

Response to ACER's consultation

ESC GC
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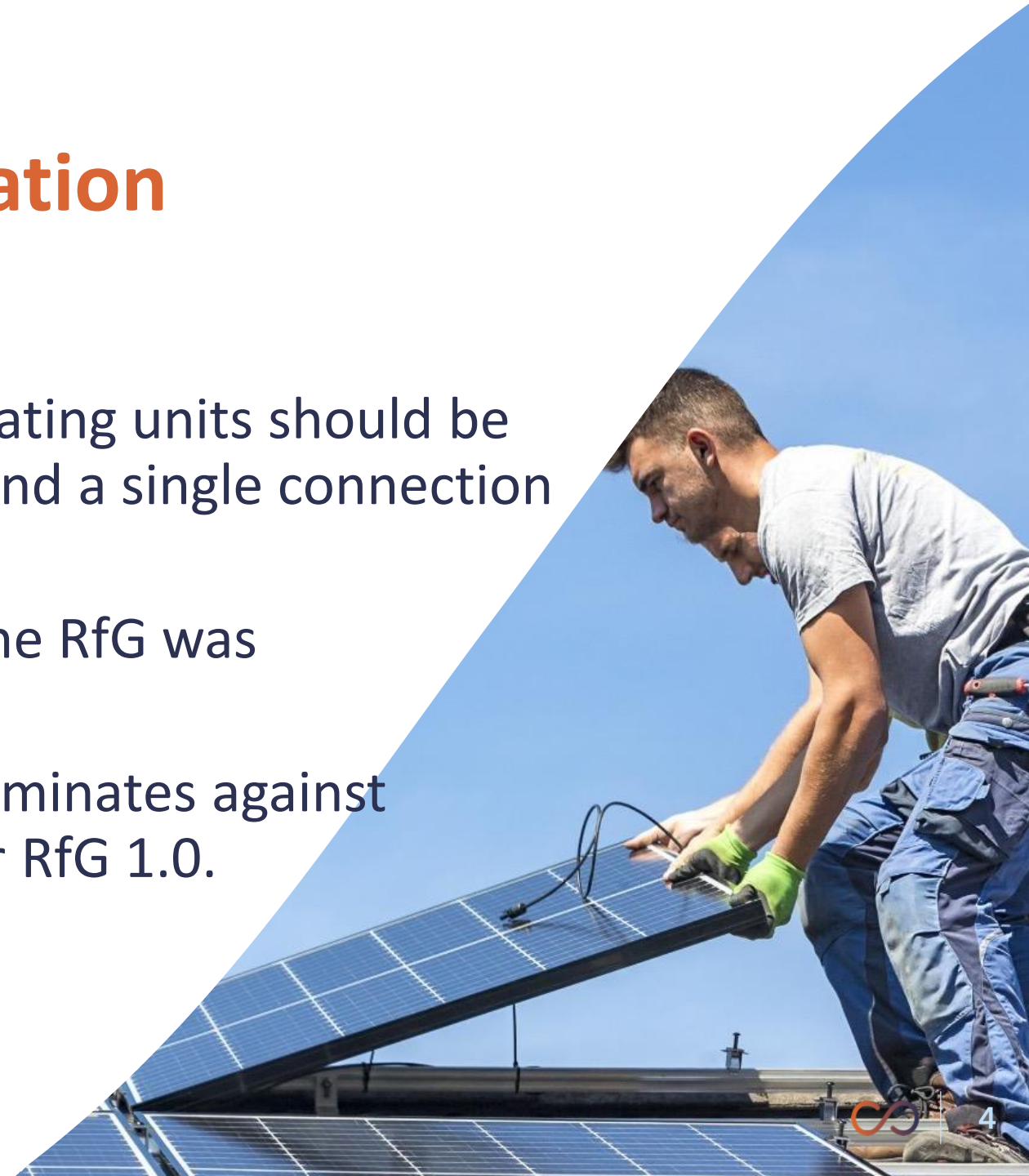
RfG - Grid Forming

- The Entity has been working with ENTSO-e to try to find a common position.
- Much good progress has been made.
- However, DSOs are still evaluating the risks and mitigations on their networks.



