Contribution ID: b19547e8-448a-4504-8e12-213908b9d9c9
Date: 24/09/2023 22:56:50

ACER draft amendments to the Network Code on Demand Connection

Fields marked with * are mandatory.

Introduction

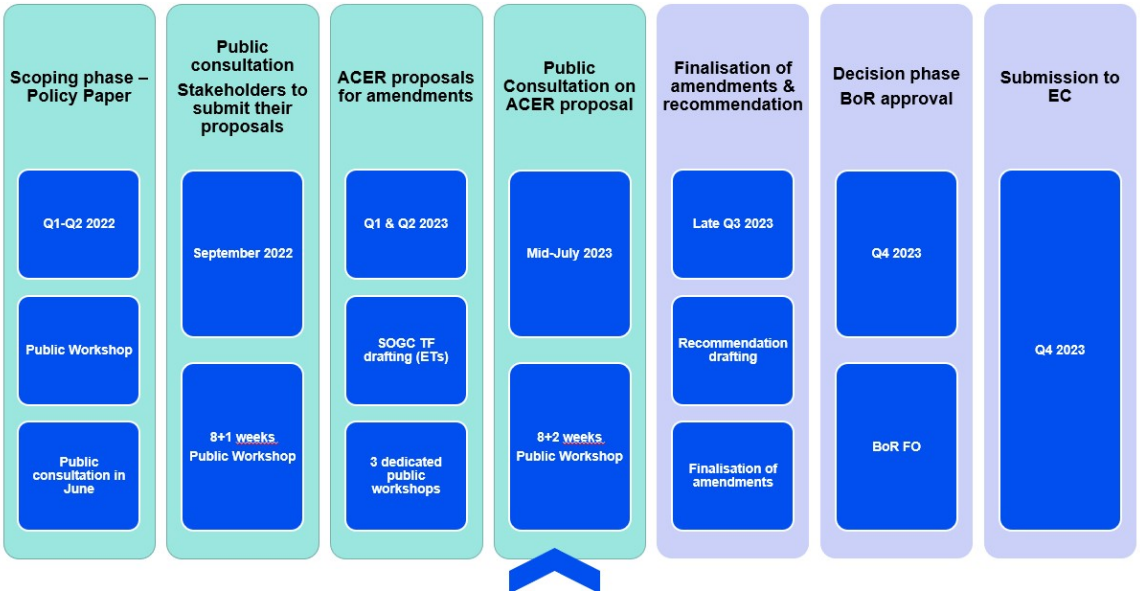
This consultation aims at presenting ACER's draft amendments to the **Commission Regulation (EU) 2016/1388 of 17 August 2016 establishing a Network Code on Demand Connection ('NC DC').**
For draft amendments concerning Network Code on Requirements for Generators ('NC RfG'), please go to the respective form: **NC RfG**.

Responses to this consultation should be submitted by 25 September 2023.

Background

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 aimed to transparently indicate to stakeholders the key policy areas in which amendments were to be expected.

Access the ACER Policy Paper on the revision of the NC RfG and NC DC.

As a next step, ACER launched the Public Consultation to gather stakeholders' views and concrete amendment proposals regarding the GC NCs. The stakeholders could submit their inputs by 21 November 2022.

Access the results of the Public Consultation on the amendments to the grid connection network codes.

Additionally, in the preparation of the draft amendment proposals, ACER organised three dedicated public workshops, namely:

- electromobility, power-to-gas demand units and heat-pumps (held on 17 April 2023);
- rate of change of frequency and grid forming capabilities (held on 10 May 2023); and
- electricity storage (held on 11 May 2023).

After the evaluation of stakeholders' inputs, ACER has formulated its own proposal for the amendments of the GC NCs which is subject to this public consultation.

Stakeholder's details

ACER is highly committed in processing personal data in a lawful way.
Find out more how we process your data: https://www.acer.europa.eu/the-agency/about-acer/data-protection

* Name of the stakeholder:

Verband der Automobilindustrie VDA

* Contact person:

[redacted]

* Contact person's email address:

[redacted]

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

Germany

* 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:

* 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)

Instructions

Stakeholders are invited to submit their comments to the NC DC articles amended by ACER in three mandatory steps:
1. by downloading the ACER draft amendments in the Word file provided below. The file could also be accessed on the right panel of the consultation form under the Background Documents;
2. by commenting on the ACER's draft amendments through this online consultation form and adding their alternative text proposals to the table, if any; and
3. by uploading the alterative amendment proposals to the **entire NC DC** using the Track Changes mode in the ACER draft amendments file downloaded from Step 1.

