BRAZILIAN ELECTRICITY MATRIX TODAY

More than 165 GW of installed generation capacity.

High proportion of renewables: Hydroelectric 63%, biomass 9%, wind 9% and solar PV 1.2%.

However, Environmental requirements prevent the utilization of most of the remaining hydro potential.

Peak resources: Not clearly specified in the report; the demand management pilot project implemented in 2017–2018 failed to contract demand reductions to cope with wind variability in the northeast region, and thermal generators were used.

Possible consequences, if not appropriately managed:

More expensive energy and decrease of the quality of service.

THE DISCUSSION

Eventual regulatory barriers to the development of the sector and the possibility of effectively unlocking the expected grow of distributed resources and alternative renewable energies.

The analysis evidenced: important regulatory modifications should be carried out to attain the challenges imposed by distributed resources and alternative renewables and, simultaneously, improving (or, at least, maintaining) the quality of service.

- Flexibility requirements: Under the (yet quite small) presence of wind generation, they are not clearly understood. Further growth of solar is expected, increasing the challenge.
- DERs: Net metering will be a barrier for deployment.
- Distribution: Quality of service has improved in the average, but many operators have worsened.
- Transmission: The north and northeast regions perform worst in quality of service. Those are regions with low demand and significant renewable generation potential not yet developed.

DISTRIBUTED ENERGY RESOURCES

Net metering mechanism available since 2012: applied only for grid-connected generation in consumers’ facilities and without storage (DG).

>> More than 120,000 engaged consumers and more than 1 GW of installed distributed generation.

The future of net-metering: Proposal to modify low voltage tariffs. The monomional tariff will be gradually transformed to binomial or trinomial. Compensation by net metering will consider only volumetric components. Therefore, the attractivity of distributed generation will significantly decrease.

Projection of Installed DG under different mechanisms of tariff compensation in net metering (ANEEL 2018)

Tariff composition: Network + Energy (includes some system charges) + System charges + Levies

TRANSMISSION AND DISTRIBUTION

Regulated monopolies, but different regulatory environments

>> TSOs operate in a less risky environment than DSOs.

In both segments, incentive regulation by benchmarking models (DEA) is applied to evaluate the operational costs efficiency.

The quality of the service is one of the aspects included in the benchmarking models that is neither completely understood nor well represented.

Reference Materials


Keywords

Regulation, electricity sector, energy transition, operational costs, quality of service, Brazil

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