# smartEn positions in regards to NC RfG

* Replace voltage criteria by export power capacity criteria
  + Easier / Propose new subcategories like A1 (7,4kW single phase), A2 (7,4-12kW single phase). This could be an temporary and intermediate solution waiting for a regulation specifying minimum and maximum thresholds between the different types harmonised across all Member States
  + Maximum simultaneous export power at site : registered capacity (flow limitations or fuses)
* Inverter, wherever it is, should manage the grid faults
  + In case of V2G AC, a type test certification should be performed on couple of EVSE + homologated EV platform
  + Inverters do not store any energy like synchronous motors, so short circuit current do not exceed the max current of the inverter
* Network Codes (NC) should apply at home/small building connection point
  + Inverter, wherever it is, should manage the grid faults
  + In case of V2G AC, a type test certification should be performed on couple of EVSE + homologated EV platform
  + Inverters do not store any energy like synchronous motors, so short circuit current do not exceed the max current of the inverter
  + Application of LFSM-U requirement to onboard chargers of EVs should not be put into force all equipment connected to the network have to be considered in a non-discriminatory manner.
* Remote power control with standards (such as IEC 61850-7-420)
* Type tests
  + Home and small building PPMs are based on small size (power) equipment which are mass produced. To minimize associated end-user costs, all associated certification should be based type tested
  + Type test certification should include tests for the communication protocol
  + Electronic exchanges through a single interface with harmonized documents provided in English. Associated repositories should be organize to facilitate reuse of approvals across European countries
  + For advanced functionality interoperability conformity, tests should be performed based on use cases from either simulated or return experiences to enrich TSOs/DSOs and manufacturers’ knowledge

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| Article | Amendment proposal | Reasoning | Relation to other provisions |
| 0.7 | Different synchronous electricity systems in the Union have different characteristics which need to be taken into account when setting the requirements for generators. It is therefore appropriate to consider regional specificities when establishing network connection rules as required by Article 8(6) of Regulation (EC) No 714/2009. Mass market small DERs on household-level however, should not be treated differently throughout the union to not risk free market distortions by local (protectionist) grid connection rules. | Small assets do not need different rules in the union but better common standardization. This avoids discrimination by local stakeholders and system operators on manufacturers. If the EU wants to scale up production and flexibility in the next 10 years, common and faster processes and rules are absolutely essential. |  |
| 0.8 | In view of the need to provide regulatory certainty, the requirements of this Regulation should apply to new generating facilities but should not apply to existing generating modules and generating modules already at an advanced stage of planning but not yet completed unless the relevant regulatory authority or Member State decides otherwise based on evolution of system requirements and a full cost-benefit analysis, or where there has been substantial modernisation of those generating facilities. For small building application substantial modernisation should be considered as a major change in power-generating modules type change (change of power category). By small buildings, it should be considered individual homes, small multi-dwelling buildings, small commercial and industrial buildings with a grid connection below or equal to 36kVA. | "Substantial change" could be defined by a change in connection power capacity of more than 50% (e.g. when installing heat pumps, PV or EVSE in the building, thus completely changing its load and energy profile).  For small building connection, type-test certificates should be used based on family grouping, So, only changes in power types should be considered as "substantial modernisation". |  |
| 0.9 | The significance of power-generating modules should be based on their size and their effect on the overall system. Synchronous machines should be classed on the machine size and include all the components of a generating facility that normally run indivisibly, such as separate alternators driven by the separate gas and steam turbines of a single combined-cycle gas turbine installation. For a facility including several such combined-cycle gas turbine installations, each should be assessed on its size, and not on the whole capacity of the facility. Non- synchronously connected power-generating units, where they are collected together to form an economic unit and where they have a single connection point should be assessed on their aggregated capacity. Photovoltaic, wind, combined heat and power, stationary storage, and mobile storage shall not be collected together, as their generation patterns differ strongly and independently. | Each of these asset types are inherently variable in their behaviour and generation characteristics: PV generation fluctuates based on the sun, win generation on the presence of wind, CHP based on the need of heat and grid conditions, stationary storage and EV-based generation based on grid conditions and local economics (independent of other generation sources).  An AC connected storage system should not be discriminated to a DC connected storage system, which would be the case if the AC one falls over the type threshold (or other national thresholds) |  |
