

Proposals for amendments to the Requirements for Generators

Fields marked with * are mandatory.

Introduction

Important developments in the policies of decarbonisation of the European Union (EU) energy and transport sectors have taken place since the inception of the development of the first European Grid Connection Network Codes (GC NCs) in 2012.

In the framework of the Grid Connection European Stakeholder Committee (GC ESC), the European Commission proposed for ACER to initiate the process towards the amendment of the existing GC NCs in September 2022. The amendment process, as presented to the GC ESC is outlined in the Figure below:



Following the scoping phase, ACER published the Policy Paper on the revision of the network code on requirements for grid connection of generators and the network code on demand connection in September 2022. The Policy Paper aims to transparently indicate to stakeholders the key policy areas in which amendments are to be expected. Moreover, the Paper draws on the alternative policy options and provides recommendations and proposed actions for the amendment process.

[Access the ACER Policy Paper on the revision of the NC RfG and NC DC](#)

This consultation aims at gathering, from all interested stakeholders, concrete proposals for amendments to the Commission Regulation (EU) 2016/631 of 14 April 2016 establishing a **Network Code on Requirements for Grid Connection of Generators** ('NC RfG').

For amendment proposals concerning Network Code on Demand Connection, please go to the form: [NC DC](#).

Responses to this consultation should be submitted by 28 November 2022 23:59 CET.

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* Name of the stakeholder:

Eurelectric

* Contact person:

[REDACTED]

* Contact person's email address:

[REDACTED]

* Country of the stakeholder's headquarters or main country of operation:

Belgium

* Type of the stakeholder:

- ☐ Generator (including association)
- ☐ Consumer (including association)
- ☐ Transmission system operator (including association)
- ☐ Distribution system operator (including association)
- ☐ Manufacturers (including association)
- ☐ Academia/research institution
- ☐ Regulatory authority
- ☒ Other (please, elaborate)

Please, elaborate on your answer above, if necessary:

Association

* Do you consent to the publication of the stakeholder's name?

- ☒ Yes
- ☐ No

* Do you consent to the publication of provided answers?

- ☒ Yes
- ☐ No (please, note that your answer, without your name and organization, may be shared with the EU institutions and national authorities, drafting team members, and other persons or entities involved in the European Grid Connection Network Codes amendment process)

Instructions

Stakeholders are invited to submit their amendment proposals to the RfG articles that they consider should be revised in a two-step process:

1. by inserting the proposed amendments in the provided Word file
2. by motivating/reasoning the proposed amendments through this online consultation form.

Both steps are mandatory for all amendment proposals.

(Where no amendment is proposed, the article text in the word file can be left unaltered and the cells in the consultation form can be left blank.)

The mandatory steps for submitting amendment proposals are detailed below. At the end of this section, you can find an example showing how to submit your proposals.

Step 1

Please include all your amendment proposals in the **Word file provided below using the Track Changes mode**. Once you edit the file and rename it with your stakeholder's name ("NC_RfG_stakeholder_name"), please upload it in the last section of this form (FILE UPLOAD)

[Download the Word file \(NC RfG\)](#)

Step 2

In addition, please use this form to motivate/reason your proposals, following the instructions:

General requirements for type B power-generating modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 14(1)	1	2	3
Article 14(2)			
Article 14(3)			
Article 14(4)			
Article 14(5)			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
4	New provisions		

Please upload your file if necessary

The maximum file size is 1 MB

5 Select file to upload

1. Propose an amended wording of the relevant provision, as you provided in the Word file.
2. Provide the motivation/reasoning behind your proposal.
3. Indicate (if any) which other provisions of the NC RfG are impacted and may need to be amended following your proposal.
4. Provide (if any) your proposals for adding new provisions to the relevant section of the Regulation, as you provided in the Word file.
5. Upload figures or tables if necessary; text inputs should be provided directly in the consultation form.

Example

Stakeholder XYZ would like to propose an amendment to Article 27 of NC RfG. In their view, the meaning of the word "respectively" in this article is not clear. Following a two-step process, the stakeholder downloads the Word file from the **Instruction** section, turns on the Track Changes mode and edits the text (first step).



Article 27

System restoration requirements applicable to AC-connected offshore power park modules

The system restoration requirements laid down respectively in Article 14(4) and Article 15(5) shall apply to AC-connected offshore power park modules types B and C, respectively.

Article 28

General system management requirements applicable to AC-connected offshore power park modules

The general system management requirements laid down in Article 14(5), Article 15(6) and Article 16(4) shall apply to AC-connected offshore power park modules.

After saving the edited file on their device under the name "*NC_RfG_Stakeholder_XYZ*", the stakeholder uploads it in the **FILE UPLOAD** section.

Pages

Introduction	Instruction	Whereas	Definitions	TITLE I	TITLE II CH. 1	TITLE II
TITLE III	TITLE IV	TITLE V	TITLE VI	TITLE VII	Other	FILE UPLOAD

FILE UPLOAD

Please upload the Word file (downloaded from the *Instruction* section) containing all your amendments

The maximum file size is 1 MB

NC_RfG_Stakeholder_XYZ.docx

Select file to upload

Previous

Submit

The stakeholder proceeds to motivate/reason their proposal. As they would like to propose an amendment to Article 27 of NC RfG, they enter **TITLE II CHAPTER 4** Section and insert the proposed amended wording and the reasoning (second step). As the proposed amendment of Article 27 does not affect other provisions, they leave the last column blank.

Pages

[Introduction](#)[Instruction](#)[Whereas](#)[Definitions](#)[TITLE I](#)[TITLE II CH. 1](#)[TITLE II CH. 2](#)[TITLE II CH. 3](#)[TITLE II CH. 4](#)[TITLE III](#)[TITLE IV](#)[TITLE V](#)[TITLE VI](#)[TITLE VII](#)[Other](#)[FILE UPLOAD](#)

TITLE II CHAPTER 4 - Requirements for offshore power park modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 23	//	//	//
Article 24	//	//	//
Article 25	//	//	//
Article 26	//	//	//
Article 27	The system restoration requirements laid down in Article 14(4) and Article 15(5) shall apply to AC-connected offshore power park modules types B and C, respectively.	The current wording of Article 27 refers to the provisions of Articles 14(4) and 15(5). However, it is unclear from the legal text how the respective application should be understood. Indicating that the requirements of Article 14(4) shall apply to offshore PPMs type B and requirements of Article 15(5) shall apply to offshore PPMs type C follows the internal logic of the NC RfG and corresponds with the capabilities of the units in question.	- //
Article 28	//	//	//

As the survey is long,

1. you have the possibility to edit your answer after submission. When clicking on "submit", you will be given a contribution ID, which you can then use to access your contribution here. This allows you to proceed in steps.
2. we kindly suggest that you download the entire survey as .pdf (link on the right), prepare your answers and then upload them at once in the EU Survey Tool, to avoid a session timeout on submission.

