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WORKING GROUP  
FLEXIBILITY  
# 2019 - 3

A more efficient usage  
of networks with the help  
of the resources connected  
to the distribution grid

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## Summary

The electricity system is evolving towards a paradigm shift with a high penetration of intermittent renewable generation (solar and wind) connected to distribution networks, and an increasing electrification of mobility, transport, heating, air conditioning and industrial consumption. This new scenario requires new flexibility mechanisms to safely integrate these resources and operate the electricity system as efficiently as possible. This results in lower costs for consumers, lower emissions and better quality levels. This working group has focused on the flexibility provided by the resources that are connected to the distribution network and not on the assets in the distribution network. In the same way, flexibility referred to the active power is considered the most valuable to the network. A compilation and evaluation of the different flexibility tools is given in the report.

## Report Elaboration

The working group called "Flexibility in active distribution systems" aimed to address the major concerns that arise in the DSO environment when it comes to extracting the value of flexibility from the resources of DERs.

An analysis of the possibilities of flexible resources was carried out, and the range of values is very wide. Hosting capacity stands out as it can accelerate the energy transition.

Some of the flexible solutions will need specific market structures to deliver optimal solutions, which were also assessed. As well as the options for information exchange at the different timescales among DER and System Operators and platforms to manage flexibility.

When it comes to reaching agreements between parties for the whole to make sense, it is necessary to know what the risks and concerns of each party are. A review of all stakeholders' concerns was also reviewed to consider when writing contractual agreements.

In the same way that flexibility solutions result in a motivation for the consumer or generator to change their consumption or generation, tariffs can have a similar effect. A review was carried out to see how new alternatives can be facilitated.

## Structure of the final report

This working group WG 2019-3 has focused on these topics:

- Usage and Value for the distribution network with centralized and decentralized approach: Hosting Capacity. Investments avoided or delayed, reliability and efficiency.
- Regarding market structures, possible timeframes, cases of low liquidity and longterm commitments and TSO-DSO coordination schemes are addressed.
- In the study of flexibility agreements interests and risks for each stakeholder were studied.
- Tariffs of five countries were studied and the current possibility of implementing flexible tariffs that can be adapted to the needs of the network.
- Aggregation has its value when it comes to unlocking the flexibility of small flexibility providers.
- Platforms and information exchange are the only way to make all possible flexibility schemes feasible. Thus, one of the most demanding points of existing demonstration projects.
- Finally, regulatory recommendations are given to enable flexibility solutions to become a reality.

# INTERNATIONAL CONFERENCE ON ELECTRICITY DISTRIBUTION

