

# Paris Session 2022

FlexPlan



How market structures can benefit prosumers and grids

*C1 - POWER SYSTEM DEVELOPMENT & ECONOMICS  
PS 3 / PLANNING UNDER UNCERTAINTY AND WITH CHANGING  
EXTERNAL CONSTRAINTS*

*Question 3.3.2 Prosumer customers are increasing, acting as demand and a possible supply source of energy in the network. How can market structures influence large customer investment to support the improvement of current and future grid utilization?*

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# Markets' structure, investments and grid utilization

- Integrating RES characterized by variable generation requires procuring RT services
- Many subjects which can provide services: storage, big loads accepting to get modulated, distributed energy sources, prosumers
- Prosumers, yet typically small, will become numerous in the future, capable to provide an important contribution to compensate RES variability.
- national regulatory authorities should provide efficient incentivization mechanisms to favor flexible resources to settle in strategic positions, where they could support the grids. RT-market architectures should be get fit for favor their active participation.
- For those subjects that can directly participate in real time markets (big loads and storage systems connected to the transmission grid):
  - new market products should be introduced in order to eliminate any entrance barrier and incentivise them to bid. Such new products must take into account the peculiarities of the new subjects, which are very different from old conventional generation systems, in terms of ramp constraints, reaction speed, etc.
  - In dependency of these parameters, it should also be decided which services they can profitably bid for: secondary, tertiary frequency regulation, etc. Sometimes, for deciding that, beyond considering the main process that characterises them, attention should also be paid to the control system that regulate their exercise, which many times was not created in order to provide fast reaction.

# Markets' structure, investments and grid utilization

- For the smaller subjects that, due to their size, are not allowed to directly bid in real-time markets:
  - the intermediation of an aggregator must be considered. For that figure, it is important that the regulator considers which business models are possible in order to financially motivate its work: the lack of viable business models is the reason for which aggregators are still rare, especially in some EU Countries.
- **The FlexPlan Horizon 2020 project (<https://flexplan-project.eu/>):**
  - sets up a new grid planning methodology capable to consider the contribution flexible resources can provide in support of transmission and distribution grids (making it possible to postpone or even avoid investments in new grid infrastructures)
  - validates this methodology on 6 regional cases on a large time horizon (from 2030 till 2050) encompassing nearly the whole European continent,
  - exploits the results provided by these cases to acquire a view on the role flexibility can play: a set of regulatory guidelines will be elaborated to single out those factors that constitute regulatory barriers preventing the development of an optimal mid-long time grid development and to analyse how to eliminate them through opportune regulatory policies. Barriers tied to RT market structure will be analysed in detail too.