The maximum length of each cell is 5000 characters. This is the maximum technical limit set by the EUsurvey tool, which cannot be increased.

Whereas Section

Please write your amendment proposal and the reasoning in the table below.

Numbers in the first column correspond with the recitals of the NC RfG Whereas section

	Amendment proposal	Reasoning	Relation to other provisions
(1)	It should be ensured that recital 8 of the Regulation remains valid and that this doesn't apply to existing facilities.	The problem with the definition "substantial modernisation" remains. Basically, some investment done that requires the replacement of some component is deemed as a "significant or substantial modernisation", even if no technical or other relevant metric changes. The obligation for the PGM to comply with the NC in these cases seems excessive. If a modernisation deems necessary to comply with the NC, there should exist a financial compensation in the compliance adaption of the PGM.	See also proposed additions at the end of Article 4.
(2)			
(3)			
(4)			
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Please write your amendment proposal and the reasoning in the table below.

	Proposal for new recitals	Reasoning	Relation to other provisions
New recitals			

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 2(1)			
Article 2(2)			
Article 2(3)			
Article 2(4)			
Article 2(5)			
Article 2(6)			
Article 2(7)			
Article 2(8)			
Article 2(9)			
Article 2(10)			
Article 2(11)			
Article 2(12)			
Article 2(13)			
Article 2(14)			
Article 2(15)			
Article 2(16)			
Article 2(17)			
Article 2(18)			
Article 2(19)			
Article 2(20)			
Article 2(21)			
Article 2(22)			
Article 2(23)			
Article 2(24)			
Article 2(25)			
Article 2(26)			

Article 2(27)			
Article 2(28)			
Article 2(29)			
Article 2(30)			
Article 2(31)			
Article 2(32)			
Article 2(33)			
Article 2(34)			
Article 2(35)			
Article 2(36)			
Article 2(37)			
Article 2(38)			
Article 2(39)			
Article 2(40)			
Article 2(41)			
Article 2(42)			
Article 2(43)			
Article 2(44)			
Article 2(45)			
Article 2(46)			

Article 2(47)	<p>Regarding the certification harmonisation and the use of equipment certificates throughout Europe for the smaller power generating modules - we understand that this would support the market and lower the barriers for connection to the EU grids where rules should be equal for all EU.</p> <p>For instance, identical frequency withstand requirements or deadband requirements for generators should be adopted as the frequency throughout a synchronous area is identical, and so should be the requirements. This is one of the causes that there are multiple generator national certificates and contributes to a barrier in the internal market.</p>	<p>Currently there are different settings, according to the country, for generator frequency withstand. This is one of the causes that there are multiple generator national certificates and contributes to a barrier in the internal market.</p> <p>Any changes should have regard for the size of the installation - it is more complex to certify for example a specific 1 GW power plant than small ones for which a standardisation may seem more relevant.</p>	
Article 2(48)			

Article 2(49)	<p>NEW DEF 2</p> <p>'storage equipment' means equipment in an installation that makes it possible to store energy and defer its injection into the grid, regardless of whether it is connected to a consumer's internal grid and regardless of whether it has the technical and legal capacity to be reversible. It may be a synchronous or an electrical park, depending on whether it uses synchronous generators or inverters to connect to the grid respectively. It may be connected to the grid independently or in a hybrid installation.</p>	<p>These definitions are incorporated to develop Article 5 and include storage facilities.</p>	
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Article 2(50)	<p>NEW DEF</p> <p>Include definition for 'electricity storage module'</p> <p>Art. 2 (new number): "‘electricity storage module’ means a power generating module which can inject and consume active power to and from the network;</p>	<p>The new NC RfG should include provisions for electricity storage modules. This notion is not yet defined (neither in the NC RfG, nor in the other Regulations / Directives mentioned in Article 2). Therefore, a new definition has to be added.</p> <p>The EG Storage (under the GC ESC) elaborated a definition in its 2nd final report. This could be used.</p> <p>Note this definition also includes, without requiring it to be stated in detail, electric vehicles with bidirectional functionalities connected to the grid through a bi-directionnal EV charging point.</p>	Article 3 NC RfG: scope of application
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Article 2(51)	<p>NEW DEF</p> <p>'Maximum storage equipment capacity' means the value of the maximum active power declared by the operator that can be produced by the storage equipment while complying with the relevant technical requirements.</p>	<p>These definitions are incorporated to develop Article 5 and include storage facilities.</p> <p>Alternatively, the “capacity” of a storage system could be associated with an energy value rather than a power value. A storage system can never permanently produce/withdraw a certain amount of power due to its limited capacity. An alternative could be to replace “Maximum storage equipment capacity” and “Maximum import capacity of storage equipment” with Useful Capacity Storage System: the amount of energy that a storage system is able to exchange with the grid at the point of delivery. The useful capacity of a storage system can vary over the lifetime of the system. And “Maximum discharge power”: Maximum active power that a storage system can deliver to the grid at the point of delivery; it can vary depending on the SOC and “Maximum charging power”: Maximum active power that a storage system can draw from the grid at the point of delivery; it can vary depending on the SOC.</p>	Article 5, 6
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Article 2(52)	<p>NEW DEF</p> <p>'Maximum import capacity of storage equipment' means the value of the maximum active power declared by the operator that can be consumed by the storage equipment while simultaneously complying with the relevant technical requirements</p>	These definitions are incorporated to develop Article 5 and include storage facilities.	Article 5
Article 2(53)	<p>NEW DEF</p> <p>'hybrid installation' means an installation with access to the same grid connection point consisting of one or more electricity generation modules and one or more storage equipment using different generation and/or storage technologies. In the case of hybridization with storage, there could be two cases: the storage injecting or consuming, if it has technical and legal capacity, its energy to the grid through its own alternators or electronic converters and is able to run independently even if the neighbouring unit is off, it is called "autonomous storage"; or the storage and the power pool module as a whole injecting or consuming, if it has technical and legal capacity, its energy to the</p>		Article 5

