

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:

Mercedes Benz AG

* 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 alternative 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 | |

Please upload figures or tables if necessary

 The maximum file size is 1 MB

Select file to upload

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

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/NC_DC_ACER_draft_amendments_for_PC_2023_E_07_Mercedes-Benz.docx

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

Please upload your file

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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) | | |
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| (**) | | |
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| (12) | | |
| (13) | | |
| (14) | | |
| (15) | | |
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| (17) | | |
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| (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(***) | | |

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

| | Text amendment proposal (if applicable) |
|----------------|---|
| New definition | |

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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 | | |
| Article 3 | <p>- definiton of "electricity storage" is missing</p> <p>- Does this regulation intentionally imply an obligation for PLC communication between V1G and V1G supply equipment according to (a modified) ISO 15118? Timings should be adapted to the values IEC 61851.</p> <p>The compatibility between this regulation and existing charging and product standards has a significant impact on the feasibility.</p> <p>Existing charging standards should continue to be used in their basic concepts. The same applies to existing infrastructure.</p> <p>Requirements based exclusively on technical solutions with digital communication between V1G supply equipment and vehicle shall be avoided (for AC charging).</p> <p>- This requirement should apply to the vehicle supply equipment at most. "a new V1G electric vehicle" should be deleted.</p> <p>What does "new" mean in this context? New supply equipment in combination with old vehicle -> Is that considered to be "new" or what else?</p> <p>Used vehicles shall still be allowed to charge on new supply equipment.</p> <p>The system operator is not able to distinguish between new vehicles, that have to comply with</p> | |

| | | |
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| | this regulation and old vehicles. Also, the system operator cannot monitor which V1G EV connects for charging. | |
| 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 | <p>General remark:</p> <p>Does this regulation intentionally imply an obligation for PLC communication between V1G and V1G supply equipment according to (a modified) ISO 15118? Timings should be adapted to the values IEC 61851.</p> <p>The compatibility between this regulation and existing charging and product standards has a significant impact on the feasibility.</p> <p>Existing charging standards should continue to be used in their basic concepts. The same applies to existing infrastructure.</p> <p>Requirements based exclusively on technical solutions with digital communication between V1G supply equipment and vehicle shall be avoided (for AC charging).</p> |

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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 | | |
| Article 16 | | |
| Article 17 | | |
| Article 18 | | |
| Article 19 | | |
| Article 20 | | |
| Article 21 | | |
| Article 22 | | |
| Article 23 | | |
| Article 24 | <p>3 a,b:</p> <p>Preference 1: delete "V1G electric vehicle supply equipment".</p> <p>Preference 2: clarify that the obligations mentioned here only concern commercial charging infrastructure. Private charging infrastructure is to be excluded.</p> <p>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</p> | |

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| | <p>and commissioning.</p> <p>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.</p> | |
| Article 25 | <p>- 3c: "electric vehicles and associated V1G electric vehicle supply equipment" shall be deleted from this chapter.</p> <p>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!</p> | |
| Article 26 | | |

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

| | Text amendment proposal (if applicable) |
|-------------|---|
| New article | |

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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 | |

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[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) |
|--|--|---|
| | <p>- Regarding Figure XX on page 36:</p> <p>Was does s[%] mean? 1% reduction of the power consumption per -1% change of of the frequency?</p> <ol style="list-style-type: none"> 1. meaning of droop and s[%] should be explained 2. Which gradient $\Delta P / \Delta f$ is specified? 3. Does 5% fit to $s[\%] = 1$? 4. Power Generation is not possible at V1G. Figure axis labelling shall be adapted. <p>- 2a: "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.</p> <p>- 3a: add: "V1G electric vehicle supply equipment has the responsibility of ensuring that the V1G vehicle behaves compliant to the requirements of this regulation." Clarification, that the EVSE is the responsible unit, not the EV itself.</p> | |

Article XX

- 3i: 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!

- “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 prove 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 afford this proof. this requirement would cause a discrimination of private charging.
- ISO 15118-x does not define a reaction time today

- 3f: Add requirement:

The random time delay is implemented by the V1G electric vehicle supply equipment.

| | | |
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| | <p>Note: Supply equipment is master. The EVSE shall be the master, communicating with the grid.</p> <p>- 3g: Shall be modified: The V1G electric vehicle supply equipment and the power-to-gas demand unit shall measure... Measurint time window should be specified. What is meaning? Observation of 100 ms before reaction?</p> <p>- 5a: "staying connected" shall be replaced by "staying ready to operate". "operate stably" means that it is able to operate at all.</p> | |
| Article XX+1 | | |
| Article XX+2 | <p>- 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.</p> | <p>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.</p> |
| | <p>- It should be open which part of the system will be certified. Also in consideration of AC and DC V1G.</p> <p>V1G electric vehicles move around whole Europe and have to be compliant with several grid codes. So it is beneficial if a central</p> | |

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| Article XX+3 | <p>certification (or even better homologation) according to a central European standard like EN 50549-10 is done.</p> <p>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.</p> | <p>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.</p> |
|--------------|--|---|

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

| | Text amendment proposal (if applicable) |
|-------------|---|
| New article | |

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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 | - 1: It should be open which part of the system has to comply with the requirements - also in consideration of AC and DC V1G. | - 1: 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 | | |
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|------------|--|--|
| 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

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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

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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 | |

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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

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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

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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 | | |

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Other additional provisions

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

| | Text amendment proposal (if applicable) |
|----------------------|---|
| Other new provisions | <p>- ALL CHAPTERS</p> <p>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." Supply equipment shall be the master of the charging process, because according to current concepts and standards, the limits of the infrastructure and the communication with the system operator is located there. The electric vehicle and its on-board charging equipment are the last members in the "control chain".</p> <p>Regarding the DCC draft, the V1G shall remain the master!</p> <p>Furthermore, electric vehicles are not assigned to a certain demand facility. Every electric vehicle shall be allowed to charge with every supply equipment in every demand facility.</p> <p>Procedures and certificates which are based on a fixed assignment have to be avoided!</p> <p>- WHERE APPLICABLE</p> <p>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.</p> <ol style="list-style-type: none">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 |

| | |
|--|--|
| | <p>power shall be changed by approx. $\pm 30\%$. Reaction time for AC and DC less than 10 seconds.</p> <p>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.</p> <p>Please also consider that fast and high power changes may lead to Flicker so that EMC (electromagnetic compatibility) tests may not be passed.</p> <p>Regarding the achievable reaction times from EV & EVSE, it should be differentiated among different cases. Here we provide our expert estimate on achievable reaction times.</p> |
|--|--|

Please upload figures or tables if necessary

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Background Documents

[NC_DC_ACER_draft_amendments_for_PC_2023_E_07.docx](#)

Contact

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