SWEDENERGY
ENERGIFÖRETAGEN SVERIGE

ALP form Appendix 1

Customer's details

Name

Address

Facility ID

Protection settings

	Setting Time		Recommended value	
	Time	Level	Time	Level
Overvoltage (step 1)			60 s	253.0 V
Overvoltage (step 2)			0.2 s	264.5 V
Undervoltage			0.2 s	195.5 V
Overfrequency			0.5 s	>51.5 Hz
Underfrequency			0.5 s	<47.5 Hz
Protection from unwanted island operation			0.5 s	2.5 Hz/s[1]

[1] Frequency derivative

Electricity quality data

		Value	Rec. limit
Flicker values[2]	Pst		0.35
	Plt		0.25

≤ 16 A ☐ Calculated according to SS-EN 61000-3-3

16–75 A ☐ Calculated according to SS-EN 61000-3-11

> 75 A ☐ Calculated according to SS-EN 61400-21

Harmonics max 16 A ☐ Meets SS-EN 61000-3-2

Harmonics 16–75 A ☐ Meets SS-EN 61000-3-12

Harmonics > 75 A ☐ Interharmonics and individual current harmonics must be reported separately

[2] To be completed only for wind power or if the information is requested

Logic interface

☐ The facility is equipped with a logic interface that allows remote control

Frequency response

The following configuration requirements for frequency response settings are taken from the Swedish Energy Market Inspectorate's regulation EIFS 2018:2, Commission Regulation (EU) 2016/631 (RFG) and the applicable Swedish standard SS-EN 50549-1. All requirements are mandatory unless otherwise stated.

☐ **The facility meets the following requirements**	**Reference**
The facility meets the requirement to remain connected within the following frequency ranges: • Not less than 30 minutes for frequency 47.5–49.0 Hz • Unlimited for frequency range 49.0–51.0 Hz • Not less than 30 minutes for frequency range 51.0–51.5 Hz	EIFS 2018:2 chapter 3 (1)
The system meets the requirement to remain connected to the network and operate with a rate of change of frequency up to 2.0 Hz/s[1]	EIFS 2018:2 chapter 3 (2)
The plant meets the requirement to reduce its active power output when the frequency exceeds 50.5 Hz	EIFS 2018:2 chapter 3 (3)
The droop[2] setting is 8 per cent	EIFS 2018:2 chapter 3 (4)
Active power output from the facility is reduced by a maximum of 3.0 per cent per Hz at frequencies below 49.0 Hz	EIFS 2018:2 chapter 3 (7)
The facility is automatically reconnected only within the frequency range 47.5–50.1 Hz: • Connection occurs only if the network frequency has been within this range continuously for at least 3 minutes	EIFS 2018:2 chapter 3 (8)
The facility meets the requirement concerning the increase of active power output during automatic connection as follows: • < 49.9 Hz – rate of increase of active power output unlimited • 49.9–50.1 Hz – rate of increase of active power output is limited to 10 per cent of nominal power output per minute • > 50.1 Hz – there is no increase of active power output	EIFS 2018:2 chapter 3 (9)
State the lowest active power output (in kW) to which the facility can be down- regulated in case of overfrequency: _____ kW	EIFS 2018:2 chapter 3 (5)

[1] The value of the rate of change of frequency must be measured at the grid connection point and calculated over a period of 0.5 s.

[2] Droop means the ratio of a change of frequency to the change in power output, expressed in percentage terms. The change of frequency is expressed as a ratio between the actual frequency and the nominal frequency. The power output is expressed as a ratio between the nominal power and the power output in case of overfrequency in the network. For regulation of the power output based on overfrequency, the droop is calculated according to the installed power of the plant. According to section 6 of the EIFS 2018:2.