

**Paris Session
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CONTRIBUTION-7, Q7
**Evolution and Changes of the Electricity Market
to Integrate DER in the Brazilian Power System**

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QUESTION-7:

How far behind are DER market-based approaches or regulations behind those for utility-scale resources?



Response

There are wind and solar plants installed in the transmission and distribution grid of the Brazilian power system. Wind plants is normally installed in centralized plants and Solar PV plants are installed in centralized plants and in micro and mini distributed generation.

Response... contd.

Wind generation is variable and seasonal and presents high uncertainty and variability at any time, which means that the maximum and minimum amount of generation may happen at any time of the day and there are fast and deep variations, which depend on the meteorological conditions, which are difficult to forecast. These features cause the following immediate and strategic consequences:

- Changes in the traditional approach and in the tools to plan and operate the interconnected power system;
- Changes in operational procedures and requirements of grid codes in face of deep and fast variations of this source;
- Improvements in methods and tools to forecast wind and power generation.

Group Discussion Meeting

Response... contd.

Distributed Generation has a tremendous advantage, which is produced in the same place where it is consumed. This fact reduces investments and costs of expansion of the power system grid. It requires changes in the regulation rules of the electric sector and it causes challenges for the operation of both transmission and distribution systems.

However, if the Distributed Generation is produced away from the place of the load, the benefit can disappear, because the greater the generation surplus the greater the losses in the distribution grid.