	<p>grid through its own or shared alternators or electronic converters, and it is not able to run independently, it is called “annex storage”. In the first case, the storage equipment is considered separately from any electricity generation module constituting the hybrid installation for the purposes of the applicability of technical requirements, information exchanges and measurements. In the second case, the technical requirements shall apply to the generation module plus storage equipment.</p>	<p>These definitions are incorporated to develop Article 5 and include storage facilities.</p> <p>Cases when storage can run independently or not from the neighbouring unit should be strongly separated.</p>	
Article 2(54)	<p>NEW DEF</p> <p>Use or refer to definition on ' fully integrated network components ', included on Directive (UE) 2019 /944 (network components integrated into the transmission or distribution system, including storage facilities, which are used for the sole purpose of ensuring secure and reliable operation of the transmission or distribution system, and not for balancing or congestion management purposes)</p>	<p>These definitions are incorporated to elaborate on Article 3 in which the exemptions are integrated.</p>	Article 3

Article 2(55)	<p>NEW DEF</p> <p>Use or refer to definition on 'citizen energy community', included on Directive (UE) 2019/944 (a legal entity which: (a) is based on voluntary and open participation and is effectively controlled by partners or members who are natural persons, local authorities, including municipalities, or small enterprises, (b) whose primary objective is to deliver environmental, economic or social benefits to its members or partners or to the locality in which it operates, (c) is involved in the generation, including from renewable sources, distribution, supply, consumption, aggregation, storage of energy, the provision of energy efficiency services or the provision of electric vehicle charging or other energy services to its members or partners)</p>	<p>These definitions are incorporated to develop Article 5 and include citizen energy communities</p>	Article 5
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Article 2(56)	<p>NEW DEF</p> <p>'Electric vehicle charging point or installation' means the infrastructure necessary to safely conduct electrical energy between the electricity supply grid and the electric vehicle.</p> <p>'one-way electric vehicle charging point or installation' means the infrastructure necessary to safely conduct electrical energy from the electricity supply grid to the electric vehicle with demand-only behaviour.</p>	<p>These definitions are incorporated to develop Article 5 and include Electric vehicle charging points</p> <p>These definitions are incorporated to develop Article 5 and include Electrical charging points</p>	Article 5
Article 2(57)	<p>NEW DEF</p> <p>'bi-directional electric vehicle charging point or installation' means the infrastructure necessary to conduct electrical energy safely from the electricity supply grid to the electric vehicle and from the electric vehicle to the electricity supply grid with both generation and demand behaviour.</p>	<p>These definitions are incorporated to develop Article 5 and include Electrical charging points</p>	Article 5

Article 2(58)	<p>NEW DEF</p> <p>a Mixed Customer Site is a site with one or several power-generating modules and consumption connected behind a single connection point. For the avoidance of doubt, the auxiliary services of the power-generating module should not be considered as consumption in this definition. This definition can be applied on both CDSO and non-CDSO sites.</p>		
Article 2(59)	<p>NEW DEF</p> <p>“Rate of Change of Frequency (RoCoF)’ Rate of Change of Frequency is the time derivative of the power system frequency (df/dt). It shall be measured during a sliding period of time. A classical value used in the calculation is 500 ms.</p>		
Article 2(60)			
Article 2(61)			
Article 2(62)			
Article 2(63)			
Article 2(64)			
Article 2(65)			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new definitions	Reasoning	Relation to other provisions
		<p>These definitions are incorporated to develop Article 5 and include storage facilities.</p> <p>In contrast to consumption, “energy storage” is the temporary absorption of energy, storing of this energy and the controlled reconversion into the system. Thus, storing of energy - from an energy economy perspective – is the absorption of energy, storing of energy at any form or energy source such as mechanical energy, chemical energy, gas or heat/cold, and the subsequent delivery of energy on request for use by a final consumer, offer on the marketplace or for ancillary service.</p> <p>According to article 2(59) of the Electricity Directive 2019/944, the specific notion of storage from the perspective of the electricity sector means “deferring the final use of electricity to a moment later than when it was generated, or the conversion of electrical energy into a form of energy which can be stored, the storing of such energy,</p>	

New definitions

Use or refer definition on 'energy storage', included on Directive (UE) 2019/944 (in the electricity system, deferring the final use of electricity to a time later than when it was generated, or the conversion of electrical energy into a form of energy that can be stored, the storage of that energy and the subsequent reconversion of that energy into electrical energy or its use as another energy carrier)

and the subsequent reconversion of such energy into electrical energy or use as another energy carrier". Based on this definition, electricity storage can be a cross sectoral process. All other cross sectoral forms of energy storage are viewed as flexible generation or flexible load from the perspective of the electricity sector, if the primary energy produced is not absorbed and subsequently reconverted into the original electricity sector. Aside from this new general definition of "energy storage" in the electricity system in the Electricity Directive, further European as well as national regulations, views and interpretations of energy storage, storage capacity and storage facility already exist e.g. including the contribution from natural flow hydropower/run of river reservoirs naturally from different regional system characteristics with different challenges and opportunities.

In general, from an energy system perspective, another energy usage, other than reconversion in the electricity system, deferred in time like thermal storage or usage

	and storage of hydrogen has to be considered as energy storage.	
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TITLE I - General provisions

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 1		<p>In order to introduce storage into the scope of the grid connection network codes, it is proposed that paragraph 2 lit. d be deleted.</p> <p>At least the following requirements should be present for storage in grid injection mode:</p> <ul style="list-style-type: none"> - Curves for power injection in case of frequency drops - Possibility of DSO to control Storage in case of grid emergency plans are activated <p>This possibility should be framed in the connection conditions (licensing) in agreement with the promoters, where limitations to injection can be anticipated. Otherwise, it should be ensured that any intervention with recourse to curtailment and redispatching (total or partial) complies with the rules established in the scope of the Internal Electricity Market Regulation, namely in what concerns to due compensations.</p> <p>Furthermore, it should be clarified that this only applies to storage with direct connection to the public</p>	

