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N°	Société	Chapitre	Paragraphe	E / T / G	Remarque / Question						
Nr	Bedrijf	Hoofdstuk	Paragraaf	E / T / G	Opmerking / Vraag						
Nr	Firm	Chapter	Paragraph	E / T / G	Comment / Question						
	Nordex Acciona	chapter 4.4.1	-	T	<table border="1"> <tr> <th>Voltage parameters [pu]</th> <th>Time parameters [seconds]</th> </tr> <tr> <td>Uret=Uclear=Uret1= 0.15</td> <td>tclear=trecl=trecl2= 0.2</td> </tr> <tr> <td>Urec2 = 0.85</td> <td>trec3=1.5</td> </tr> </table> <p>the voltage-time profile doesn't show a return to nominal voltage (at least 0.9 Un); it's not clear for how long a voltage of 0.85 Un has to be ridden through; wind farms connected to a medium voltage are usually not equipped with an OLTC. Therefore, it's not possible to withstand a residual voltage of 0.85 Un for an infinite long time. Please limit the time to withstand a voltage of 0.85 Un to several seconds</p>	Voltage parameters [pu]	Time parameters [seconds]	Uret=Uclear=Uret1= 0.15	tclear=trecl=trecl2= 0.2	Urec2 = 0.85	trec3=1.5
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	Nordex Acciona	chapter 4.4.2	-	T	<p>We support a reduction of apparent power strongly, however, it is not clear whether active or reactive power is allowed to be reduced. We prefer a certain degree of freedom as, depending on the operating point an active or reactive power reduction is most effective. How does synergrid sees this?</p> <p>Does the power-generating module have the choice to reduce either P or Q if S is allowed to be limited? Is this reduction only allowed in the zone marked in figure 11 (U < 95%Un and over excited operation) as from the text it is interpreted that it is allowed when U < 95%Un, both in under-excited and over-excited operation.</p>						
	Nordex Acciona	chapter 4.4.3	-	T	<p>no zero-sequence current contribution due to IT-system with no leaded through neutral conductor</p>						
	Nordex Acciona	chapter 5.1.3	-	T	<p>If the dead-band is set to 0 mHz, the wind turbine has to react to each frequency abbreviation. In general, relevant components are not designed for continuous operation (mechanical wear). Please, allow a dead-band of at least 200mHz for wind turbines or limit the time where the wind turbine has to operate in FSM (as suggested in the table below – Nordex comments on the ENTSO-E Implementation guidelines).</p> <table border="1"> <tr> <td> <p>Frequency Sensitive Mode</p> </td> <td> <p>System characteristics</p> </td> <td> <p>RFG requirements shall ensure, that technical capabilities and, where applicable, initial settings of parameters are available to cover operational needs, such as FCR minimal technical requirements (SOGL Art 154).</p> <p>Regarding Active power range related to maximum capacity ΔP/II / Pref and droop:</p> <p>This requirement is applicable to type C & D PGMs. There is a need to ensure that overall FCR is covered at synchronous area level (cf. synchronous area operational agreements concerning dimensioning of FCR, and SOGL Article 153). This shall not be understood as setting the same parameters for each power generating module within a synchronous area. It is recommended that each TSD shall identify and quantify critical future scenarios with low instantaneous penetration of C & D units and then defines the following minimal requirements to cover its required level of FCR: ...</p> <p>'frequency response deadband' centered at nominal frequency is adopted in governor designs to reduce excessive controller activities and turbine mechanical wear for normal power system frequency variations.</p> </td> <td> <p>as already stated in the document, a deadband is needed to reduce the mechanical stress; a dead-band or insensitivity of 10 mHz isn't helping here; to reduce the mechanical stress appreciably a dead-band of 200mHz is needed (LFSM);</p> <p>to cover system needs without overloading mechanical stress, the FSM mode should be limited for wind turbines to a maximum number of working hours per year (don't require a few wind farms to operate in this mode permanently)</p> </td> <td> <p>inserting the following comment:</p> <p>"The number of working hours for PGMs operating in FSM mode shall be limited to 5% number of hours per year to avoid overloading of mechanical stress."</p> </td> </tr> </table>	<p>Frequency Sensitive Mode</p>	<p>System characteristics</p>	<p>RFG requirements shall ensure, that technical capabilities and, where applicable, initial settings of parameters are available to cover operational needs, such as FCR minimal technical requirements (SOGL Art 154).</p> <p>Regarding Active power range related to maximum capacity ΔP/II / Pref and droop:</p> <p>This requirement is applicable to type C & D PGMs. There is a need to ensure that overall FCR is covered at synchronous area level (cf. synchronous area operational agreements concerning dimensioning of FCR, and SOGL Article 153). This shall not be understood as setting the same parameters for each power generating module within a synchronous area. It is recommended that each TSD shall identify and quantify critical future scenarios with low instantaneous penetration of C & D units and then defines the following minimal requirements to cover its required level of FCR: ...</p> <p>'frequency response deadband' centered at nominal frequency is adopted in governor designs to reduce excessive controller activities and turbine mechanical wear for normal power system frequency variations.</p>	<p>as already stated in the document, a deadband is needed to reduce the mechanical stress; a dead-band or insensitivity of 10 mHz isn't helping here; to reduce the mechanical stress appreciably a dead-band of 200mHz is needed (LFSM);</p> <p>to cover system needs without overloading mechanical stress, the FSM mode should be limited for wind turbines to a maximum number of working hours per year (don't require a few wind farms to operate in this mode permanently)</p>	<p>inserting the following comment:</p> <p>"The number of working hours for PGMs operating in FSM mode shall be limited to 5% number of hours per year to avoid overloading of mechanical stress."</p>	
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