

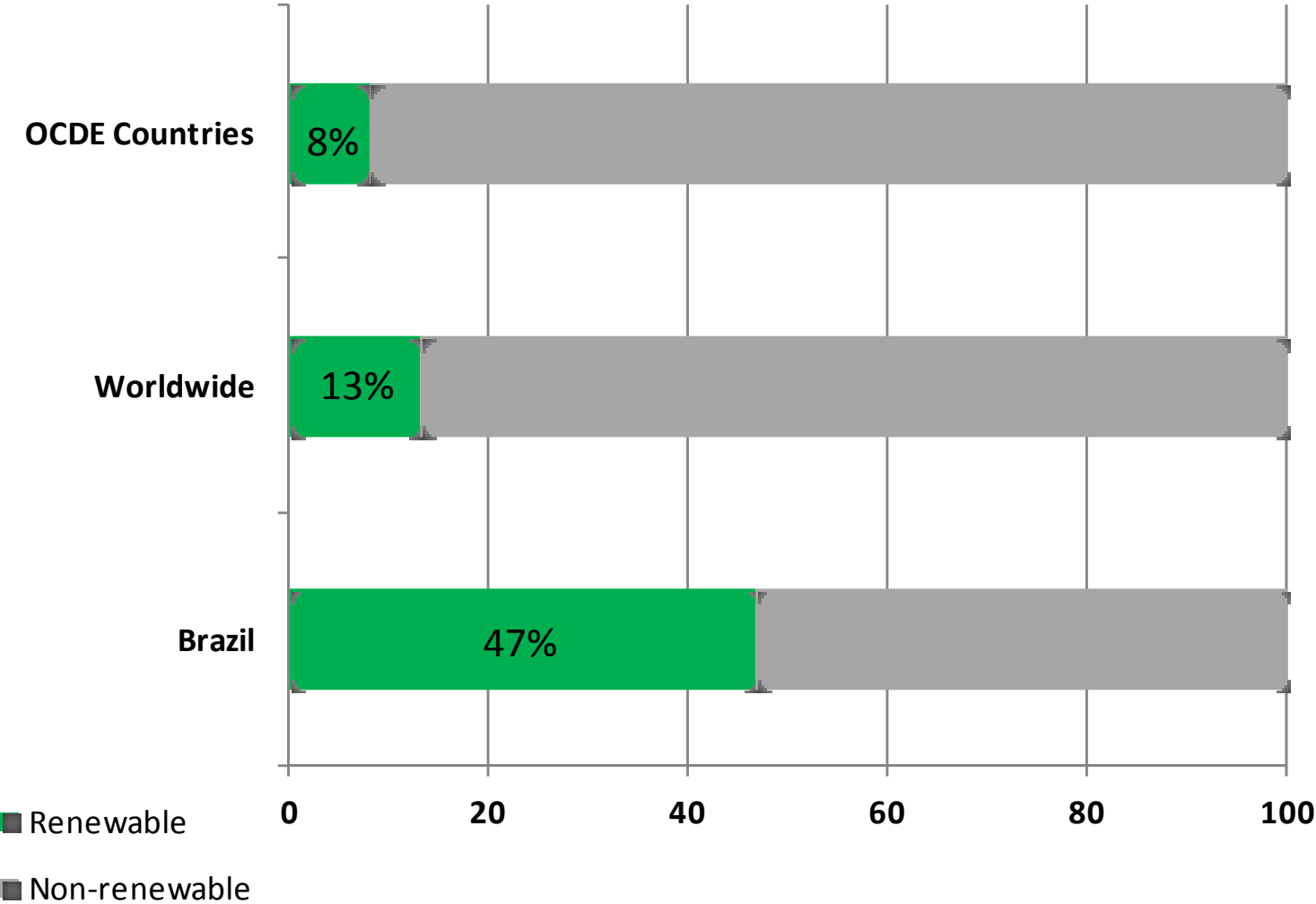


Jerson Kelman

Rio Centro
September 25, 2012