Where the stakeholder does not have any comments regarding the amendments, the relevant cells in the consultation form can be left blank.

The mandatory steps for submitting the comments are listed below.

Step 1

Please see ACER's draft amendments in the Word file provided below. The file could also be accessed on the right panel of the consultation form under the Background Documents.

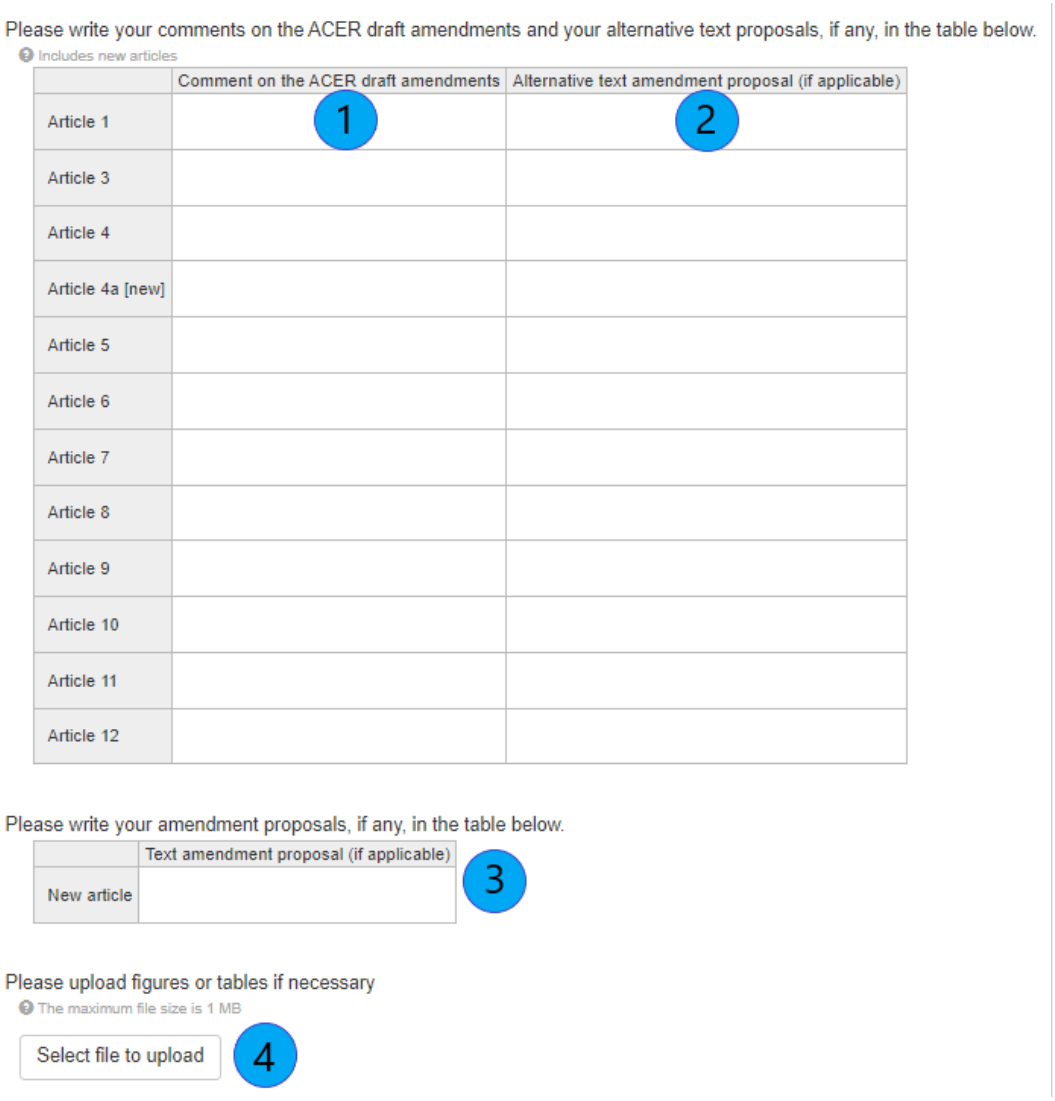
Download ACER draft amendments to the NC DC here

Step 2

Kindly note that this consultation form follows the structure of the NC DC amended legal text provided by ACER in Step 1.

The paragraph numbering in the form reflects paragraph numbers in the amended legal text. Nevertheless, stakeholders can comment on the deleted paragraphs/articles/titles, which are marked as [deleted]. New articles and titles are marked as [new].