	<p>ARTICLE 3 par 2</p> <p>Delete the existing No. 2 (d): (d) storage devices, except pumped storage electricity generation modules in accordance with Article 6(2).</p> <p>Whether an active consumer shall comply with NC RfG, NC DC or both should be clearly identified in line with the definition ED 2019 /944 art 2. (8) 'active customer' means a final customer, or a group of jointly acting final customers, who consumes or stores electricity generated within its premises located within confined boundaries or, where permitted by a Member State, within other premises, or who sells self-generated electricity or participates in flexibility or energy efficiency schemes, provided that those activities do not constitute its primary commercial or professional activity.</p>	<p>grid and when not framed in a context of individual/collective self-consumption or energy communities (which may use the public grid but with a self-consumption purpose). Capabilities should include reliable real-time Communication with the system operator.</p>	
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Article 3	<p>Include electricity storage modules into the scope of application of the NC RfG and treat them as PGMs. Electricity storage modules shall also comprise electric vehicles when connected to the grid (see proposal for definition in Art. 2) with bi-directional functionalities when connected to the grid through a bi-directional EV charging point.</p> <p>Art. 3.1: “The connection requirements set out in this Regulation shall apply to new power-generating modules and new electricity storage modules which are considered significant in accordance with Article 5, unless otherwise provided.”</p>	<p>Electricity storage have an increasing significance for the power system and have the capability to provide many grid supporting functions. Electric vehicles which are capable of injecting energy in the grid are to be considered energy storage modules during the connection to the grid.</p> <p>This is considered state of the art and already considered in several national implementations of NC RfG for example VDE-AR-N 4105 in Germany and the European Standard EN 50549.</p>	Article 2 NC RfG (new provision as proposed above)
	<p>A Member State may provide that, in specific circumstances, the regulatory authority may decide whether the electricity generation module is to be considered as an existing electricity generation module or as a new electricity generation module.</p>		

Article 4

In the case of introducing or tightening the requirements for offshore units, there should be introduced an exemption from the application of new requirements for those units that have signed a final and binding contract for the purchase of the main generating plant – like in NC RfG art. 4.2.b.

Where parts, components or units of an existing power generating module are replaced or new units are added to an existing power generating module, those new or replacement units should be compliant with the requirements of this regulation, to the extent applicable:

This paragraph shall not apply to maintenance activities or to spare parts, whether or not those parts are purchased at the time of their incorporation in the power generating module. The notions maintenance and spare parts is to be considered as the classical definition used in common industrial practices and in international standards. Maintenance activities are commonly defined as “activities to retain or maintain the original

Note it may be possible to use the apparent power level as a criteria for the category of synchronous compensators (instead of active power for “classical “ production units).

Any approach on the definition of significant modernisation should leave room for different interpretations at national level, to take into account national specificities.

Electrical characteristics that lead to an increased ability to provide a particular service should be considered (e.g. the frequency stability and the active power management, the reactive power capability and/or the short-circuit current of the PGM/demand facility) and not the simple change of components/assets and/or the maximum capacity of the units since these latter interventions do not fundamentally impact the ability to provide a service.

	<p>required function of the item” and a spare part as “an item to replace a corresponding item in order to retain or maintain the original required function of the item”. This definition shall also include the replacement of huge parts of the installation, which can also be considered as spare parts.</p>		
	<p>6. However, in the case of electricity generation modules belonging to self-consumption installations without surplus, the significance of such modules shall be assessed, on an aggregate basis where applicable, exclusively by the maximum capacity without considering the voltage of the connection point of the associated demand-side installation. The significance of the MCS will be considered as the access and connection permit in those installation which the exceeding energy is below of the 30% of the total installation capacity.</p> <p>7. In the case of hybridisation with storage, significance should be assessed taking into account the location of the storage</p>		

equipment, whether it evacuates or consumes from the grid independently or together. In the first case, the storage equipment (“autonomous storage”) is considered separately from any electricity generation module constituting the hybrid installation for the purpose of assessing significance and consequently the applicability of technical requirements, information exchanges and measures. In the second case, the technical requirements shall apply to the generation module plus storage equipment (“annexe storage”) as a whole.

8. Standalone storage facilities shall be assessed taking into account the maximum injection capacity, but in addition they must meet the technical requirements as demand for maximum import capacity for the purposes of Regulation (EU) 2016/1388.

9. In the case of power park modules that are joined to form an economic unit and share a connection point, the assessment of their significance shall be made according to their aggregated

capacity, whereby their significance shall be assessed according to the sum of the maximum capacity of each power park module that is connected at the same connection point.

10. Synchronous compensators that do not form part of an electricity generation module shall comply with the requirements established for synchronous electricity generation modules with the logical exceptions derived from the limitation that their operation shall be neither as a producer nor as a consumer. The synchronous compensator shall be treated in the same way as synchronous electricity generation modules, considering its nominal apparent power as its maximum capacity.

11. In the case of energy communities, electricity generation modules belonging to the same energy community, the generators shall be counted in an aggregated way, exclusively by the maximum capacity without considering the voltage of the connection point of the associated demand-side installation.

It is proposed to define how to assess significance depending on the type of installation.

Large consumers are usually connected at distribution level due to the installation power requirements. Eventually, different solutions of self-consumption are included to mitigate the consumption and also for trading benefits. In such cases, the significance of the unit should not be decided based on the size of the converter but in the access and connection permit, since the power injected to the network is shorter than the whole installation capacity. Furthermore, the treatment of storage facilities, electric vehicle charging points and others indicated in the ACER report is suggested.

The voltage of 110kV is not suitable in all Member States, so it should be possible for the regulatory authority to specify a different voltage level that indicates which production facilities are to be counted as type D regardless of size. Or as an alternative, remove the voltage criterion

	<p>12. Bi-directional recharging points shall be subject on the grid feed-in side to the requirements for generators in this Regulation while being subject to the technical requirements as demand for maximum import capacity within the meaning of Regulation (EU) 2016/1388.</p> <p>110 kV should be used unless the regulatory authority decides something else</p>		
	<p>(2) Pump-storage power-generating modules shall fulfil the requirements in generating operation, pumping operation and synchronous compensation mode as described below.</p> <p>a) Synchronous compensation operation of pump-storage power-generating modules shall not be limited in time by the technical design of power-generating modules. Synchronous compensation operation of full-converter variable speed machines is performed by the converters.</p> <p>b) Pump-storage power-generating modules with fixed speed machines and single shaft ternary machines shall be considered as synchronous power</p>		

Article 6

generating modules.

c) Pump-storage power-generating modules with variable speed machines shall be considered as power park modules. For doubly-fed induction machines, the parameters of Table 3.1 or Table 7.1 shall apply to define the voltage-against-time profile with regard to fault-ride-through capability.

d) In pumping mode no technical capability to remain connected and continue operation is requested for frequencies below 49 Hz, unless a higher value of this threshold is defined by the relevant TSO.

e) To pump-storage power-generating modules with fixed speed machines in pumping operation mode and synchronous compensation operation mode, Articles 13(2), 13(3), 13(4), 13(5), 13(7), 14(2), 15(2), 15(5) and 15(6) (e) shall not apply. In pumping operation mode, the second sentence of Article 17(3) shall not apply; in synchronous compensation operation mode, Article 17(3) shall not apply entirely.

f) To pump-storage power-generating modules with single shaft ternary machines in pumping

The request for fulfilling all relevant requirements in both generating and pumping mode is not feasible in its generality. It is therefore recommended when revising NC RfG to distinguish better between the different operation modes and to state explicitly which requirements shall apply in each mode emphasizing the limitations in pumping mode.

