

Trying to move consumers to digital mode in an emerging economy: the Brazilian experience



Luiz Barroso

The Brazilian power system

Basic data

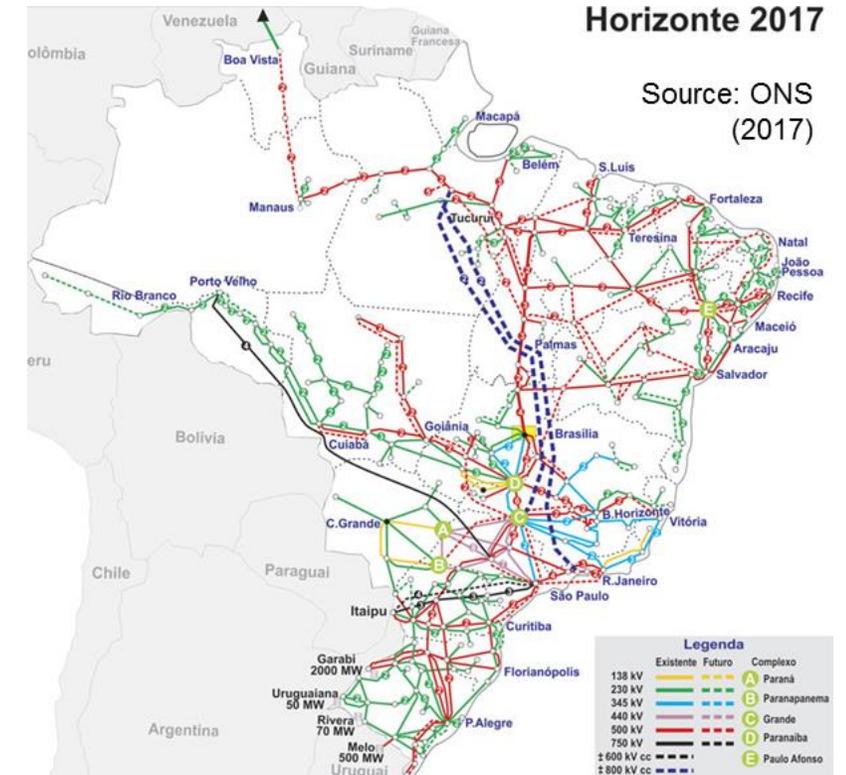
- 150,000 MW, 65% hydro
- 130,000 km of HV transmission lines
- 500 TWh/year
- Private participation in G, T, D and trading

Wholesale market in place + technology-specific auctions of long-term (20+ years) energy contracts for new capacity

- Birthplace of renewable energy auctions

There is no retail liberalization & full retail competition

- Only consumers with loads ≥ 3 MW can choose their supplier
- 25% of the market is “free” (eligible) to choose its supplier, 75% goes to regulated tariff
- The country has about 100 electricity traders & service providers



Would you change habits to benefit from prices?

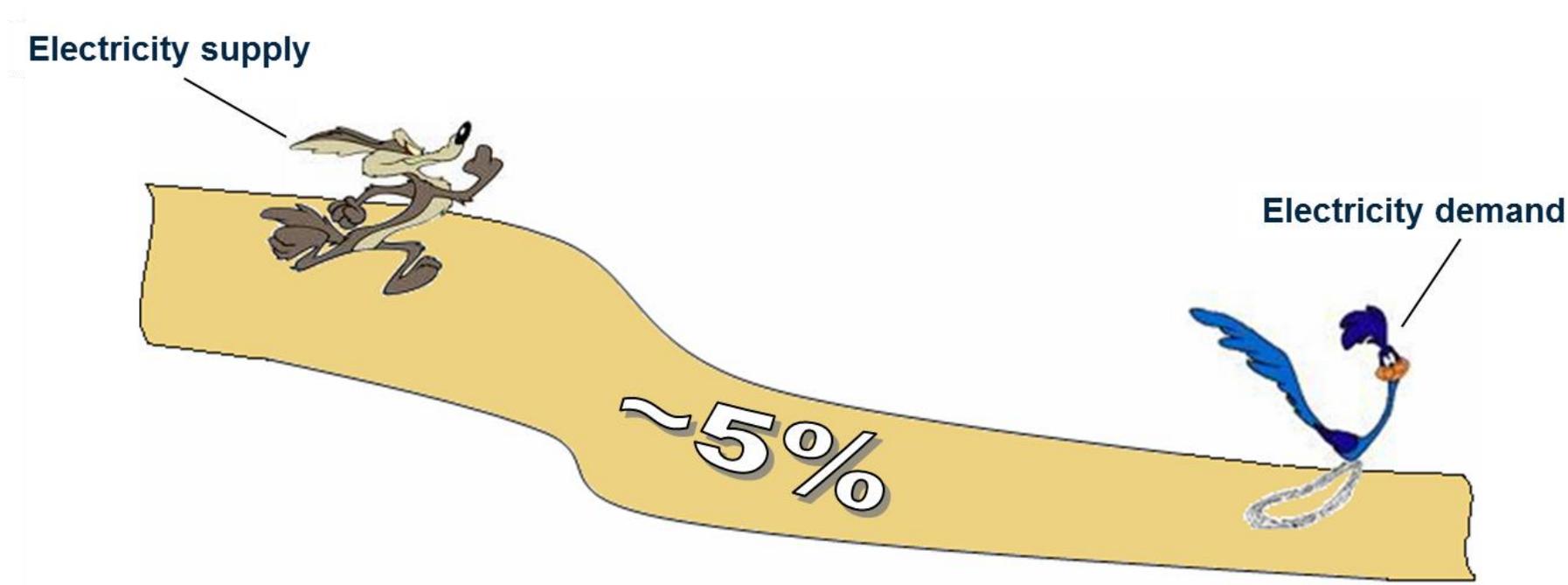
In Brazil, it seems the majority of consumers **would be** willing to change their supplier and that automation **will play** a role on daily decisions