| 0.21 | Adequate information exchange between system operators and power-generating facility owners is a prerequisite for enabling system operators to maintain system stability and security. System operators need to have a continuous overview of the state of the system, which includes information on the operating conditions of power-generating modules, as well as the possibility to communicate with them in order to direct operational instructions. For small scale small building power-generating units produced in mass, the network code should refer to default type tested communication interfaces derived from IEC standards. | Data information exchanges and protocols should be based on IEC Standards such as IEC 61850-7-420 and IEC 62325.  Type tests should include data exchange and protocol tests. |  |
| 0.26 | Appropriate and proportionate compliance testing should be introduced so that system operators can ensure operational security. For small scale power generation units, type testing is appropriate and proportionate and should be considered as a default approach for compliance testing. | Type tests based on family grouping and including data exchange and protocol tests certified by authorised certifiers should be the harmonised solution across the Member States for type A power-generating units. |  |
| 1 | This Regulation establishes 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 the interconnected system. It, therefore, helps to ensure fair conditions of competition in the internal electricity market, to ensure system security and the integration of renewable electricity sources, and to facilitate Union-wide trade in electricity. It also prepares the systems for the consequences of the global warning providing some obligations relative to weather hazard resilience, facilitates the use of power-generating module flexibility to respond to real-time Grid congestions and opens the possibility to use distributed energy resources to make the grid more resilient to extreme events. | Weather hazard resilience should be added as one main objective of the NC. |  |
| 2.16 | ‘maximum capacity’ or ‘Pmax’ means the maximum continuous active power which a power-generating module can produce, less any demand associated solely with facilitating the operation of that power-generating module and not fed into the network as specified in the connection agreement or as agreed between the relevant system operator and the power-generating facility owner, eg. for reactive power provision. The maximum capacity for power generating facilities shall be defined by the maximum possible simultaneous generation, eg. a charging park with a lower power line or fuse capacity than the sum of the charge points shall have a Pmax of this lower limit; | Pmax of a module and Pmax of a park and Pmax of a facility (at connection point) must be differentiated. |  |
| 2.17 | ‘power park module’ or ‘PPM’ means a unit or ensemble of units generating electricity, which is either non-synchronously connected to the network or connected through power electronics, and that also has a single connection point to a transmission system, distribution system including closed distribution system or HVDC system. A unit that is theoretically capable of generating electricity, but operating in a load-only mode, shall not be subject to this definition, but shall instead be considered as a simple load; | Electric vehicles and backup storages should be allowed to connect to the grid as loads without any RfG requirements if they do not intent to generate electricity. For instance a V2G electric vehicle connected to an infrastructure (charging station or grid-connection) allowing only V1G should not have to meet RfG requirements. |  |
| 2.46 | ‘authorised certifier’ means an entity that issues equipment certificates or type-test certificates and power-generating unit documents and whose accreditation is given by the national affiliate of the European cooperation for Accreditation (‘EA’), established in accordance with Regulation (EC) No 765/2008 of the European Parliament and of the Council (1); | Type test certificates should be the preferred solution.  Type test have to be passed by power-generating units and not modules. |  |
| 2.48 (new) | ‘type-test certificate’ means a document issued by an authorised certifier for a family grouping of equipment used by type A power- generating units (in the case of bidirectional charging electric vehicles, whether on- (ie AC) or off-board (ie DC) converters) . The type-test certificate defines the scope of its validity at the European level based on IEC EN 50540-10 standard. For the purpose of replacing specific parts of the compliance process, the type-test certificate may include model families that have been verified against actual test results. Type-test certificates shall include tests passed using control protocol exchanges based on IEC 61850-7-420 standard. Type-test certificate issued by one Member State shall be accepted in another Member State as far as no specific requirement is needed in this other Member State; | Definition of type test based on IEC and EN standards at European level for type A power-generating units which are mass produced and will largely deployed in homes and smart buildings. |  |