The NC RfG principle of distinguishing between synchronous power generating modules and power park modules can in principle be applied to Pump Storage Hydro power generating modules as well. It could however be stated, to which category the relevant generation technologies are assigned. It might be necessary to assign one technology as synchronous power generating module for some requirements and as power park modules for others.

Article 2

Note: Art 13 Table 2 should not be applicable for storage in Pumping mode.

	<p>operation mode, Articles 13(4), 13 (5) and 15(5) shall not apply. In addition, Articles 13(2), 13(3), 13 (7), 14(2), 15(2), 15(6)(e) and the second sentence of Article 17(3) shall not apply, if only pumps are operated. Where Articles 13(2) or 15(2) are applicable, the reference active power for LFSM-O or LFSM-U respectively is the maximum capacity of the turbine.</p> <p>g) To pump-storage power-generating modules with single shaft ternary machines in synchronous compensation operation mode, Articles 13(2), 13 (3), 13(4), 13(5), 13(7), 14(2), 15 (2), 15(5), 15(6)(e) and 17(3) shall not apply.</p> <p>h) To pump-storage power-generating modules with variable speed machines in pumping operation mode, Articles 13(4), 13 (5) and 15(5) shall not apply.</p> <p>i) To pump-storage power-generating modules with variable speed machines in synchronous compensation operation mode, Articles 13(2), 13(3), 13(4), 13(5), 13(7), 14(2), 15(2), 15(5) and 15(6) (e) shall not apply.</p>		
	ARTICLE 3 Par 2. CONTINUED		

Article 7

(d) storages owned by system operators which are considered as fully integrated elements serving the purpose of providing security of supply at specific points in the system and where they are not participating in electricity markets.

DELETE:

(d) storage devices, except pumped storage electricity generation modules in accordance with Article 6(2).

Whether an active consumer shall comply with NC RfG, NC DC or both should be clearly identified in line with the definition ED 2019 /944 art 2. (8) 'active customer' means a final customer, or a group of jointly acting final customers, who consumes or stores electricity generated within its premises located within confined boundaries or, where permitted by a Member State, within other premises, or who sells self-generated electricity or participates in flexibility or energy efficiency schemes, provided that those activities do not constitute its primary commercial or professional

	activity.		
Article 8			
Article 9			
Article 10			
Article 11			
Article 12			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new articles in this section	Reasoning	Relation to other provisions
New articles			

Please upload figures or tables if necessary

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TITLE II CHAPTER 1 - General Requirements

General requirements for type A power-generating modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 13(1)	Table 2		
	Continental Europe	time	
	period for 47.5Hz-48.5Hz	30 min	
		time period for 48.5Hz-49.0 Hz	
		30 min	
		time period for 49.0Hz-51.0 Hz	
		Unlimited	
		time period for 51.0Hz-51.5 Hz	
		30 min	
		Table 2 is not applicable for storage in pumping mode	
	NEW PROVN		
	For type A installations of 250 kW and above (or perhaps even 100kW since some countries have a threshold for type B set below 250kW), the following data should be provided to the system operator, to foster flexibility and in any case to develop the relevant regulation by Member States to make it possible.		
	Measures:		
	MV/LV Voltage (kV)		

	<p>MV/LV Current (A) Active Power (MW) Reactive Power (MVar) Frequency (Hz) Command acknowledge Injection Power Limit Acknowledge - "Plim active ack."</p> <p>Binary Inputs: Circuit breaker state Protection start (aggregated) Protection trip (aggregated) Communication failure</p> <p>Commands: Live Line Work Conditions Grid disconnection / Permission to connect Network Injection Power Limit</p>	<p>Standardisation on this issue, at least for the continental Europe would lead to less barriers. There is no reason for this requirement to be different in continental Europe.</p> <p>The possibility to establish standardised European requirements should be checked.</p> <p>System operators should have a full picture of the grid at every instant to ease the flexibility opportunities of type A modules and to avoid jeopardising new functionalities. According to the regulation of each country, some type A generators do not require a specific access permit, and thus it is difficult to predict generation from those units. Some requirements should be considered in terms of communications allowing network operators a more flexible management of the generation, without causing disproportionate cost to the involved customers.</p>	
		<p>Energy storage can provide a large contribution to LFSM-O with little extra cost and have an increasing significance for the power system.</p>	

Article 13(2)

Regarding LFSM-O, consider the requirement to switch from discharging to charging if needed, corresponding to the droop:
Insert a number 13.2. (f) (iii):
“in case of electricity storage modules in discharging mode at the beginning the event, these shall be capable of switching to charging mode if needed corresponding to the droop.”

Include discretionary LFSM-U for electricity storage modules of type A including a facility to switch from charging to discharging when needed, corresponding to the droop.

Art. 13.3 (new):
[take the wording from Article 14 or 15 and address type A PGMs]

This is considered state of the art and already considered in several national implementations of NC RfG for example VDE-AR-N 4105 in Germany and the European Standard EN 50549.

It is proposed to apply the new requirements for type A at SO's discretion. The situation is different in each country. For example, in Spain potential problems with system security were addressed when the threshold between types A and B was set at 100kW. Countries with higher thresholds (e. g., 1MW) could face different security issues and will definitively, decide to apply the requirements also for type A.