A recent poll (2018) by the traders' association indicates:

- **85%** of Brazilians find their electricity tariff expensive
 - ...70% would like to change their electricity supplier
- **90% of Brazilians would like to become prosumers**
 - Most of them just because “it is so cool” (not driven by economic decisions)
 - But most do not want to have transaction costs → automation will be essential

Technology will enable this and regulation needs to be adapted

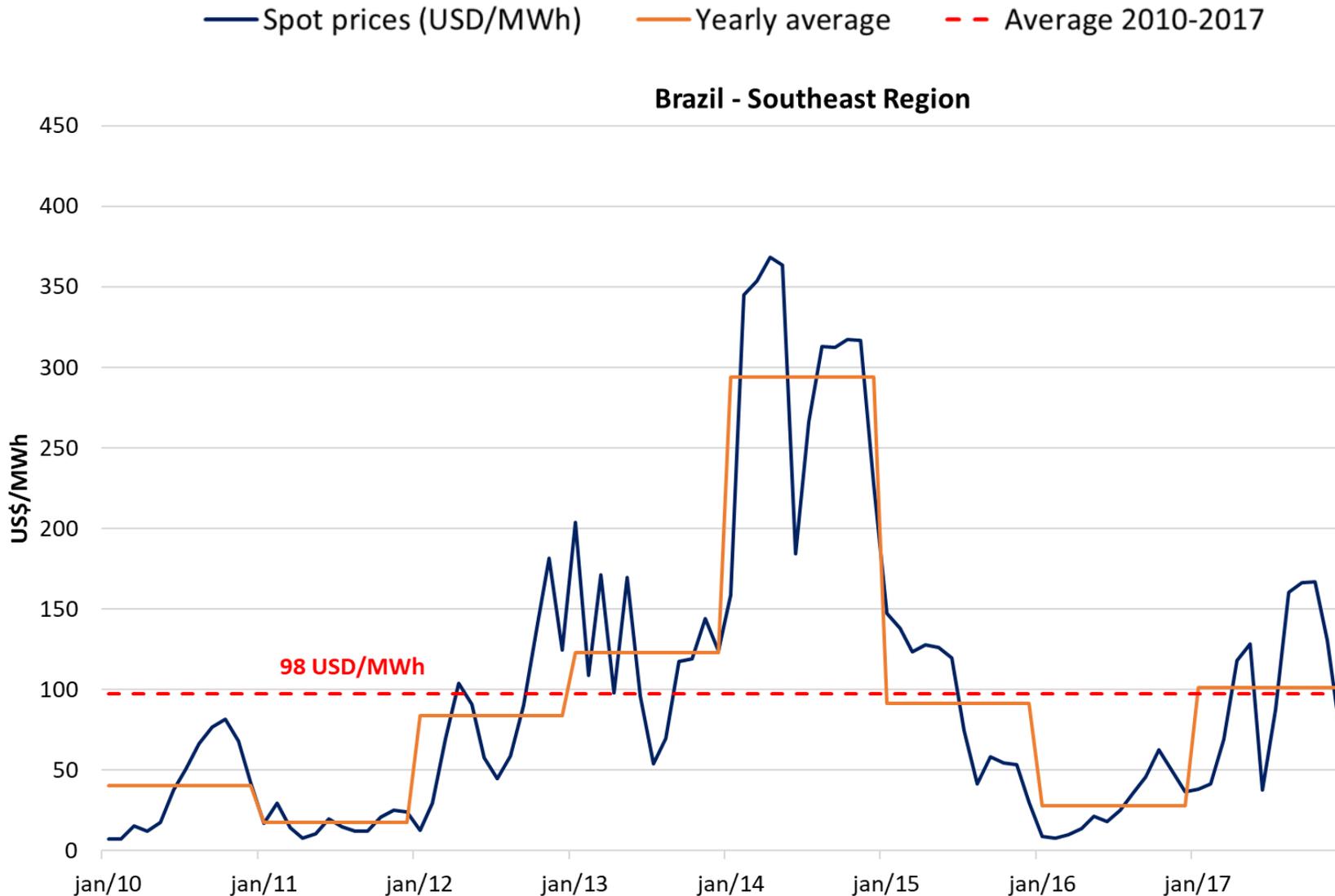
The main challenge



Load growth rates at 5% per year → **4,000 MW** of **new generation capacity** needed yearly in Brazil

How to ensure supply adequacy in a fully liberalized market with centralized & distributed resources?

Signals from the spot market are weak...



Energy spot price volatility is high, driven by hydrology → generators have difficulties to obtain “stable” revenue streams for financing

The financial market for hedging products is not liquid, not all traders & retailers creditworthy & no clearing house available

And long-term PPAs with end-uses not always available: eligible consumers not always willing to sign them...

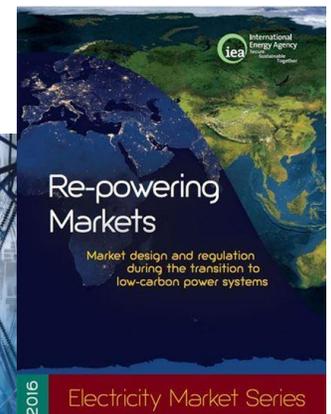
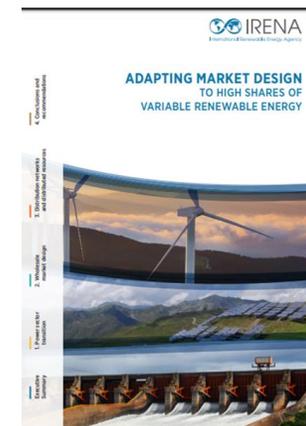
The challenge of securing capacity expansion

Today, all consumers are obliged to be covered by contracts and long-term PPAs to new generation are auctioned to supply the captive market (75% of load)

Could capacity expansion come via DER? **Yes! But...**

- The financing challenge remains (is more complex in a retail level)
- Price disconnection between wholesale and retail markets and the impacts on utilities become an issue

As in many parts of the world, the regulatory framework needs to be adapted to enable the marketplace and business modes of the future



A Bill project to modernize the Brazilian electricity regulatory framework is being discussed in the congress

Increased incentives to efficient, decentralized decision-making + market signals to align individual and societal goals with individual risk management instruments

Dialogue & public consultations (“CP#33”) were the vehicles to build a proposal

- **Separation of products** (energy, reliability product, services); market mechanisms to correctly price them.
- National capacity mechanism applied to all consumers