| 3.2 |  | Storage (mobile and stationary) should definitely be included |  |
| 5.1 | The power-generating modules shall comply with the requirements on the basis of their maximum capacity according to the categories set out in paragraph 4. | A small PV installation or bidirectional charge point in a big factory with a connection point to TSO grid, should not comply with TYPE D standards as the effect on the grid is not significant and certified inverters or communication devices do either not exist or are not economical viable. |  |
| 5.2 (new) | For distributed power- generating modules the maximum capacity shall be evaluated at the connection point as the maximum export power that one or several power-generating modules could offer. By distributed, it is assumed energy resources or assets located on prosumer premises, behind their connection point. | Pmax of a module and Pmax of a park and Pmax of a facility (at connection point) must be differentiated.  It should be noticed that for V2G or battery storage, the generating power is always controlled. Max allowed generating power at the connection point will then always be respected by these solutions. Additional limiting devices could be added.  Therefore, the generating power at the connection will never be the sum of the maximum generating power of each units behind the connection point. |  |
| 5.3 (new) | For power park modules the maximum power shall take into account the unit’s capability to limit flows through the connection point when available, or fuses. |  |
| 5.4 (= previous 5.2) | 1. Power-generating modules within the following categories shall be considered as significant:   A power-generating module is of type A if its maximum capacity is below the threshold specified in Table 1.  Subcategories of type A shall be introduced to ease the harmonisation through the Member States aiming for a better alignment of the minimum of the maximum capacity thresholds across Member States as,   1. maximum capacity between 0,8 kW and 7,4 kW (32 A single phase) (Type A1) 2. maximum capacity between 7,4 kW and 11,1 kW (single and three phases) (Type A2) 3. maximum capacity between 11,1 kW and 50 kW (Type A3) 4. maximum capacity between 50 kW and 250 kW (Type A4) 5. maximum capacity between 250 kW and 1 MW (Type A5);   a power-generating module is of type B if its maximum capacity is at or above a threshold specified in Table 1; or   1. a power-generating module is of type C if its maximum capacity is at or above a threshold specified in Table 1; or 2. connection point at 110 kV or above (type D) and a maximum capacity or above a threshold specified in Table 1. A power-generating module is also of type D if its connection point is below 110 kV and its maximum capacity is at or above a threshold specified in Table 1.   *Table 1*  **Defined values for thresholds for type B, C and D power-generating modules**   |  |  |  |  | | --- | --- | --- | --- | | Synchronous areas | Maximum capacity threshold from which a power- generating module is of type B | Maximum capacity threshold from which a power- generating module is of type C | Maximum capacity threshold from which a power- generating module is of type D | | Continental Europe | 1 MW | 50 MW | 75 MW | | Great Britain | 1 MW | 50 MW | 75 MW | | Nordic | 1,5 MW | 10 MW | 30 MW | | Ireland and Northern Ireland | 0,1 MW | 5 MW | 10 MW | | Baltic | 0,5 MW | 10 MW | 15 MW | | Reasons for creating subcategories.  1) Thresholds vary from one Member State to another, the idea of the subcategory is to allow common subcategories over the MS  2) 7,4 kW is in most of the countries the power for house connection.  3) Except Slovenia (10 kW), the minimum threshold between type A and type B is at 11,1 kW (Italy) and 11,1 kW is for 16A three phase equipment mostly sold in Europe.  The thresholds should be harmonised across the MS. |  |
| Previous 5.3 and 5.4 |  | Maximum capacity thresholds harmonised by the new NC RfG updated. |  |
| 5.5 (new) | Bidirectional cars and bidirectional vehicle chargers, whether on- (ie AC) or off-board (ie DC) converters, shall always be type A1, A2 or A3, but never be considered as type B. | Electric vehicles are operated differently than other assets: ownership, simultaneity, charging behaviour, etc.  Therefore the complexity of type B is not adequate and will strongly hinder V2G rollout. |  |
| 5.7 (new) | Photovoltaic, wind, combined-heat-and-power, stationary storage, and mobile storage shall not be collected together for determination of the Type of the facility, as their generation patterns differ strongly and independently. | Each of these asset types are inherently variable in their behavior and generation characteristics: PV generation fluctuates based on the sun, win generation on the presence of wind, CHP based on the need of heat and grid conditions, stationary storage and EV-based generation based on grid conditions and local economics (independent of other generation sources).  An AC connected storage system should not be discriminated to a DC connected storage system, which would be the case if the AC one falls over the type threshold (or other national thresholds) |  |