We propose to apply the new requirements for electricity storage modules (type A) at SO's discretion. The situation is different in each country. For example, in Spain potential problems with system security were addressed when the threshold between types A and B was set at 100kW. Countries with higher thresholds (e. g., 1MW) could face different security issues and definitely will decide to apply the requirements

		also for type A	
Article 13(3)	<p>NEW PROV PGMs must withstand a RoCoF (Rate of Change of Frequency) of 1.0 Hz/sec measured with a 500 ms sliding window. If a PGM can withstand a higher value of the RoCoF by its inherent technology, it shall communicate this value to the relevant TSO. A frequency profile shall be proposed by all TSOs of each synchronous area so that PGMs can simulate and confirm that they are able to withstand this value</p>	<p>This value of 1 Hz/s during 500ms seems both realistic regarding the likely hazards and the ability of power plants to withstand it without disconnection.</p>	
		<p>Due to a significant share of generation of Type A in the system, the loss of generation in case of a fault poses stability risks for the system. Therefore, it is necessary for type A PGM to have an UVRT capability.</p> <p>This is considered state of the art and already considered in several national implementations of NC RfG for example VDE-AR-N 4105 in Germany and the European Standard EN 50549.</p> <p>The Gas Appliance Regulation (2016/426) and consequently the harmonised standards supporting this regulation (e.g. for household</p>	

NEW PROV

appliances EN 60335 (all parts)) require disconnection of the fuel supply of CHP systems in case of undervoltage or overvoltage. Therefore, CHP below 50kW must be exempted, to avoid conflicting legal requirements.

We propose to apply the new requirements for type A at SO's discretion. The situation is different in each country. For example, in Spain potential problems with system security were addressed when the threshold between types A and B was set at 100kW. Countries with higher thresholds (e. g., 1MW) could face different security issues and definitely will decide to apply the requirements also for type A.

It may be possible to add another PGM type between type A and B (e.g. A+) for industrial sites. This new PGMs type could encompass, for example, PGMs between 100 kW and 600 kW and could be subject to more extensive technical requirements (e.g. FRT) than type A. It may also be possible to harmonise at European level capacity thresholds between types A and A+, for example, to 100 kW.

<p>Article 13(4)</p>	<p>Include discretionary facility for undervoltage-ride-through (UVRT) for type A PGMs, with the exemption of CHP systems < 50 kW</p> <p>New provision Art. 13.8 (a) and (b): [take the wording, tables and figures from Article 14.3 (a) and (b) and address them to type A PGMs]</p> <p>Consider expanding existing requirements for robustness which are valid for types B, C, D to type A PGMs to consider overvoltage events.</p> <p>new Art. 13.8 (c): each TSO shall specify a voltage-against-time-profile at the connection point for overvoltage events, which describes the conditions in which the power-generating module is capable of staying connected to the network and continuing to operate stably after the power system has been disturbed; the voltage-against-time-profile shall express an upper limit of the actual course of the phase-to-phase voltages on the network voltage level at the connection point during an overvoltage event,</p>	<p>In this way, type A could include mostly residential plants for which technical requirements already in place for type A which could be sufficient to ensure system security.</p> <p>Due to a significant share of generation of Type A, the loss of generation in case of events resulting in overvoltage poses stability risks for the system. Therefore, it is necessary for type A PGM to have an overvoltage-ride-through (OVRT) capability. This is considered state of the art and already considered in several national implementations of NC RfG for example VDE-AR-N 4105 in Germany and the European Standard EN 50549.</p> <p>We propose to apply the new requirements for type A at SO's discretion. The situation is different in each country. For example, in Spain potential problems with system security were addressed when the threshold between types A and B was set at 100kW. Countries with higher thresholds (e. g., 1MW) could face different security issues and definitely will decide to apply the requirements</p>	<p>Robustness requirements for Type B - Article 14(3)(a)(i) NC RfG.</p> <p>and Gas Appliance Regulation (2016 /426)</p>
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as a function of time before, during and after the event

Exempt stirling generators and rotating generators < 50 kW from the requirements concerning fault-ride-through capabilities.

New Art. 13.8 (d):
the following power generation units are exempted from fault-ride-through capabilities:

- stirling generators and fuel cells principally incapable of providing fault-ride-through capabilities;
- synchronous and asynchronous generators coupled directly or via inverters with $P_n \leq 50$ kW.

also for type A.

It may be possible to add another PGM type between type A and B (e.g. A+) for industrial sites. This new PGMs type could encompass, for example, PGMs between 100 kW and 600 kW and could be subject to more extensive technical requirements (e.g. FRT) than type A. It may also be possible to harmonise at European level capacity thresholds between types A and A+, for example, to 100 kW. In this way, type A could include mostly residential plants for which technical requirements already in place for type A which could be sufficient to ensure system security.

Due to a significant share of generation of Type A, the loss of generation in case of events resulting in overvoltage poses stability risks for the system. Therefore, it is necessary for type A PGM to have an overvoltage-ride-through (OVRT) capability. This is considered state of the art and already considered in several national implementations of NC RfG for example VDE-AR-N 4105

in Germany and the European Standard EN 50549.

We propose to apply the new requirements for type A at SO's discretion. The situation is different in each country. For example, in Spain potential problems with system security were addressed when the threshold between types A and B was set at 100kW. Countries with higher thresholds (e.g., 1MW) could face different security issues and definitely will decide to apply the requirements also for type A.

It may be possible to add another PGM type between type A and B (e.g. A+) for industrial sites. This new PGMs type could encompass, for example, PGMs between 100 kW and 600 kW and could be subject to more extensive technical requirements (e.g. FRT) than type A. It may also be possible to harmonise at European level capacity thresholds between types A and A+, for example, to 100 kW. In this way, type A could include mostly residential plants for which technical requirements already in place for type A which could be sufficient to ensure system security.

NEW PROV

“A review of the requirements for type A PGMs is in any case required. In this regard, it is necessary to determine which requirements applicable to type B

Portugal is a reference in the integration of distributed generation. As proof of this, our country had the 5th most demanding goal of the EU regarding the share of renewable energies on the horizon of 2020 (31%). The unpredictability and volatility of these resources are leading the DSO to adopt more active and flexible management of the system, using an Advanced Distribution Management System (ADMS), Advanced Forecasting Mechanisms, and increasing the hosting capacity, which has made it possible to connect more electricity-generating centres, causing Portugal to end the year 2021 with 59% of electricity consumption supplied by renewable production.