Please use this form to comment on ACER draft amendments and/or to provide an alternative text proposal. The instructions are the following:


Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below.

Includes new articles

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
Article 1	1	2
Article 3		
Article 4		
Article 4a [new]		
Article 5		
Article 6		
Article 7		
Article 8		
Article 9		
Article 10		
Article 11		
Article 12		

Please write your amendment proposals, if any, in the table below.

	Text amendment proposal (if applicable)
New article	

3

Please upload figures or tables if necessary

The maximum file size is 1 MB

Select file to upload 4

1. Leave comments on the ACER draft amendment proposals.
2. Propose (if any) alternative wording of the relevant provision, as you provided in the Word file.
3. Provide (if any) your proposals for adding new provisions to the relevant section of the NC DC, as you provided in the Word file.
4. Upload figures or tables if necessary; text inputs should be provided directly in the consultation form.

Step 3

Where the stakeholder would like to propose an alternative amendment to the **entire NC DC**, please upload the Word file (**downloaded from Step 1**) containing all your alternative amendment proposals in the Track Changes mode to the next **FILE UPLOAD** section and rename it with your stakeholder's name ("ACER_draft_DC_stakeholder_name"). You can also upload your justification documents, where applicable.

To facilitate the process, please, make sure that the **alternative text proposals provided in this consultation form are consistent**, to the extent possible, **with those in the Word file** you are uploading, taking into account the character limitations of each cell (max 5000 characters).

FILE UPLOAD

Please upload your file here

The maximum file size is 1 MB
Only files of the type pdf,doc,docx,odt,txt,rtf are allowed

Please also upload any other document (i.e. **justifications)** below, if relevant.

Please upload your file

The maximum file size is 1 MB
89b0dd6d-47db-4abe-ac35-79b32a7215e4/comments_DCC.xlsx

Please upload your file

The maximum file size is 1 MB

Please upload your file

The maximum file size is 1 MB

Due to the significant length of this survey:

- you have the possibility to edit your answer after submission. When clicking on "Submit" button, you will be given a Contribution ID which you can then use to access your answers and edit them, if necessary.
- 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 comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

Numbers in the first column correspond to the recitals of the amended version of NC DC Whereas section, including new recitals

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
(1)		
(2)		
(3)		
(4)		
(5)		
(6)		
(7)		
(**)		
(8)		
(9)		
(10)		
(11)		
(12)		
(13)		
(14)		
(15)		
(16)		
(17)		
(18)		
(19)		
(20)		
(21)		
(22)		
(23)		
(24)		

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
New recital	

Definitions (Article 2)

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

Includes new definitions

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
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(*)		
Article 2(**)		
Article 2(***)		

Article 2(****)		

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
New definition	

Please upload figures or tables if necessary

The maximum file size is 1 MB

TITLE I - General provisions

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

Includes new articles

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
Article 1	Definition of V1G electric vehicle supply equipment is missing in NC DC, it is only available in NC RfG. To avoid misunderstandings and to clarify the scope, a definition is necessary. One could else assume that V1G electric vehicle supply equipment are only those EVSE, which can offer demand response services. Also: Since Mode 2 is an IC-CPD, which is plugable and movable, it should not be scope of NC DC.	"V1G electric vehicle supply equipment' means the stationary and permenantly connected infrastructure necessary to safely conduct electrical energy from the electricity supply grid to the electric vehicle with demand-only behaviour. Electrical wirings are not deemed part of an electric vehicle supply equipment.
Article 3	Definition of "new" is unclear! The requirements set in this article for demand unit "V1G electric vehicle and associated V1G electric vehicle supply equipment" (operating behavior for frequency (Annex I) and voltage (Annex II), ROCOF withstand capability, LFSM-UC, fault-ride-through capability) are not covered by the relevant product standards for V1G electric vehicles (ISO 17409/ISO 5474-series) and associated V1G electric vehicle supply equipment (IEC 61851-1/-23) and therefore are not taken into consideration in V1G electric vehicle homologation/certification and the conformity assessment of the V1G electric vehicle supply equipment.	This requirement should apply to the vehicle supply equipment at most. “a new V1G electric vehicle“ should be deleated. What does "new" mean in this context? New supply equipment in combination with old vehicle -> Is that considered to be "new" or what else?

