
Time for island operation detection (minimum response time):	_____ ms

B1.6.2.3. Frequency control

Is the frequency control function specified in section 6.2.3.2 for categories C and D activated?	Yes ☐ No ☐ Online control ☐
If Yes, with which settings?	
Frequency threshold - Low (f_{RU}):	_____ Hz
Frequency threshold - High (f_{RO}):	_____ Hz
Droop:	_____ %
Desired frequency:	_____ Hz
ΔP:	_____ kW

B1.6.2.4. Absolute power constraint function

Is the absolute power constraint function as specified in section 6.2.4.1.1 for categories C and D activated?	Yes ☐ No ☐ Online control ☐
If Yes, with which value?	_____ kW

B1.6.2.5. Ramp rate constraint function

Is the energy storage facility's ramp rate constraint function as specified in section 6.2.4.2.1 for categories C and D activated?	Yes ☐ No ☐ Online control ☐
If Yes, with which value?	_____ $\%P_n$/min

B1.6.3. Reactive power control

B1.6.3.1. Q control

Is the Q control function as specified in section 6.3.1.1 for categories C and D activated?	Yes ☐ No ☐ Online control ☐
If Yes, with which set point? (Value differing from 0 kVAr must be agreed with the electricity supply undertaking.)	_____ kVAr

B1.6.3.2. Power factor control

Is the power factor control function as specified in section 6.3.2.1 for categories C and D activated?	Yes ☐ No ☐ Online control ☐
If Yes, with which set point? (Value differing from cosϕ 1.0 must be agreed with the electricity supply undertaking.)	_____ cosϕ Inductive ☐ Capacitive ☐

B1.6.3.3. Voltage control

Is the voltage control function as specified in section 6.3.3.2 for categories C and D activated? (Not to be activated without agreement with the electricity supply undertaking.)	Yes ☐ No ☐ Online control ☐
If Yes, with which set point?	_____ kV

B1.6.4. Protection

Has a list of protective functions and settings at the time of commissioning been enclosed?	Yes ☐ No ☐
If Yes, reference to documentation:	

B1.6.5. Conformity testing

Is documentation of compliance testing enclosed?	Yes ☐ No ☐

B1.6.6. Verification of simulation model

Only for facilities with power output above 10 MW

Is the verification report for the simulation model enclosed?	Yes ☐ No ☐

B1.6.7. Signature

Date	
Installation contractor:	
Person responsible for commissioning	
Signature (person responsible for commissioning)	
Facility owner	
Signature (facility owner)	

Documentation – category SX

B1.7. Documentation for category SX energy storage facilities

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

B1.7.1. 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.	
Storage medium – usable energy storage capacity [kWh]	

B1.7.2. Signature

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

Documentation – category T

B1.8. 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.

B1.8.1. 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]	

B1.8.2. 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 Figure 5 or Figure 6? If Yes, reference to documentation:	Yes ☐ No ☐

B1.8.3. 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 ☐

B1.8.4. Power quality

Please state how each power quality parameter result was achieved.

B1.8.4.1. 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 ☐

B1.8.4.2. 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 ☐

B1.8.4.3. 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 ☐

B1.8.4.4. 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 ☐

B1.8.4.5. 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 ☐

B1.8.4.6. 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 ☐

B1.8.4.7. 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 I_n as required in section 5.1.1.7? Where to find documentation that this requirement has been met?	Yes ☐ No ☐

B1.8.5. Signature

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