Regarding new agents and services, the energy transition brought new players such as prosumers (~+50% in 6M22 vs 6M21), energy communities and aggregators, whose needs also implied adaptation in energy management and settlement. These new market models could contribute to the flexibility of the electricity system, something that

PGMs may also be necessary for type A PGMs in terms of system security. The following candidate requirements were identified by the Expert Group “Baseline for Type A PGMs” 24:

- a) Fault Ride Through (FRT),
- b) Post Fault Active Power Recovery (PFAPR), and
- c) Active Power Control (APC).

The review of the requirements for type A PGMs, namely for power between [250kW; 1MW] or connected with MV grid, should also consider:

Measures:

MV/LV Voltage (kV)

MV/LV Current (A)

Active Power (MW)

Reactive Power (MVar)

Frequency (Hz)

Command acknowledge

Injection Power Limit Acknowledge
- “Plim active ack.”

Binary Inputs:

Circuit breaker state

Protection start (aggregated)

Protection trip (aggregated)

Communication failure

has already been the subject of some proofs of concept and pilots in Portugal, within the scope of European projects, and which will be used as a management tool for distribution networks.

The solutions for this revolution in the electricity sector will be found in the bet on smart grids, where Portugal already has an infrastructure with +4M smart meters installed, allowing remote operations to be carried out and contributing to the improvement of the overall efficiency of the system. Digitisation and analytics are also part of the answer, as they constitute enablers for incorporating new technologies, services and business models that will transform the sector.

Commission Regulation (EU) 2016 /631 of 14 April 2016 established a network code on requirements for grid connection of generators. This Regulation established a network code which lays down the requirements for grid connection of power-generating facilities, namely synchronous power-generating modules, power park modules and offshore power park modules, to

Commands:
Live Line Work Conditions
Grid disconnection / Permission to connect
Network Injection Power Limit

EN50549-1:2019 should be adopted has the reference and RfG would just refer to the norm.

There should be a requirement for observability (real-time measurements) and power output limitation by the DSO.

Standardisation of communication requirements by EU DSO Entity proposal should be within KORRR template which could be revised to accommodate the needs of DSOs and take advantage of possible synergies (between rules and procedures that can be shared).

Complementing the above proposals, it may be possible to add another PGM type between type A and B (e.g. A+) for industrial sites. This new PGMs type could encompass, for example, PGMs between 100 kW and 600 kW and could be subject to more extensive technical requirements (e.g. FRT) than type A.

the interconnected system. It, therefore, helps to ensure fair conditions of competition in the internal electricity market, ensure system security and the integration of renewable electricity sources, and to facilitate Union-wide trade in electricity.

This Regulation also lays down the obligations for ensuring that system operators use the power-generating facilities' capabilities in transparent and non-discriminatory to provide a level playing field throughout the Union.

To guarantee a fruitful DER network integration without jeopardising de QoS and QoE, where improvement is more and more required, more observability and control of the DER by the DSO is mandatory. Increased observability and control are also key to maximising DER penetration in the existing grid. The requirements for type A PGMs should be sufficient for small PGMs usually installed in a residential environment, taking into account their affect on the system. Thus, the additional technical requirements identified by the

Expert Group “Baseline for Type A PGMs” may not necessarily need to be applied to these plants. Nevertheless, we share the need to revise the threshold between type A and B PGMs and evaluate the opportunity to introduce another intermediate PGM type between type A and type B. It may be possible to add another PGM type between type A and B (e.g. A+) for industrial sites. This new PGMs type could encompass, for example, PGMs between 100 kW and 600 kW and could be subject to more extensive technical requirements (e.g. FRT) than type A. It may also be possible to harmonise at European level capacity thresholds between types A and A+, for example, to 100 kW. In this way, type A could include mostly residential plants for which technical requirements already in place for type A which could be sufficient to ensure system security.

Article 13(6)	<p>We suggest the inclusion of standardised grid user interfaces, i. e. equipment that should guarantee the proper bilateral communication between the grid and user appliances. For example there should be a Type A Generator to DSO communication standardisation, since although the network code already establishes the right of the DSO to communicate with type A generators (typically for emergency switch off) more advanced capabilities require a digital communication to take full advantage of the data and control capabilities supported by modern inverters. It is our opinion that this topic should be addressed in a RfG revision. Communication standard could be proposed by EU DSO Entity and approved by ACER.</p> <p>We propose to also keep the sentence in the current text of the NC: “The relevant system operator shall have the right to specify requirements for equipment to make this facility operable remotely.”</p>		
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Article 13(7)	<p>GENERAL:</p> <p>Regarding harmonisation of requirements for type B, C and D generators - separate requirements should be given for DFIG generator and full inverter technology. Harmonisation should take into consideration EN50459-1:2019 and EN50459-2:2019.</p>		
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Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
New provisions	The power factor of the energy supplied to the distribution company's network must be as close as possible to unity and, in any case, greater than 0.98 when the installation operates at powers greater than 25 per cent of its nominal power.	It is necessary to include some reactive requirement as the range of type A is too wide. In Spain, a current problem is voltage control in the low voltage grid due to distortion caused by small generators. Currently generators < 15 KW on urbanised land are exempt from applying for access and connection and from complying with grid codes, they start to generate and raise the voltage on the grid and even trip due to their 115% overvoltage protection which also causes unacceptable overvoltages to other customers in the electrical vicinity.	

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General requirements for type B power-generating modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 14(1)			
Article 14(2)	<p>Include LFSM-U for all Type B PGMs.</p> <p>Add a new section: Article 14(2)(c): the following requirements shall apply to type B power-generating modules as well as electricity storage modules with regard to limited frequency sensitive mode – underfrequency (LFSM-U):</p> <ul style="list-style-type: none"> - [take the wording from Article 15.2 (c)(i)-(v) and add, when the words “power-generating module” appear, the words “or the electricity storage module”] 	<p>All PGM which have this capacity should provide LFSM-U.</p> <p>This is considered state of the art and already considered in several national implementations of NC RfG for example VDE-AR-N 4110 in Germany and the European Standard EN 50549.</p>	<p>LFSM-U provisions in Article 13 and Article 15</p>