| 6 | **Application to power-generating modules, pump-storage power-generating modules, storage power park modules, electrical charging parks offering V2G with either on (ie AC) or off-board (ie DC) converters, combined heat and power facilities, industrial sites, and mixed customer sites in general** |  |  |
| 6.3 (new) | Storage power park modules as well as electrical charging parks offering V2G with either on (ie AC) or off-board (ie DC) converters shall fulfil all the relevant requirements in both generating and consuming operation mode. Both systems are firstly loads to the network and their functionalities as generators should only be considered when their generating capacity is permitted for being activated by the power-generating facility owner or user. They should not be considered as power-generating modules if their generation mode cannot be activated. | It is important that electric vehicles and bidirectional chargers are allowed to be used as loads even when they have the technical capabilities to generate electricity. If this is not the case, manufacturers might not implement the capabilities to secure customers from harder installation requirements.  This is the way the market is developing naturally and without having this provision, it will act as a regulatorily imposed market barrier. |  |
| 6.4 (previous 6.3) | With respect to power-generating modules embedded in the networks of industrial sites, which includes all types of power-generating modules, power-generating facility owners, system operators of industrial sites and relevant system operators whose network is connected to the network of an industrial site shall have the right to agree on conditions for disconnection of such power-generating modules together with critical loads, which secure production processes, from the relevant system operator's network. The exercise of this right shall be coordinated with the relevant TSO. This applies also to electrical charging parks as vehicles could also be used in emergency cases. |  |
| 6.7 (new) | For mixed customer sites (MCS) the following applies:  (a) the type classification according to table 1 does not refer to the installed capacity, but the maximum export capacity as agreed with the relevant system operator.  (b) The maximum capacity shall be defined by a registered capacity, or flow limitations when available, or fuses | Mixed customer sites shall consider EV charging, battery storage and PV production associated to some electrical consumptions. |  |
| 7.1 | Requirements of general application to be established by relevant system operators or TSOs under this Regulation shall be subject to approval by the entity designated by the Member State and be published. These publications of national grid connection codes must be accessible by the public without registration or payment. The designated entity shall be the regulatory authority. | Law-like regulation that is imposed on citizens must be free to access by the public and companies without any barriers. The national creation processes must be done in the most transparent way with different levels of decision taking. |  |
| 7.3 | (g) provide sufficient evidence and rationale to the public to justify the regulations and decisions pursuant to this Commission Regulation | Without providing evidence and rationale, there will not be true transparency to the market. |  |
| 10.2 | The relevant system operators or relevant TSOs shall duly take into account the views of the stakeholders resulting from the consultations prior to the submission of the draft proposal for thresholds, the report or cost benefit analysis for approval by the regulatory authority or, if applicable, the Member State. In all cases, a sound justification for including or not the views of the stakeholders shall be provided and published in a timely manner before, or simultaneously with, the publication of the proposal. Final and intermediate versions must be published for free to the public by the National Regulatory Authority. | If national grid connection codes are behind a paywall, then we cannot really speak of a transparent process as the status quo is not possible to be read by the public. |  |
| XX (new) | *Article XX*  **General requirements for weather hazards resilience of power-generating modules**   1. Connection requirements concerning freeze or heatwave protection measures and information on power-generating modules’ operating limitations for specific weather shall be provided by the System Operator thanks to data information according to the IEC 618510-7-420 standard. 2. Automatic disconnection and reconnection should be performed according to Article 13 2 (b) for type A and 14.4 (b) for types B, C and D; 3. Data exchange protocol should be based on IEC 61851-7-420 according to Article 14 5 (d). | General requirements regarding Weather hazard resilience should be added to improve grid stability. |  |