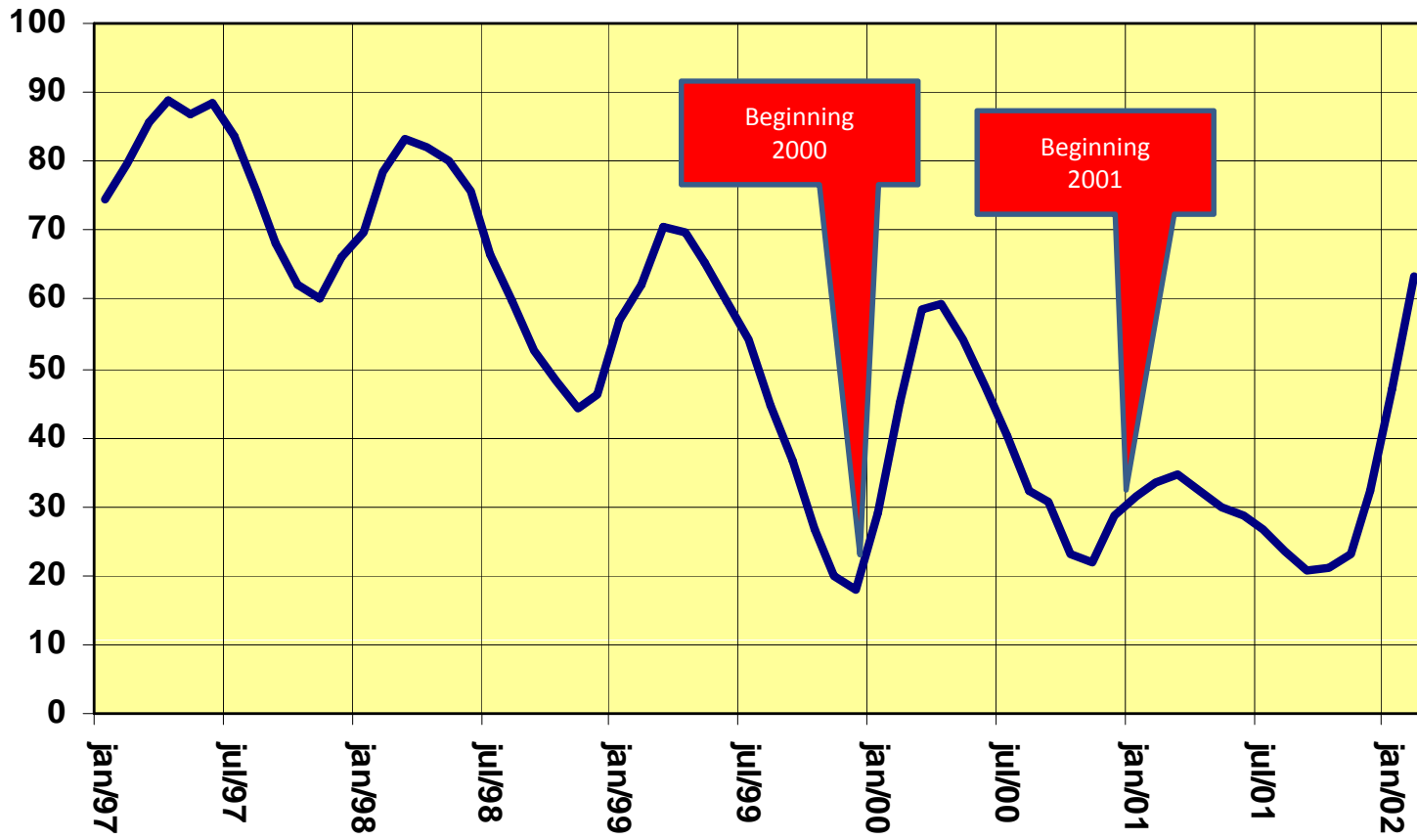
Brazilian energy is renewable due to hydro and ethanol

(year 2009)