	There must be a long enough transition period to guarantee the revision of these standards! definiton of "electricity storage" is missing The system operator is not able to distinguish between new vehicles, that have to comply with this regulation and old vehicles. Also, the system operator cannot monitor which V1G EV connects for charging.	Used vehicles shall still be allowed to charge on new supply equipment
Article 4		
Article 4a [new]		
Article 5		
Article 6		
Article 7		
Article 8		
Article 9		
Article 10		
Article 11		

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
New article	

Please upload figures or tables if necessary

The maximum file size is 1 MB

TITLE II - Connection of transmission-connected demand facilities, transmission-connected distribution facilities and distribution systems

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
Article 12		
Article 13		
Article 14		
Article 15	LFSM-UC requirements have to be fulfiled by V1G electric vehicle and the associated V1G electric vehicle supply equipment. An AC electric vehicle supply equipment alone is able to adjust the charging current according to IEC 61851-1:2017 but the power electronics in the electric vehicle has to react upon this signal.	Frequency-related requirements should support the stable operation of the energy system which is being transformed to accommodate the green transition. In the future, the effectiveness of existing low frequency demand disconnection (LFDD) schemes is expected to be reduced due to the increased penetration of distributed generation. Therefore, a new limited frequency sensitive mode for various demand units (LFSM-UC) is being introduced to account for these changes. Furthermore, V1G electric vehicles and connected V1G electric vehicle supply equipment, power-to-gas demand units and heat-pumps are usually technically capable to fulfil such a requirement without negative consequences for the grid user.
Article 16		
Article 17		
Article 18		
Article 19		
Article 20		
Article 21		
Article 22		
Article 23		

Article 24	The proof of charging equipment only makes sense in the approval procedure according to Chapter II if large charging parks are involved, for which the "V1G Supply Equipment" has already been determined at the time of approval and commissioning. EVSE that is subsequently integrated into existing distribution grids (e.g. by private individuals) cannot be part of the approval procedure between DSO and TSO.	Preference 1: delete "V1G electric vehicle supply equipment". Preference 2: clarify that the obligations mentioned here only concern commercial charging infrastructure. Private charging infrastructure is to be excluded.
Article 25	AC charging: How are simulation models possible for V1G EVs, which move from connection point to connection point? How to handle different V1G EVs charging at a charging point or installation? DC charging: Inverter in EVSE, so simulation can be easily done with EVSE only. Vehicles must be regarded here as mobile equipment. In contrast to stationary equipment (such as heat-pumps), compliance and technical data cannot be provided here. In principle, all vehicles must be allowed to charge at all charging points (grid connection points). It is not possible to assign specific vehicles or vehicle types to a certain demand facility or certain TSO /DSO!	An update of the applicable technical data, simulation models and studies proving compliance of electric vehicles and associated V1G electric vehicle supply equipment, power-to-gas demand units and heat-pumps, where applicable. "electric vehicles and associated V1G electric vehicle supply equipment" shall be deleted from this chapter
Article 26		

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
New article	

Please upload figures or tables if necessary

The maximum file size is 1 MB

TITLE III - Connection of demand units used by a demand facility or a closed distribution system to provide demand response services to system operators

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
Article 27		
Article 28		
Article 29		
Article 30		
Article 31		
Article 32		
Article 33		

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
New article	

Please upload figures or tables if necessary

The maximum file size is 1 MB

[NEW] TITLE XXX - Connection of V1G electric vehicles and associated V1G electric vehicle supply equipment, power-to-gas demand units and heat-pumps

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
	Active power "output" is the wrong word here, better would be "consumption". Requirements are not specific enough and can be misunderstood. Clarify, that Pref is meant by "current active power" just as in requirement 3e. Keep in mind that charging will not start if frequency is below 49.8 Hz (or 49.5 Hz in IE), because "current active power" would be 0 kW before charging start. Mistakes and uncertainties in Figure XX must be resolved. Unclear terms	When the network voltage resumes, after the fault has been cleared, to a value within the voltage range of 0,85 pu – 1,1 pu, a V1G electric vehicle and associated V1G electric vehicle supply equipment shall recover its active power consumption level to its pre-fault value. The recovery time shall not exceed a maximum of 1s. The V1G electric vehicle and associated V1G electric vehicle supply equipment and the power-to-gas demand unit shall be capable of reducing the consumption from the current active power input (Pref) automatically down to the minimum technical operational level according to the indicative Figure XX at a frequency threshold and with a droop setting: Curve in Figure XX shall be improved: Correct the droop in the figure from 1% to 5%. Intersection lines in terms of frequency/power shall be added. Since it is NC DC, only the consumption part shall be drawn. Axes descriptions shall be more detailed (in terms of power). Was does s[%] mean? 1% reduction of the power consumption per -1% change of of the frequency? 1. meaning of droop and s[%] should be