- Clean energy certificates as a replacer of the (inefficient) current incentive structure for new renewable projects
- Development of a **clearing house** to trade financial products
- Better **connection between wholesale and retail signals** with temporal and spatial granularity of price signals to retail users & **economic signals for DER**
- **Unbundling of volumetric tariffs** into capacity & energy charges
- **Full market liberalization** (retail choice) and preparation of market design to it

Respect to property rights and contract sanctity

In summary...

Markets

Bloomberg

U.K.'s Biggest Energy Suppliers Losing More Customers to Startups

By Rachel Morison

3 de setembro de 2018 01:00 BRT Updated on 3 de setembro de 2018 04:53

▶ New technology could boost households switching utilities

▶ Consumer bodies worried cheapest may not be most reliable

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The latest threat to the dominance of Britain's six biggest energy suppliers is coming from small technology companies that automatically connect consumers to the cheapest deal.

Their emergence couldn't come at a worse time for the industry, already beset by lawmakers capping rates and suffering from mistrust by consumers. On top of that, utilities are getting hit by surging wholesale natural gas and power prices.

A record 5.5 million customers switched electricity supplier last year, and price comparison websites have provided the easiest way for

“**Knowns knowns**”: Consumers are willing to take a more active role in decision-making and technology will be an enabler. This is inevitable.

“**Knowns unknowns**”: The market design must be an **enabler** too: it needs to be adapted to allow an integrated convivence between centralized & decentralized resources. Adaptations must happen **before** the revolution starts

Key challenges:

- Supply adequacy (reliability still perceived as a public good)
- Generation financing
- Connection between wholesale and retail markets
- Price signals that clearly present the time and locational value of resources in the wholesale & retail levels

No one-size-fits-all solution, Brazil is trying its own way !

We still have the “**unknowns unknowns**”

Thank you!

Luiz Barroso

luizbarroso.web@gmail.com