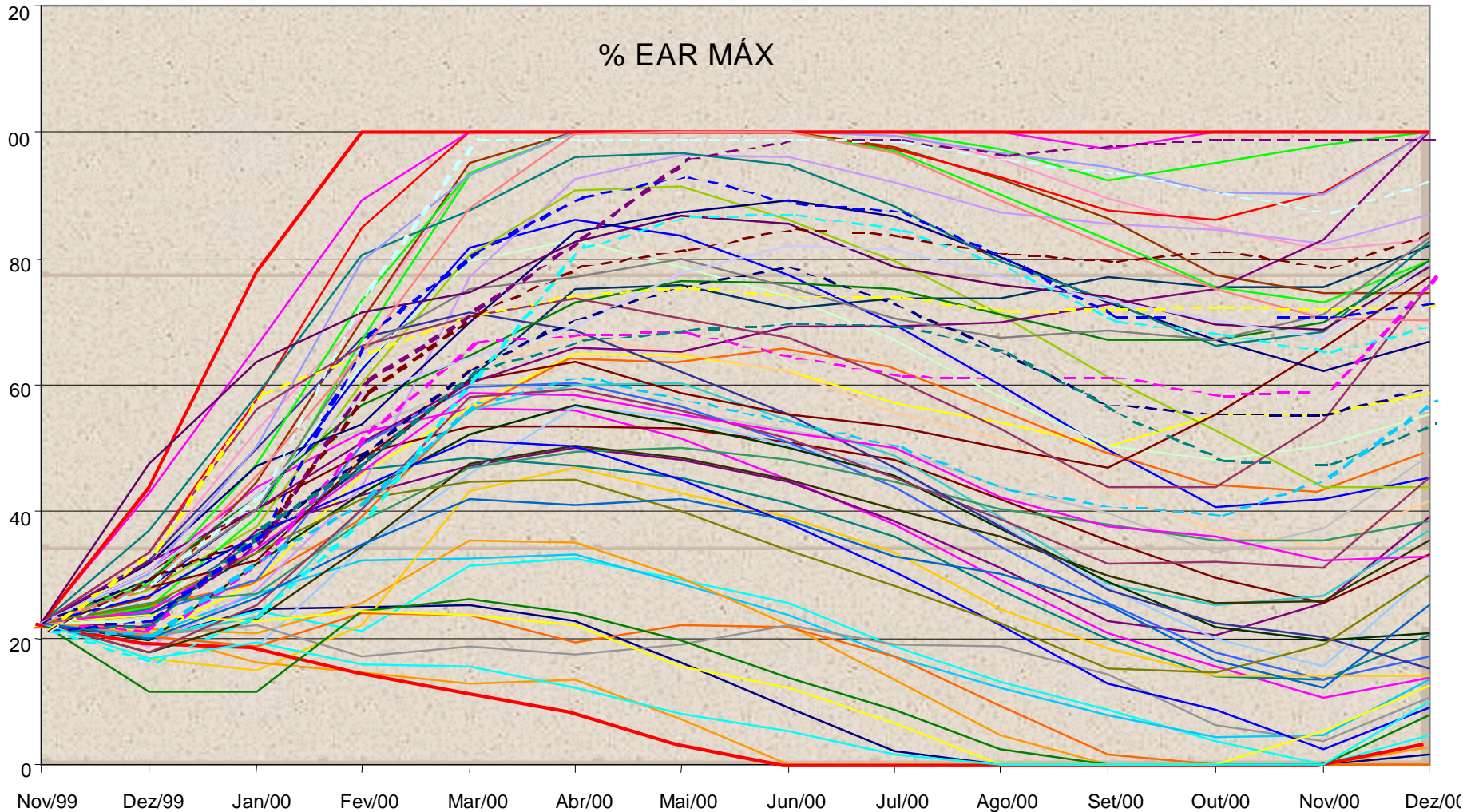


Sources: IEA, EPE

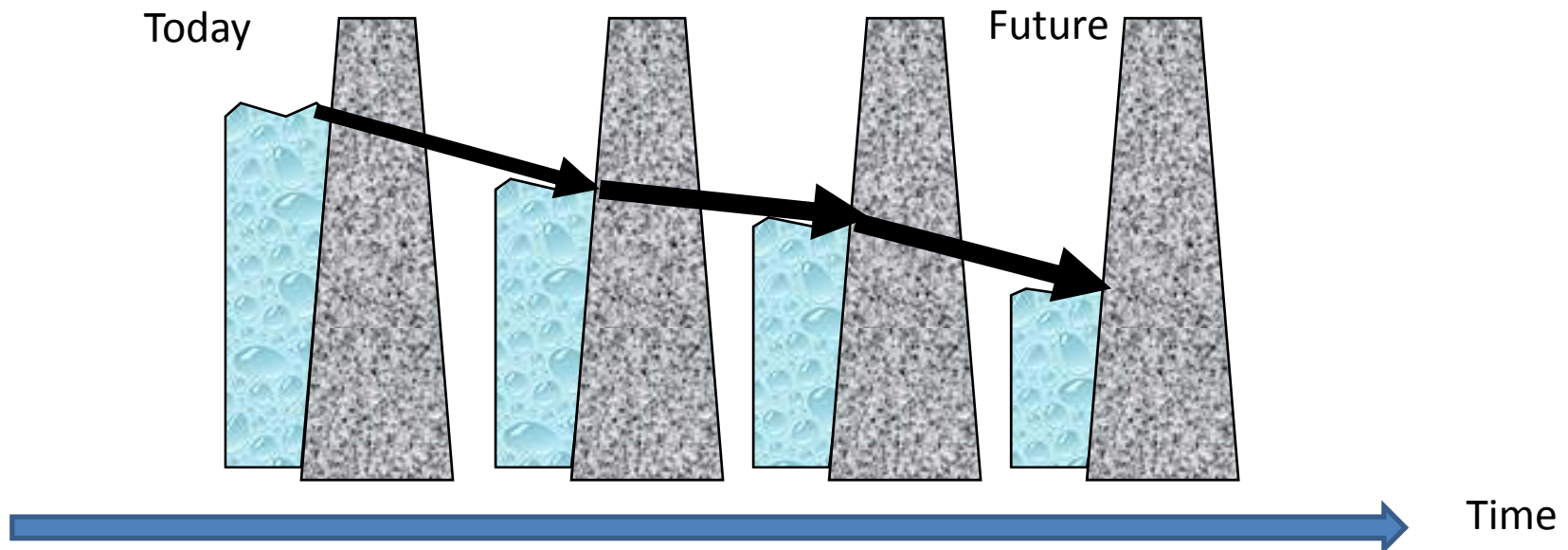
Storage in the equivalent reservoir



Hydrological uncertainty