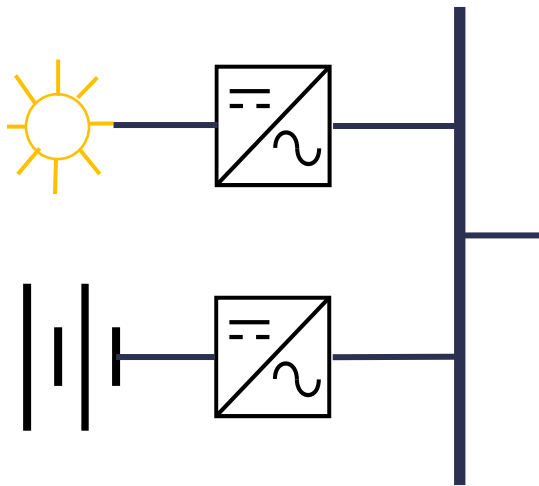
RfG - Storage and Aggregation

- All non-synchronous power generating units should be aggregated into a single PPM behind a single connection point.
- This has been the practice since the RfG was introduced.
- Changing the approach now discriminates against those customers connected under RfG 1.0.



RfG - Challenges of maintaining a separate definition of ESM

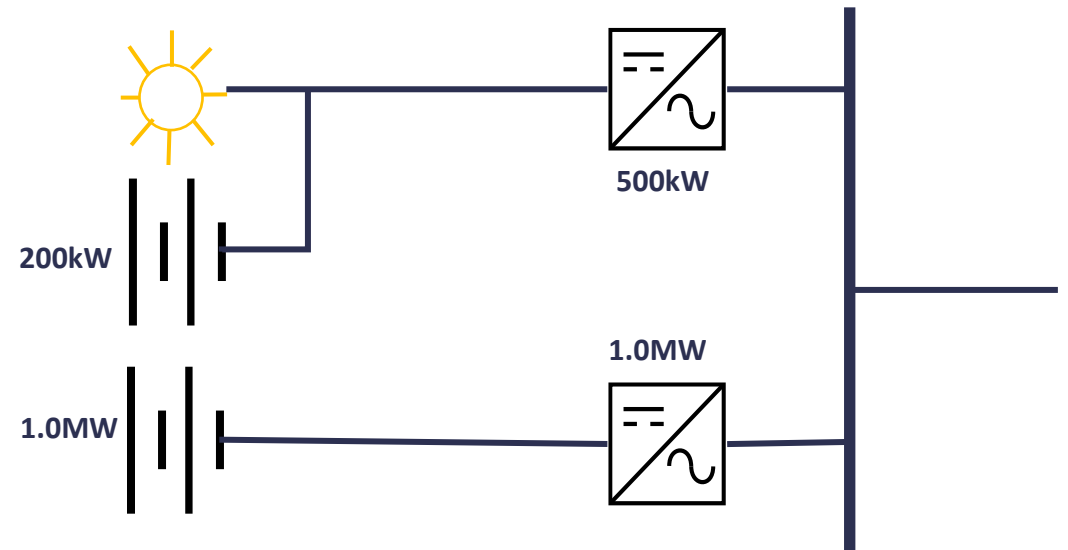
The installation on the left is one PPM (Recital 9 RfG 1.0 and as per the EG Storage's report).
It is two separate PPMs in ACER's RfG 2.0 proposals (Recital 9 RfG 2.0).



The installation on the right under the current RfG approach is a single 1.5MW PPM.

In ACER's proposal RfG 2.0, the battery is an ESM, but what is the combination of solar and battery which are DC coupled?

Is it a PGM or is it an ESM? Because of the definitions from ACER it could be either, and if an ESM, one where import and export are asymmetric.



So the confusion does not seem fatal, but it works against aggregating the non-synchronous generation on the site.

Is it one 1.5MW Type B PPM, or a 500kW Type A PPM and a 1.0MW Type B PPM? (considering an A/B type threshold of 1MW)

RfG - Why do we need a definition of Electricity Storage Module (ESM)?

- Electricity Storage does need to be defined
 - ‘electricity storage’ means the conversion of electrical energy into a form of energy which can be stored, the storing of that energy, and the subsequent reconversion of that energy back into electrical energy;
- But an Electricity Storage Module definition is probably not necessary
 - ‘electricity storage module ’ or ‘ESM’ means a synchronous power-generating module or a power park module which can inject and consume active power to and from the network for electricity storage, excluding pump-storage power-generating modules. A DC V2G electric vehicle and associated DC V2G electric vehicle supply equipment with a bidirectional functionality is defined as an electricity storage module;
- So why not simply define SPGM and PPM as including Electricity Storage, where it exists?

RfG - Drafting solutions for eliminating ESM:

- ‘electricity storage’ means the conversion of electrical energy into a form of energy which can be stored, the storing of that energy, and the subsequent reconversion of that energy back into electrical energy. A SPGM or a PPM, excluding pumped storage power generating modules, may incorporate electricity storage;
- Replace “ESM” with either “SPGM incorporating storage” or “PPM incorporating storage” as appropriate.
- Note that P_{max} is not coupled to “maximum consumption capacity”; ie they are separate quantities for the PGM, so the import characteristics based on “maximum consumption capacity” (ie droop) are distinct from the normal export characteristics based on P_{max} .
- The key advantage of eliminating ESM is that it encourages aggregation.