Article 14(3)	0,14-0,15 (or 0,14-0,25 if system protection and secure operation so require for specific PGMs)	<p>Member States shall not select a value outside the interval 0,14-0,15 as a general national rule. That should only be possible for selected PGMs under certain conditions. For example this has caused large costs for several producers in Sweden.</p> <p>In Sweden, t_{clear} has been chosen outside the interval of 0,14-0,15 s and applied to all PGMs. RfG indicates that this can be done only under certain conditions, whereas the Swedish national criteria defines this as a general criteria. It should be clearly specified in RfG that a value outside the default interval may only be required under certain conditions for specific PGMs.</p> <p>In Sweden a general criterion of $t_{\text{clear}} = 0,20$ s has been chosen. This causes difficulties for existing PGMs to fulfil after significant modernisations. RfG should clearly state that the interval 0,14-0,15 s is a general requirement, but other values may be required under certain conditions for specific PGMs. In those cases, this must be well motivated by the TSO.</p>	
Article 14(4)			
Article 14(5)			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
New provisions			

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General requirements for type C power-generating modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 15(1)			
Article 15(2)			
Article 15(3)			
Article 15(4)			
Article 15(5)			
Article 15(6)			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
New provisions			

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General requirements for type D power-generating modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 16(1)			
Article 16(2)			
Article 16(3)			
Article 16(4)			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
New provisions			

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TITLE II CHAPTER 2 - Requirements for synchronous power-generating modules

Requirements for type B synchronous power-generating modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 17(1)			
Article 17(2)			
Article 17(3)			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
New provisions			

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Requirements for type C synchronous power-generating modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 18(1)			
Article 18(2)			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
New provisions			

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Requirements for type D synchronous power-generating modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 19(1)			
Article 19(2)			
Article 19(3)			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
New provisions			

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TITLE II CHAPTER 3 - Requirements for power park modules

Requirements for type B power park modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 20(1)			
Article 20(2)			
Article 20(3)			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
New provisions			

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Requirements for type C power park modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 21(1)			
Article 21(2)	<p>Article 21 (3)</p> <p>A point other than the connection point may be utilised upon approval from regulatory authority.</p>	<p>According to Article 21, the regulation point should always be at the connection point when connecting power park modules. It should however be possible for the regulatory authority to grant exceptions if it provides a better solution for the system to measure in another point.</p>	

Article 21(3)	<p>Article 21, 3, (d), (iv)</p> <p>Following a step change in voltage, the power park module shall be capable of achieving 90 % of the change in reactive power output within a time t_1 to be specified by the relevant system operator in the range of 1 to 5 seconds for a maximum capacitive value of $Q/P_{max}=+0,2$, and must settle at the value specified by the slope within a time t_2 to be specified by the relevant system operator in the range of 5 to 60 seconds, with a steady-state reactive tolerance no greater than 5 % of the maximum reactive power. For capacitive reactive power values higher than $+0,2$ t_2 up to 60 seconds will be allowed. The relevant system operator shall specify the time specifications;</p>	<p>To be aligned with the dynamic reactive power capability of the PPM, based in the reactive power capability of the units generating electricity (wind turbines, PV inverters). That way the installation of expensive dynamic reactive power compensation devices will only be needed in exceptional situations.</p>	
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Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
New provisions			

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Requirements for type D power park modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 22			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions in this section	Reasoning	Relation to other provisions
New provisions			

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TITLE II CHAPTER 4 - Requirements for offshore power park modules

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 23			
Article 24			
Article 25			
Article 26			
Article 27			
Article 28			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new articles in this section	Reasoning	Relation to other provisions
New articles			

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TITLE III - Operational notification procedure for connection

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 29			
Article 30	In any case, the use of equipment certificates issued by an authorised certifier shall be permitted.	<p>Regarding the certification harmonisation and the use of equipment certificates throughout Europe for the smaller power generating modules. We understand that this would support the market and lower the barriers for connection to the EU grids.</p> <p>For instance, identical frequency withstands requirements for generators, since presently there are different settings, according to the country, for generator frequency withstand which should be revised as the frequency throughout a synchronous area is identical, and so should be the requirements. This is one of the causes that there are multiple generator national certificates and contributes to a barrier in the internal market.</p> <p>We also suggest the inclusion of standardised grid user interfaces, i. e. equipment that should guarantee the proper bilateral communication between the grid and user appliances. For</p>	

		<p>example, there should be a Type A Generator to DSO communication standardization, since although the network code already establishes the right of the DSO to communicate with type A generators (typically for emergency switch off) more advanced capabilities require a digital communication to take full advantage of the data and control capabilities supported by modern inverters. It is our opinion that this topic should be addressed in a RfG revision. Communication standard could be proposed by EU DSO Entity and approved by ACER.</p>	
Article 31			
Article 32			
Article 33			
Article 34			
Article 35			
Article 36			
Article 37			
Article 38			
Article 39			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new articles in this section	Reasoning	Relation to other provisions
New articles			

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TITLE IV - Compliance

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 40			
Article 41			
Article 42	5. The owner of the installation shall be responsible for carrying out the relevant updates to the installation to ensure its correct operation throughout its useful life. Likewise, the system operator to which it is connected may require the necessary information for the analysis of incidents in its networks.	Generator Life-Long compliance – There should be a topic of the code on how to ensure code compliance during the power plant life cycle addressing topic such as firmware updates, observation needs for incident analysis, penalties for infringement (specially for type A, B and C where the current code displays no penalties while for type D it is clear that the infringement can lead to disconnection	
Article 43			
Article 44			
Article 45			
Article 46			
Article 47			
Article 48			
Article 49			
Article 50			
Article 51			
Article 52			
Article 53			
Article 54			

Article 55			
Article 56			
Article 57			
Article 58			
Article 59			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new articles in this section	Reasoning	Relation to other provisions
New articles			

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TITLE V - Derogations

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 60			
Article 61			
Article 62			
Article 63			
Article 64			
Article 65			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new articles in this section	Reasoning	Relation to other provisions
New articles			

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TITLE VI - Transitional arrangements for emerging technologies

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 66			
Article 67			
Article 68			
Article 69			
Article 70			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new articles in this section	Reasoning	Relation to other provisions
New articles			

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TITLE VII - Final provisions

Please write your amendment proposal and the reasoning in the table below.

	Amendment proposal	Reasoning	Relation to other provisions
Article 71			
Article 72			

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new articles in this section	Reasoning	Relation to other provisions
New articles			

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Other additional provisions

Please write your amendment proposal and the reasoning in the table below.

	Proposal for new provisions	Reasoning	Relation to other provisions
Other new provisions	For your convenience, a Word file with the table of change proposals is included here, in addition to the requested track changes NC Word file. This may help in case there were errors or cuts due to any character limits		

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