In countries that most of the electricity is generated by hydro plants, hydrological uncertainty is a relevant issue

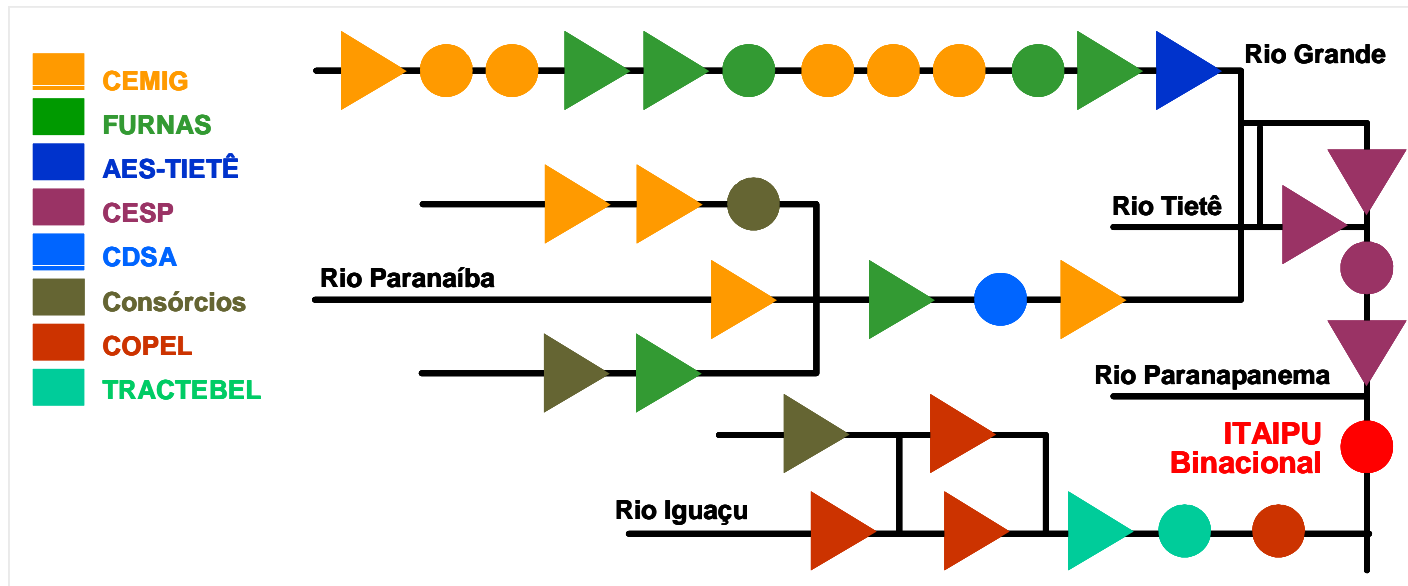
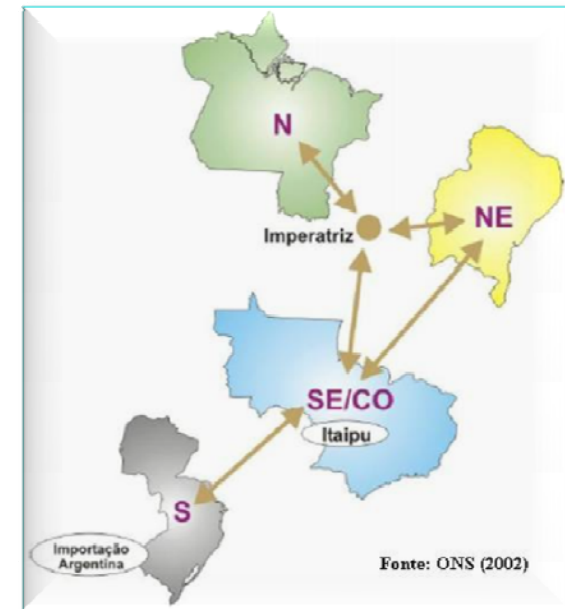