| 13.1 | Type A power-generating modules shall fulfil the following requirements relating to frequency stability:   1. With regard to frequency ranges:    1. a power-generating module shall be capable of remaining connected to the network and operate within the frequency ranges and time periods specified in Table 2;    2. the power-generating facility owner shall not unreasonably withhold consent to apply wider frequency ranges or longer minimum times for operation, taking account of their economic and technical feasibility. 2. With regard to the rate of change of frequency withstand capability, a power-generating module shall be capable of staying connected to the network and operate at rates of change of frequency up to a value specified in the last updated version of EN50549-1, unless disconnection was triggered by rate-of-change-of-frequency-type loss of mains protection. The relevant system operator, in coordination with the relevant TSO, shall specify this rate-of-change-of-frequency-type loss of mains protection.   *Table 2*  **Minimum time periods for which a power-generating module has to be capable of operating on different frequencies, deviating from a nominal value, without disconnecting from the network.**   |  |  |  | | --- | --- | --- | | Synchronous area | Frequency range | Time period for operation | | Continental Europe | 47,5 Hz-48,5 Hz | 90 minutes | | 48,5 Hz-49,0 Hz | 90 minutes | | 49,0 Hz-51,0 Hz | Unlimited | | 51,0 Hz-51,5 Hz | 90 minutes |  |  |  |  | | --- | --- | --- | | Synchronous area | Frequency range | Time period for operation | | Nordic | 47,5 Hz-48,5 Hz | 90 minutes | |  | 48,5 Hz-49,0 Hz | 90 minutes | |  | 49,0 Hz-51,0 Hz | Unlimited | |  | 51,0 Hz-51,5 Hz | 90 minutes | | Great Britain | 47,0 Hz-47,5 Hz | 20 seconds | |  | 47,5 Hz-48,5 Hz | 90 minutes | |  | 48,5 Hz-49,0 Hz | 90 minutes | |  | 49,0 Hz-51,0 Hz | Unlimited | |  | 51,0 Hz-51,5 Hz | 90 minutes | |  | 51,5 Hz-52,0 Hz | 15 minutes | | Ireland and Northern Ireland | 47,5 Hz-48,5 Hz | 90 minutes | |  | 48,5 Hz-49,0 Hz | 90 minutes | |  | 49,0 Hz-51,0 Hz | Unlimited | |  | 51,0 Hz-51,5 Hz | 90 minutes | | Baltic | 47,5 Hz-48,5 Hz | 90 minutes | |  | 48,5 Hz-49,0 Hz | 90 minutes | |  | 49,0 Hz-51,0 Hz | Unlimited | |  | 51,0 Hz-51,5 Hz | 90 minutes | | All requirements for type A generators should be the same throughout the EU. If not, there will be inherent bias against the use of smaller assets as DERs. This is especially true at lower power level assets.  (at least Type A1 must be harmonised)  Should be specified by ACER for the whole EU market area. The EN50549-1 is an adequate norm that shall be referred to in the RfG to ensure same rules for faster rollout.  Fast market rollout of small DER demands common values for whole EU. (counts for whole table) |  |
| 13.2 | With regard to the limited frequency sensitive mode — overfrequency (LFSM-O), the following shall apply, as determined by the relevant TSO for its control area in coordination with the TSOs of the same synchronous area to ensure minimal impacts on neighbouring areas:   1. 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 in the last updated version of EN50549-1; 2. the frequency threshold shall be between 50,2 Hz and 50,5 Hz inclusive; 3. the droop settings shall be between 2 % and 12 %; 4. 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; 5. the last updated version of EN50549-1 may require that upon reaching minimum regulating level, the power-generating module be capable of either:    1. continuing operation at this level; or    2. further decreasing active power output; 6. 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. | Fast market rollout of small DER demands common values for whole EU for type A.  The EN50549-1 is an adequate norm that shall be referred to in the RfG to ensure same rules for faster rollout. |  |
| 13.4 | The last updated version of EN50549-1 shall specify admissible active power reduction from maximum output with falling frequency in its control area as a rate of reduction falling within the boundaries, illustrated by the full lines in Figure 2:  (a) below 49 Hz falling by a reduction rate of 2 % of the maximum capacity at 50 Hz per 1 Hz frequency drop;  (b) below 49,5 Hz falling by a reduction rate of 10 % of the maximum capacity at 50 Hz per 1 Hz frequency drop. | Should be specified by ACER for the whole EU market area. The EN50549-1 is an adequate norm that shall be referred to in the RfG to ensure same rules for faster rollout. |  |
| 13.5 | The admissible active power reduction from maximum output shall:   1. clearly specify the ambient conditions applicable; 2. take account of the technical capabilities of power-generating modules.   *Figure 2*  **Maximum power capability reduction with falling frequency**    The diagram represents the boundaries in which the capability can be specified by the last updated version of EN50549-1. | Should be specified by ACER for the whole EU market area. The EN50549-1 is an adequate norm that shall be referred to in the RfG to ensure same rules for faster rollout. |  |
| 13.6 | Type A and B power-generating modules shall fulfil the following requirements in relation to frequency stability to control active power output, the power-generating module shall be equipped with a control interface in order to be able to reduce active power output following an instruction at the input port, according to the IEC 61850-7-420 standard. | Remote control should be based on IEC 61851-7-420 data exchange standard. |  |
