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SPE Statement on draft amendments to NC RfG – Grid Forming Capabilities

ACER workshop on rate of change of frequency and grid forming capabilities

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Presented by Thorsten Bülo

For Solar PV PPM, a mature realization of grid forming capabilities according ot the text proposal is unrealistic

1. Detailed specification mandates for the TSO / RSO addressing the fundamental control characteristics → risk of a large variety of requirements
2. Within three years
   - standardization (requirements and tests),
   - national implementation, as well as
   - testing and certification

   of an all new function would have to be concluded
3. Yet, there are no experiences with grid forming solar PV systems, the technology readiness is very low and there is low inherent energy storage (small potential grid forming contribution)

→ high risk for EU solar installation targets due to a shortage of compliant equipment as soon as requirements apply

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Uncertainties and hidden complexities

- Totally new requirement concept without an objective acceptance criterion: Who judges, if the requirement „grid forming within current and energy limits“ (Y,9.(a-c)) is sufficiently fulfilled?
- Need to activate or deactivate grid forming capability (Y,8.; Y,9.(d)) means
  → all further grid code requirements will have to be complied with in both modes (doubling standardization and compliance effort (testing / certification))
- If the RSO can predefine the overall voltage control dynamic performance („shape“ and temporal parameters), we expect a large variety of non-harmonized requirements (Y,9.(c)(i))
- Potential mandate to stipulate additional storage / extended energy limits leads to high risks for manufacturers and plant operators (21,4.(b))

Need for clarification

- Article Y,6. seems to contradict Y,9.
  - TSO „may specify“ grid forming capability / PPM „shall be capable“ of providing GFM capability
  - Does Article Y,9. only apply in case the TSO has specified gridforming capability or to all PPM?
- Article 20,4.(a)
  - „Additionally where specified, the power park module shall be capable of contributing to limiting any frequency deviations from the nominal value.”
  - Does this include the mandate to force renewable PPM to keep continuous active power headroom? (ACPPM intentionally specified this behaviour only for energy storage modules)

Conclusion and recommendation

For PV, all-new complex and non-standardized requirements that would have to be fulfilled in short time, (with only low benefits for system stability), lead to a high risk not to reach EU‘s PV installation targets

1. Do not make grid forming capabilities a requirement for all PPMs
   - The requirement approach “within the capabilities” creates uncertainties and is potentially inefficient
   - Expected large variety of requirements among the member states creates market confusion and potential shortages in installation capacities
2. Introduce reliable grid forming capabilities by commercial incentives (ancillary service market-based sourcing) with objective and quantitative criteria to reach technical maturity
   - Much more efficient, reliable and non-discriminatory
   - Learn from those experiences (e.g. from utilization in energy storage systems (much higher readiness!))
3. For PV-PPM, focus on measurable (synchronization-) robustness (e.g. phase jump immunity) and frequency control stability criteria

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Thank you for your attention!