RfG - Electric Vehicles

- See separate slides.



RfG - Pmax and connection agreement

- Definition 'Pmax', article 2 (16).
- DSOs have experienced customers' significant confusion in the interpretation of 'Pmax'.
- The Entity recommends making it clear in the definitions of 'Pmax' and 'connection agreement' that
 - 'Pmax' is distinct from the facility maximum import or export values at the connection point;
 - 'Pmax' should take account of reactive current.



RfG - Application to Pre RfG and RfG 1.0 PGMs

- The current draft does not appear to deal comprehensively with the need to be clear about what Regulations apply to which PGMs dependent on commissioning date.
- The Entity assumes there is (a lot) more to do on this.
- Recital 34, Articles 4 and 71a



RfG - Process for non-compliance

- The RfG does allow a RSO to refuse the connection of a non-compliant PGM.
- However there is no legal recourse in the RfG for remedying a PGM which becomes, or is found to be, non-compliant over its lifetime.
- The Entity recommends that the RfG requires member states to have an effective national process to deal with non-compliance.
- Suggestion for an extension to Art 3.1

RfG - Maximum A/B threshold to remain 1MW

- The Entity does not see a benefit in reducing the maximum A/B boundary from 1MW to 0,5MW (article 5).
- For those countries with a boundary higher than 0,5MW, customers would be subject to higher costs and DSOs will face more administration.
- There will also be an effect in increasing the number of tiny significant grid units (ie Type B) drawn into the requirements of the SO GL and NC E&R.
- In last year's studies in the EG BftA, changing the threshold was discussed, but the EG concluded there were too many conflicting opinions on whether change would be beneficial, so no recommendation was made.

RfG - Addition of more detail for reactive power control for Type A

- The EU DSO Entity is supportive of the new requirement in Art 13.10 that requires reactive power capability for Type A PGMs.
- On reflection, the Entity believes that slightly more detail would be appropriate to list the range of reactive power and voltage control modes.
- Many member states already have these in national arrangements, but the Entity believes it will be helpful to have these arrangements harmonized.
- The Entity believes the requirements are simply those included in EN 50549-1.

RfG - Extension of LFSM blocking

- The EU DSO Entity has noted the inclusion of LFSM blocking for LFSM-O for Type A PGMs in Art 13 and for LFSM-U for Type C in Art 15.
- The Entity believes it will be equally useful to block LFSM-U for Type A PGMs incorporating storage – and is suggesting a new paragraph to this effect in Art 13.11.
- The Entity is also suggesting a matching LFSM-UC blocking capability in the NC DC, article XX, see slide 19.

RfG - Minor points

- Significant Modernization.
 - The Entity recommends reverting to the Expert Group's recommendations (Article 4a).
- Requirements for ESMs are too general.
 - Article 6.6 attempts to apply undefined requirements to ESMs.
- Shared responsibility for ESC and co-ordination for implementation guidance documents.
 - The addition of the EU DSO Entity into the responsibilities in Articles 11 and 58.
- LFSM-O timing challenges to be TSO responsibility.
 - Where a PGM cannot meet the LFSM-O performance requirements, the TSO is to be informed.
 - The TSO should also specify the remedy. Article 13.3 (g)
- Active power control of Type A PGMs should be modulation, not reduction (article 13.7).
- The prohibition of switchgear position indications for detecting islanding (article 15).
 - The Entity does not understand or agree with this prohibition.

NC DC - Reactive Power Exchange

- DSOs are concerned that changes to Art 15.2 may open up DSOs to additional expenditure to manage the reactive power exchange at the interface.
- The Entity recommends that these issues are subject to joint analysis and agreement such that optimum solutions are sought, taking into account the costs and benefits to both TSOs and DSOs.

NC DC - LFDD

- The EU DSO Entity recognizes that the proposed requirements are onerous but accepts that they are not unreasonable for all-new equipment (i.e., relays and circuit breakers).
- The Entity recommends simplifying the requirements to just specifying the overall maximum time, rather than providing detail of how the time might be split between relays and circuit breakers.
- Article 19.

NC DC – Blocking of LFSM-UC

- In line with the suggestions for the RfG, the Entity is recommending the addition of text in Article XX to allow the blocking of LFSM-UC for V1G EVs and for heat pumps.



NC DC Minor points

- Significant Modernization
 - The criteria for distribution systems should be agreed with the DSOs.
- Shared responsibility for ESC and for IGDs.
 - The addition of the EU DSO Entity into Arts 10 and 56.

Thank you for your attention!

- EU DSO entity,
 - expert group existing network codes