| 13.7 | The last updated version of EN50549-1 shall specify the conditions under which a power-generating module is capable of connecting automatically to the network. Those conditions shall include:   1. frequency ranges within which an automatic connection is admissible, and a corresponding delay time; and 2. maximum admissible gradient of increase in active power output.   Automatic connection is allowed unless specified otherwise by the relevant system operator in coordination with the relevant TSO. | Should be specified by ACER for the whole EU market area. The EN50549-1 is an adequate norm that shall be referred to in the RfG to ensure same rules for faster rollout. |  |
| 13.8 (new) | Electric vehicles and charge points for electric vehicles shall be considered Type A in all cases. They shall always be assessed on the individual unit level, and shall not be assessed on a summed level. No member state shall add other requirements than this Regulation and the referred EN50549-1 standardisation to ensure free European markets for car sales. | Electric vehicles and charging stations as DERs belong inherently to the Type A category. Adding this language provides this clarity and avoids the situation where vehicles are required to perform testing and certification processes, as required for other types, which would present a bias against electric vehicles. As a fact that electric vehicles are by nature mobile assets. |  |
| 13.9 (new) | Advanced capabilities such as congestion management services or capabilities related to non-frequency ancillary services according to DIRECTIVE (EU) 2019/944 are optional requirements for Type A power-generating modules.   * 1. Such capabilities should be harmonised across Member States for small scale distributed power-generating modules (equal or less than 11,1 kW) produced in mass and then be harmonised with the framework of ancillary services market:   2. Data exchange as well as control signal requirements shall be based on IEC 61850-7-420 standard. | Advanced capabilities should be taken into consideration based on IEC standards for an harmonisation over whole EU.  Small size generators should deployed easily and in an efficient and non-costly manner. |  |
| 13.10 (new) | Advanced capabilities such blackout management or grid islanding management.   * 1. Such capabilities should be harmonised across Member States; when harmonisation is not possible table of compliance should be provided across groups of Member States to ease reuse of type test certification across European markets.   2. Power park modules or electrical charging park of type A and above shall be able to participate in the future and shall be able to provide voltage control services when needed;   Data exchange as well as control signal requirements shall be based on IEC 61850-7-420 standard. | Advanced capabilities should be taken into consideration based on IEC standards for an harmonisation over whole EU.  Small size generators should deployed easily and in an efficient and non-costly manner. Type test should be fostered. |  |
| 14.2 | Type B power-generating modules shall fulfil the following requirements in relation to frequency stability:   1. to control active power output, the power-generating module shall be equipped with an interface for data exchanges in order to be able to reduce active power output following an instruction at the input port; and 2. the requirements for further equipment to allow active power output to be remotely operated shall comply with IEC 50549-1 and IEC 61850-7-420 standards. | The EN50549-1 is an adequate norm that shall be referred to in the RfG to ensure same rules for faster rollout.  Remote control should be based on IEC 61851-7-420 data exchange standard. |  |
| 14.3 | Type B power-generating modules shall fulfil the following requirements in relation to robustness:   1. with regard to fault-ride-through capability of power-generating modules:    1. voltage-against-time-profile in line with Figure 3 at the connection point for fault conditions, as specified in EN 50549-1 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 by secured faults on the transmission system;    2. the voltage-against-time-profile shall express a lower limit of the actual course of the phase-to-phase voltages on the network voltage level at the connection point during a symmetrical fault, as a function of time before, during and after the fault;    3. the lower limit referred to in point (ii) shall be specified in the latest version of EN 50549-1 using the parameters set out in Figure 3, and within the ranges set out in Tables 3.1 and 3.2; | The EN50549-1 is an adequate norm that shall be referred to in the RfG to ensure same rules for faster rollout. |  |
| 14.5 | Type B power-generating modules shall fulfil the following general system management requirements:   1. with regard to control schemes and settings:    1. the schemes and settings of the different control devices of the power-generating module that are necessary for transmission system stability and for taking emergency action shall be coordinated and agreed between the relevant TSO, the relevant system operator and the power-generating facility owner, based on IEC 61850-7-420 standard; | Remote control should be based on IEC 61851-7-420 data exchange standard. |  |