Future water storage depends on present storage, future water inflow and the decision about how much thermoelectricity could be substituted by hydroelectricity

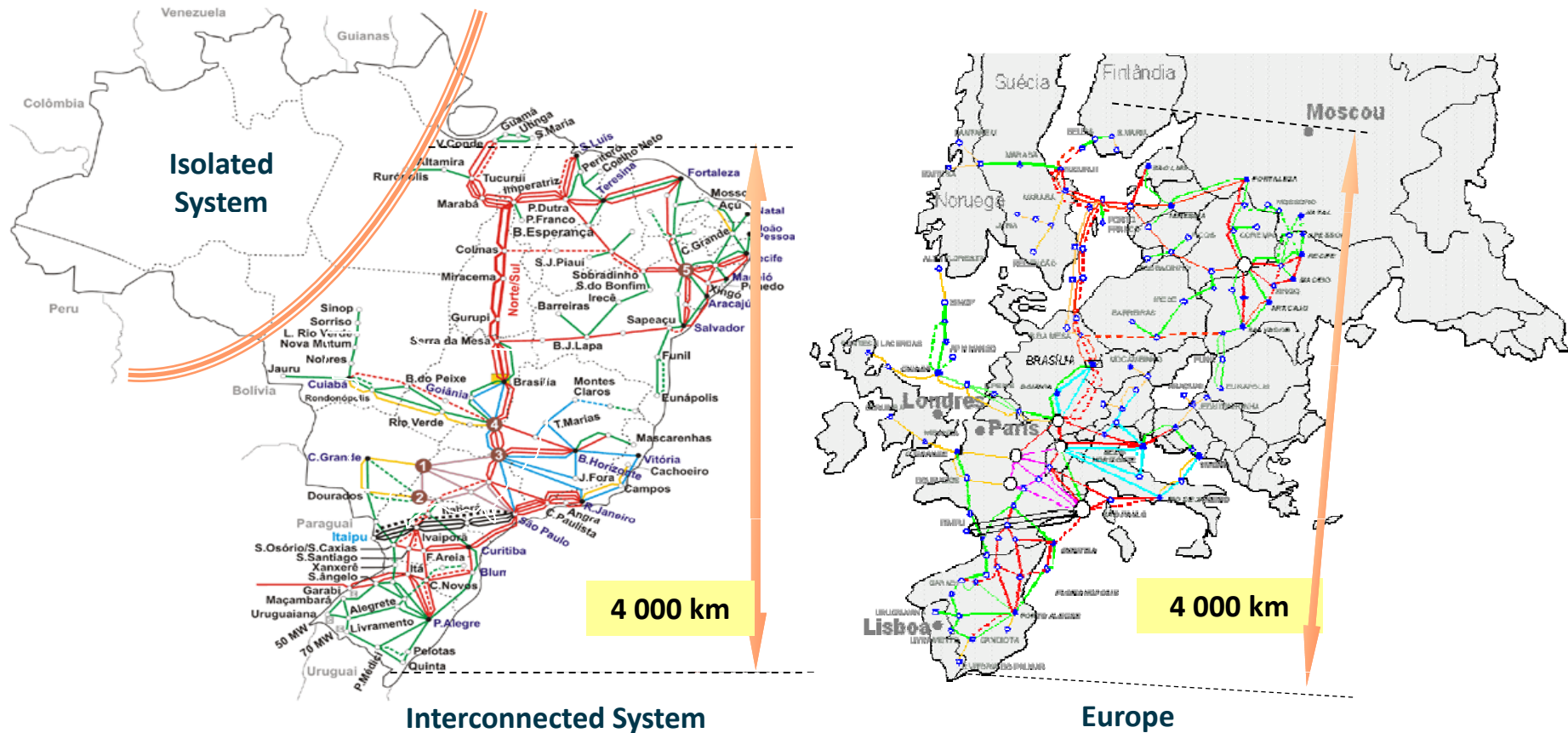
Centralized dispatch

In order to take advantage of hydrological diversity, energy is transported through long distances