Article XX	Unclear terms Clarification, that the EVSE is the responsible unit, not the EV itself. • “Stand alone components“ like heat-pumps can handle this requirement. For subsystems like AC - Wallbox and On-Board Charger, the sub-system reaction depends on communication. • It does not make sense to proove the response time, because it would be necessary for every single car line which is used with the EVSE. • Private customers are not able to affort this proof. this requirement would cause a discrimination of private charging. • ISO 15118-x does not define a reaction time today “staying connected” shall be replaced by “staying ready to operate“ "operate stably" means that it is able to operate at all.	explained 2. Which gradient deltaP / delta f is specified? 3. Does 5% fit to s[%] = 1 4. Power Generation is not possible at V1G. Figure axis labelling shall be adapted. 5. Axes descriptions shall be more detailed (in terms of power). “Staying connected“ is not defined. What does "stay connected" mean? The vehicle remains connected to the grid with active communication and the charging components no longer need to be active? More detailed information needed. The following requirement shall be added: V1G electric vehicle supply equipment has the responsibility of ensuring that the V1G vehicle behaves compliant to the requirements of this regulation. Shall be modified: Reaction time seems not to be realistic. In the case of charging sub-systems consisting on external V1G electric vehicle supply equipment and V1G electric vehicle on-board demand units, the reaction time is split up. Best case: delete the requirement of evidence. Worst case: The certificates of the individual system components shall be sufficient as proof of the LFSM-UC behavior of the overall system. Exclude individual proof!

		Timings shall be copied from IEC 61851-1!
Article XX+1		
Article XX+2	table 2 cannot be found in document It should be open which part of the system will be certified. Also in consideration of AC and DC V1G. V1G electric vehicles move around whole Europe and have to be compliant with several grid codes. So it is benefitial if a central certification (or even better homologation) according to a central European standard like EN 50549-10 is done. Also, Article 24 Interim operational notification 3c says: "equipment certificates issued by an authorised certifier in respect of transmission-connected demand facilities including any V1G electric vehicle supply equipment, power-to-gas demand units, heat pumps of the facility, transmission-connected distribution facilities and transmission-connected distribution systems, where these are relied upon as part of the evidence of compliance;" No EV is mentioned here.	update reference of table 2 V1G electric vehicles and/or connected V1G electric vehicle supply equipment, power-to-gas demand units and heat-pumps shall possess equipment certificates, proving compliance with this regulation. V1G electric vehicles and connected V1G electric vehicle supply equipment provide compliance with this regulation by certification with a European standard.
	same formulation as in Art. 28) 2. e) (...) "The relevant system operator shall make publicly available the technical specifications" (...)	

Article XX+3	align with rest of document Pref not defined - use as in RfG: Pref is the actual active power at the moment the LFSM-U threshold is reached. Align requirements of NC RfG with NC DC regarding LFSM-U. It should be open which part of the system will be certified. Also in consideration of AC and DC V1G. V1G electric vehicles move around whole Europe and have to be compliant with several grid codes. So it is benefitial if a central certification (or even better homologation) according to a central European standard like EN 50549-10 is done. Also, Article 24 Interim operational notification 3c says: "equipment certificates issued by an authorised certifier in respect of transmission-connected demand facilities including any V1G electric vehicle supply equipment, power-to-gas demand units, heat pumps of the facility, transmission-connected distribution facilities and transmission-connected distribution systems, where these are relied upon as part of the evidence of compliance;" No EV is mentioned here.	(...) The relevant system operator, in coordination with the relevant TSO, shall specify the content required for the DUD and make the requirements publicly available. (...) If the minimum technical operating level is larger than 20% of Pref, the V1G electric vehicles and connected V1G electric vehicle supply equipment or the power-to-gas demand unit should disconnect when reaching its minimum technical operating level; If the minimum technical operating level is larger than 20% of Pref, the electric charging demand unit or the power-to-gas demand unit should disconnect when reaching its minimum technical operating level; Pref is the actual active power at the moment the LFSM-U threshold is reached. V1G electric vehicles and/or connected V1G electric vehicle supply equipment, and heat-pumps connected at a voltage level above 1000 V shall possess equipment certificates, proving compliance with this regulation. V1G electric vehicles and connected V1G electric vehicle supply equipment provide compliance with this regulation by certification with a European standard.