| 14.5 (d) | with regard to information exchange:   * 1. power-generating facilities shall be capable of exchanging information with the relevant system operator or the relevant TSO in real time or periodically with time stamping, as specified in IEC 61850-7-420 standard;   2. the relevant system operator, in coordination with the relevant TSO, shall specify the content of information exchanges including a precise list of data to be provided by the power-generating facility, based on the IEC 61850-7-420 data model standard. | Remote control should be based on IEC 61851-7-420 data exchange standard. |  |
| 14.6 (new) | Electric vehicles and charge points for electric vehicles shall be considered Type A in all cases. They shall always be assessed on the individual unit level. | Electric vehicles and charging stations as DERs belong inherently to the Type A category and shall never be summed up to Type B facilities. Adding this language provides this clarity and avoids the situation where vehicles are required to perform testing and certification processes, as required for other types, which would present a bias against electric vehicles. As a fact that electric vehicles are by nature mobile assets, type B requirements are not economically viable, nor are they adequate or needed. |  |
| 20 (new) | *Article XX*  ***Requirements for type A power park modules***   1. *Type A power park modules shall fulfil the requirements laid down in Articles 13, except for Article 13(2)(b).* 2. *Type A power park modules shall fulfil the following laid down in Articles 14 for type B power-generating modules.* 3. *Type A power park modules shall fulfil additional requirements in relation to voltage stability according to Article 20 (2)* 4. *Type A power park modules shall fulfil additional requirements in relation to robustness according to Article 20 (3).* | Power park modules of type A could fulfil the requirements of type B. In return harmonisation could be promoted. |  |
| 30.1 | The operational notification procedure for connection of each new type A power-generating module shall consist of the registration of the asset and the installation in a national digital tool, which each member state shall provide. The power-generating facility owner shall ensure that the required information is filled in this tool. Separate registrations shall be provided for each power-generating module within the power- generating facility. The responsible SO shall be automatically informed of the new unit and has 1 month to refuse the grid connection, otherwise the facility owner has the right to put the unit in operation. SOs need to deliver transparent reasons for refusal and an adequate timeline for an authorization. The NRA shall function as a conciliator in case of dispute.  The national registration tool shall ensure that the required information can be submitted by third parties on behalf of the power-generating facility owner. All information exchange between the SO and the facility owner or submitted third party shall be performed over the tool. | Paper documents and Email communication hinder fast and transparent decision making. |  |
| 30.2 | 1. The NRA shall specify the content of the registration tool, which shall have at least the following information: 2. the location at which the connection is made; 3. the date of the connection; 4. the maximum export power of the installation in kW; 5. the type of primary energy source; 6. the classification of the power-generating module as an emerging technology according to Title VI of this Regulation; 7. reference to equipment or type-test certificates issued by an authorised certifier used for relevant power-generating equipment that is in the site installation; 8. as regards equipment used, for which an equipment certificate has not been received, information shall be provided as directed by the relevant system operator; and 9. the contact details of the power-generating facility owner and the installer and their signatures.   Certified assets and all its properties shall be prefilled with all necessary documentation to ensure user friendly usability and speed.  The NRA shall ensure that the same tool can be used for prequalification processes for flexibility markets of these assets. | The EU wants to scale up installations and therefore must ensure fast and customer friendly registration processes.  Export power is not the sum of all generating power capacities, some of the assets like battery storage or V2G EVs are fully controlled.  Type tests should be the preferred solution as they allow family grouping, and will be more cost-effective for all parties. |  |
| 30.3 | 1. The power-generating facility owner shall to change the status in the national tool in case of a permanent decommissioning of a power-generating module.   The national registration tool shall ensure that such notification can be made by third parties, including aggregators. | No communication with the individual SO is needed. |  |
