European Network of
Transmission System Operators
for Electricity

ENTSO-E response to CENELEC regarding RfG (EU2016/631)

External Project Team / WG CNC

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Question 1: Other active power setpoints during LFSM - O

Article 13(2)g states: "the power-generating module shall be capable of operating stably during LFSM-O operation. When LFSM-O is active, the LFSM-O setpoint will prevail over any other active power setpoints."

In a Distribution grid there might be the situation, that output power needs to be reduced due to local grid congestions or voltage stability issues. The statement of EU 2016/631 that LFSM-O setpoint will prevail over any other setpoint poses the question if a further reduction or output power for example due to local congestion issues. Also during overfrequency situations a DSO needs to have the right to react on congestion situations.

We therefore expect, that also during LFSM-O operation a setpoint provided by the DSO below the LFSM-O set point shall be complied with.

We understand Article 13(2)g to state: When LFSM-O is active, the LFSM-O setpoint will prevail over any other active power setpoints which would result in an increase of power above the LFSM-O setpoint."

Is our understanding correct?

Answer 1

LFSM, Overfrequency as Underfrequency, will be active only in emergency condition. Counteraction to this situations are supposed to be of highest priority and the NC requirement of article 13(2)g intend to underline this need.

In a situation as described in the question, Article 13(2)(g) shall be understood, that any action of a DSO, which would contradict the objective of LFSM-O, which is active power reduction in case of high frequencies, shall be prohibited.

Question 2: Response time of LFSM-O

Article 13 (2) does not state a required response time, but only state an initial delay what we understand as a dead time. The ENTSO-E publication "Frequency Stability Evaluation Criteria for Synchronous Zone of Central Europe" concludes with the statement that a response time 1s is an appropriate requirement. Based on the survey conducted By TC8X WG03 among manufacturer associations we know that only one generating technology (PV) is capable of such a rapid response. [TC8X_WG03/FR/20150430/INF file: Meeting TC8X WG3 ENTSOE - 2015-04-30 - EDF.pdf]

In the currently published versions of TS50549 we require a response time of 2 sec with the allowance of staged disconnections in case a generating unit is not capable to reduce output power with the required dynamic response.

EU2016/631 explicitly forbids this solution for units above Type A but most generating plants will not be capable to response to LFSM-O within 1 or 2 sec.

To avoid excluding most generating technologies (Wind, Internal combustion, Gas Turbines) from being compliant with planned EN50549 we need to increase the response time up to 15 to 30 sec. This however would be in direct conflict with the ENTSO-E publication cited above.

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We ask the ACER Stakeholder meeting to discuss this issue and provide us with a proposal how to deal with this issue.

Answer 2

This statement is incorrect. RfG does not define response times and therefore does not prohibit response time longer than 1-2 sec. It defines an initial response delay, which shall be understood as a maximum allowable time before the response starts, which is different from a requirement on response time, which would define a maximum allowable time for full activation of the response.

Article 13(2)(e) says with regard to the initial response delay: "the power-generating module shall be capable of activating a power frequency response with an initial delay that is as short as possible. If that delay is greater than two seconds, the power-generating facility owner shall justify the delay, providing technical evidence to the relevant TSO". Consequently, even the initial delay can be longer than 2 seconds, if justified. In any case, the initial delay shall not be confused with an intentional delay of activation of the power frequency response. The term "as fast as possible" is to be understood as implementing the fastest technically feasible response.

Question 3: Relationship between Article 13 Nr. 4 and Nr. 5

May the taking into account of technical capabilities according to 13 5.(b) result in a higher power reduction than described in Article 13 4. (b)?

Answer 3

No, it cannot. It would moreover address TSO specification on how to choose the values inside the boundaries of provision 13(4)a and 13(4)b

Question 4: LFSM-O operation with hysteresis

Is a LFSM-O implementation including a hysteresis as proposed below in conflict with Article 13 2?

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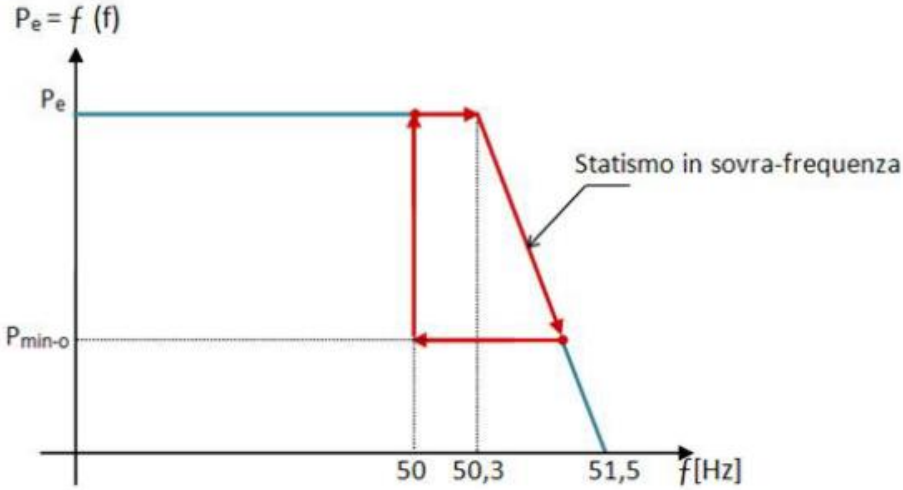
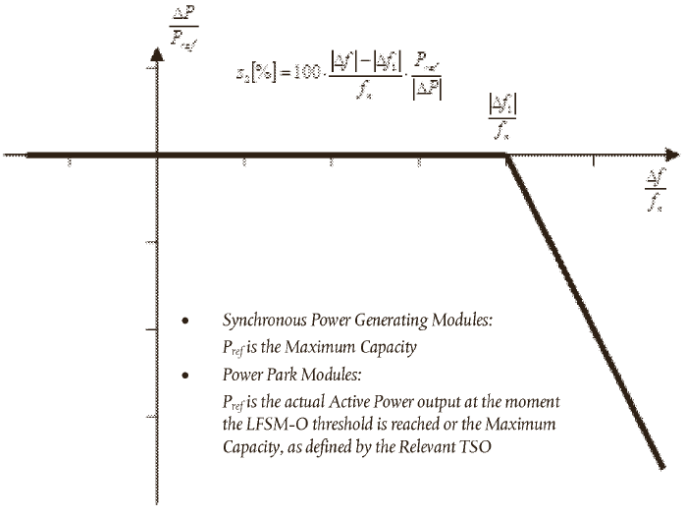


Answer 4

Article 13(2)(a) defines: "*the power-generating module shall be capable of activating the provision of active power frequency response according to figure 1 at a frequency threshold and droop settings specified by the relevant TSO*".

Figure 1 defines the course of the active power frequency response:



Above the frequency threshold to be defined by the relevant TSO, the active power output shall vary in a linear way as a function of frequency. The gradient of the active power variation is defined by the droop, which shall be also specified by the relevant TSO. Article 13(2)(a) does not distinguish between a decrease of active power output in case of increasing frequency and an increase of active power output in case of decreasing frequency, therefore in both cases the linear variation according to figure 1 shall apply. A hysteresis as proposed by CENELEC is not foreseen by the text of Article 13(2)(a).

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