Limitations set by the Distribution Network against the Large-Scale Integration of DER

**Hosting Capacity**: a tool that allows, for the first time, a fair and open discussion between the different stakeholders and a transparent balancing between their interests:
- Acceptable reliability and voltage quality for all customers;
- No unreasonable barriers against new generation;
- Acceptable costs for the network operator.

**Examples**

The risk of overloading reduces as long as the generation is less than the sum of minimum and maximum load.

First approximation: the losses get smaller as long as the average generation is less than twice the average load.

New harmonic resonances may occur due to the capacitive character of the interface for some of the DER units.

Unacceptable distortion may occur for frequencies above 2 kHz already for a small number of units. This is based on “save limits” but higher levels may be acceptable.

**Conclusions**

Most distribution networks can cope with several tens of percent of DER without significant additional investment.

However, every case is unique and knowledge of the hosting capacity is needed in all cases.