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Integrating Renewable Energy Sources (RES) characterised by variable generation patterns requires procuring real-time services. System services are procured by means of real time markets (most notably: balancing market). Subjects which can provide such services are many and among them there are many flexible resources (storage, big loads accepting to get modulated, distributed energy sources, prosumers). Among such resources, prosumers, yet small, will become a numerous category in the future, capable to provide an important contribution to compensate RES variability.

On one side, the national regulatory authorities should take provision to provide efficient incentivization mechanisms to favour flexible resources to settle in strategic positions, where they could support the grids. On the other hand, the real-time market architectures should be get fit for favour their active participation.

Depending on the size of the flexible resources, their participation in real-time markets can happen either directly or through the intermediation of an aggregator.

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.

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/), after setting 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) and validating this methodology on 6 regional cases encompassing nearly the whole European continent, is going to exploit the results provided by these cases, which provided a view on a large time horizon from 2030 till 2050, in order to investigate on the role flexibility can play. In dependency of that, in the last months of the project activity, a set of regulatory guidelines will be elaborated with the aim 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 real-time markets structure will be analysed in detail too.