| 40.1 | The power-generating facility owner shall ensure that each power-generating module complies with the requirements applicable under this Regulation throughout the lifetime of the facility. For type A power-generating modules, the power-generating facility owner may rely upon type-test certificates, issued as per Regulation (EC) No 765/2008.  All types A1, A2 and especially bidirectional electric vehicle manufacturer shall be allowed to self-declare European grid code and EN50549-1 conformity through a CE declaration process. Member states shall be prohibited to request further certification for Types A1, and A2 generation units. | CE certification processes are standard in the industry and this should be used as well for grid code compliance.  It is crucial that only declaration is needed for the whole European union as specific processes per country would slow down or even completely stop bidirectional charging implementation as risk perceived too high by manufacturers. |  |
| 40.2 | The power-generating facility owner shall notify to the relevant system operator any planned modification of the technical capabilities of a power-generating module which may affect its compliance with the requirements applicable under this Regulation, before initiating that modification. This communication shall only be done in the national registration tool (article 30). | Paper documents and Email communication hinder fast and transparent decision making. |  |
| 41.1 | The relevant system operator shall assess the compliance of a power-generating module with the requirements applicable under this Regulation, throughout the lifetime of the power-generating facility. The power-generating facility owner shall be informed of the outcome of this assessment.  For type A power-generating modules, the relevant system operator may rely upon type-test certificates issued by an authorised certifier for this assessment.  Type A power-generating modules, whether on- (ie AC) or off-board (ie DC) converters, which have been successfully certified in one Member State shall not require any additional assessment in another Member State. If complementary type testing is required, tables of equivalence should be provided across member states for Type A power-generating modules. | Process over Europe should be simplified and harmonised. |  |
| 41.3 | 1. The relevant system operator shall make publicly available a list of information and documents to be provided as well as the requirements to be fulfilled by the power-generating facility owner within the framework of the compliance process. The list shall cover at least the following information, documents and requirements: 2. all the documentation and certificates to be provided by the power-generating facility owner; 3. details of the technical data on the power-generating module of relevance to the grid connection; 4. requirements for models for steady-state and dynamic system studies; 5. timeline for the provision of system data required to perform the studies; 6. studies by the power-generating facility owner to demonstrate the expected steady-state and dynamic performance in accordance with the requirements set out in Chapters 5 and 6 of Title IV; 7. conditions and procedures, including the scope, for registering type-test certificates; and 8. conditions and procedures for the use of relevant type-test certificates issued by an authorised certifier by the power-generating facility owner. 9. conditions of technical features to authorize family grouping for Type A power-generating units reducing the costs and numbers of type-test certification procedures. These technical features shall be agreed and harmonized at national level. 10. If a relevant network operator deems it necessary to extend the list defined during the implementation in the member state, there has to be a comprehensible rationale and a national stakeholder process shall be done. | Process over Europe should be simplified and harmonised. |  |
| 42 | **Common provisions for compliance testing** **for types B, C, and D** | Type A units shall not be asked to perform tests on site. Testing can be performed only during necessary certification processes. |  |
| 42.5 (new) | Type A power-generating modules with a type-test certificate compliant with the requirements of a Member State shall not require any further compliance test either on site or remotely from the system operator’s control centre in this Member State. This process shall be applied in another Member State as long as the type-test certificate is valid in this Member State. | Process over Europe should be simplified and harmonised. |  |
| 42.6 (new) | Type A AC bidirectional charging compliancy shall be based of individual type-test certificates issued as per Regulation (EC) No 765/2008 regarding the charging station on one side and the Electric Vehicle homologated platform on the other side. But a certification including for instance the data exchange protocol, or system performance criteria, associating the charging station and the Electric Vehicle homologated platform shall be issued. | In case of V2G AC, a type test certification should be performed on couple of EVSE + homologated EV platform |  |
| 43 | **Common provisions on compliance simulation** **for types B, C, and D** | Type A units shall not be asked to perform tests on site. Testing can be performed only during necessary certification processes. |  |