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
New article	Under XX add: the actual consumption of active power frequency response in LFSM-UC mode shall be capable of taking into account, if applicable: — ambient conditions when the response is to be triggered, — the operating conditions of the V1G electric vehicle and connected electric vehicle supply equipment, in particular limitations on operation near maximum and minimum capacity at low frequencies and the respective impact of ambient conditions, and — the need for consumption.

Please upload figures or tables if necessary

The maximum file size is 1 MB

Please upload figures or tables if necessary

The maximum file size is 1 MB

Please upload figures or tables if necessary

The maximum file size is 1 MB

Please upload figures or tables if necessary

The maximum file size is 1 MB

Please upload figures or tables if necessary

The maximum file size is 1 MB

Please upload figures or tables if necessary

The maximum file size is 1 MB

Please upload figures or tables if necessary

The maximum file size is 1 MB

Please upload figures or tables if necessary

The maximum file size is 1 MB

TITLE IV - Compliance

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
Article 34	It should be open which part of the system has to complie with the requirements - also in consideration of AC and DC V1G.	Transmission-connected demand facility owners and DSOs shall ensure that their transmission-connected demand facilities, transmission-connected distribution facilities, or distribution systems comply with the requirements provided for in this Regulation. A demand facility owner or a CDSO having a demand unit providing demand response services to relevant system operators and relevant TSOs, a V1G electric vehicle and/or connected V1G electric vehicle supply equipment, power-to-gas demand unit or heat-pump shall ensure that the demand unit providing demand response services, the V1G electric vehicle and/or connected V1G electric vehicle supply equipment, power-to-gas demand unit or heat-pump complies with the requirements provided for in this Regulation.
Article 35		
Article 36		
Article 37		
Article 38		
Article 39		
Article 40		
Article 41		
Article 42		
Article 43		
Article 44		

Article 45		
Article 46		
Article 47		

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
New article	

Please upload figures or tables if necessary

The maximum file size is 1 MB

TITLE V - Applications and derogations

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
Article 48		
Article 49		
Article 50		
Article 51		
Article 52		
Article 53		
Article 54		
Article 55		

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
New article	

Please upload figures or tables if necessary

The maximum file size is 1 MB

TITLE VI - Non-binding guidance and monitoring of implementation

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
Article 56		
Article 57		

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
New article	

Please upload figures or tables if necessary

The maximum file size is 1 MB

TITLE VII - Final provisions

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
Article 58		
Article 59		

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
New article	

Please upload figures or tables if necessary

The maximum file size is 1 MB

ANNEX I

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
Annex I		

Please upload figures or tables if necessary

The maximum file size is 1 MB

ANNEX II

Please write your comments on the ACER draft amendments and your alternative text proposals, if any, in the table below

	Comment on the ACER draft amendments	Alternative text amendment proposal (if applicable)
Annex II		

Please upload figures or tables if necessary

The maximum file size is 1 MB

Other additional provisions

Please write your amendment proposals, if any, in the table below

	Text amendment proposal (if applicable)
Other new provisions	Demand units, which do not provide bi-directional power flow, are not required to provide reactive power while dynamic grid support. Does this regulation intentionally imply an obligation for PLC (power line communication) between V1G and V1G supply equipment according to (a modified) ISO 15118? Timings should be adapted to the values IEC 61851. All sentences with “V1G electric vehicle and associated V1G electric vehicle supply equipment“ should be modified to “The V1G electric vehicle supply equipment and the connected V1G electric vehicle.“ For the controlled reaction of the EV and the EVSE, four cases can basically be distinguished. Taking into account the communication times and the physical limits of the components involved, the following expert estimates for achievable reaction times result. The reaction time is defined from the moment when the EVSE registers an undesired grid condition until the moment when the changed charging behavior appears on the grid. 1. EV is connected to the EVSE, but no current is flowing (sleep mode). Achievable reaction time less than 60 seconds for AC & DC BiDi. 2. EV is being charged or discharged and the power shall be changed by approx. ± 30%. Reaction time for AC and DC less than 10 seconds. 3. EV is being charged or discharged and the current flow direction shall be reversed. Achievable reaction time for AC and DC less than 20 seconds. Please also consider that fast and high power

	changes may lead to Flicker so that EMC (electromagnetic compatibility) tests may not be passed.

Please upload figures or tables if necessary

The maximum file size is 1 MB

Background Documents

NC_DC_ACER_draft_amendments_for_PC_2023_E_07.docx

Contact

acer-ele-2022-015@acer.europa.eu