Power plants in the same river basin are owned by different companies



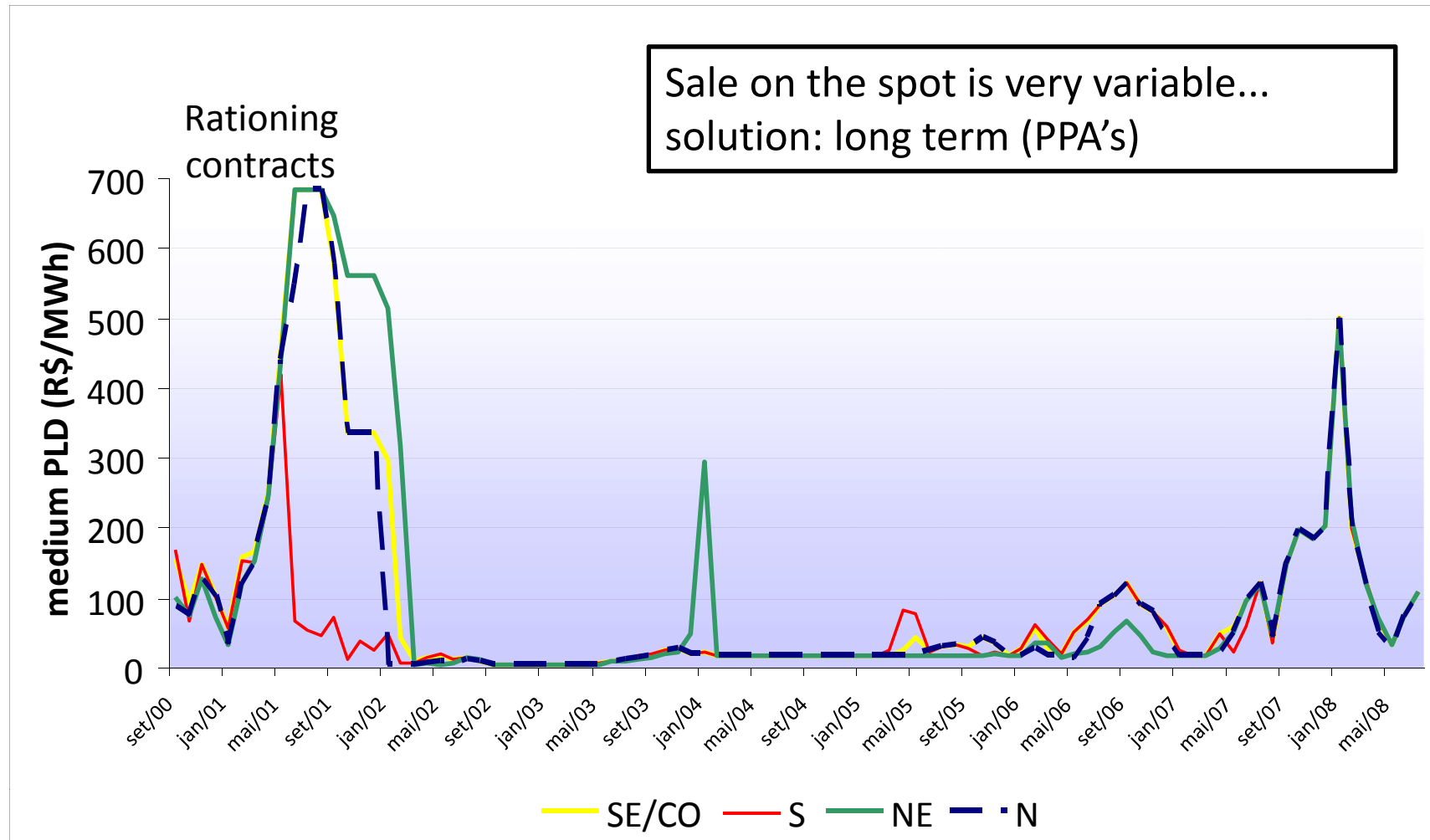
The Interconnected high voltage grid transports energy all over the country from river basin with good hydrological conditions to those suffering a drought



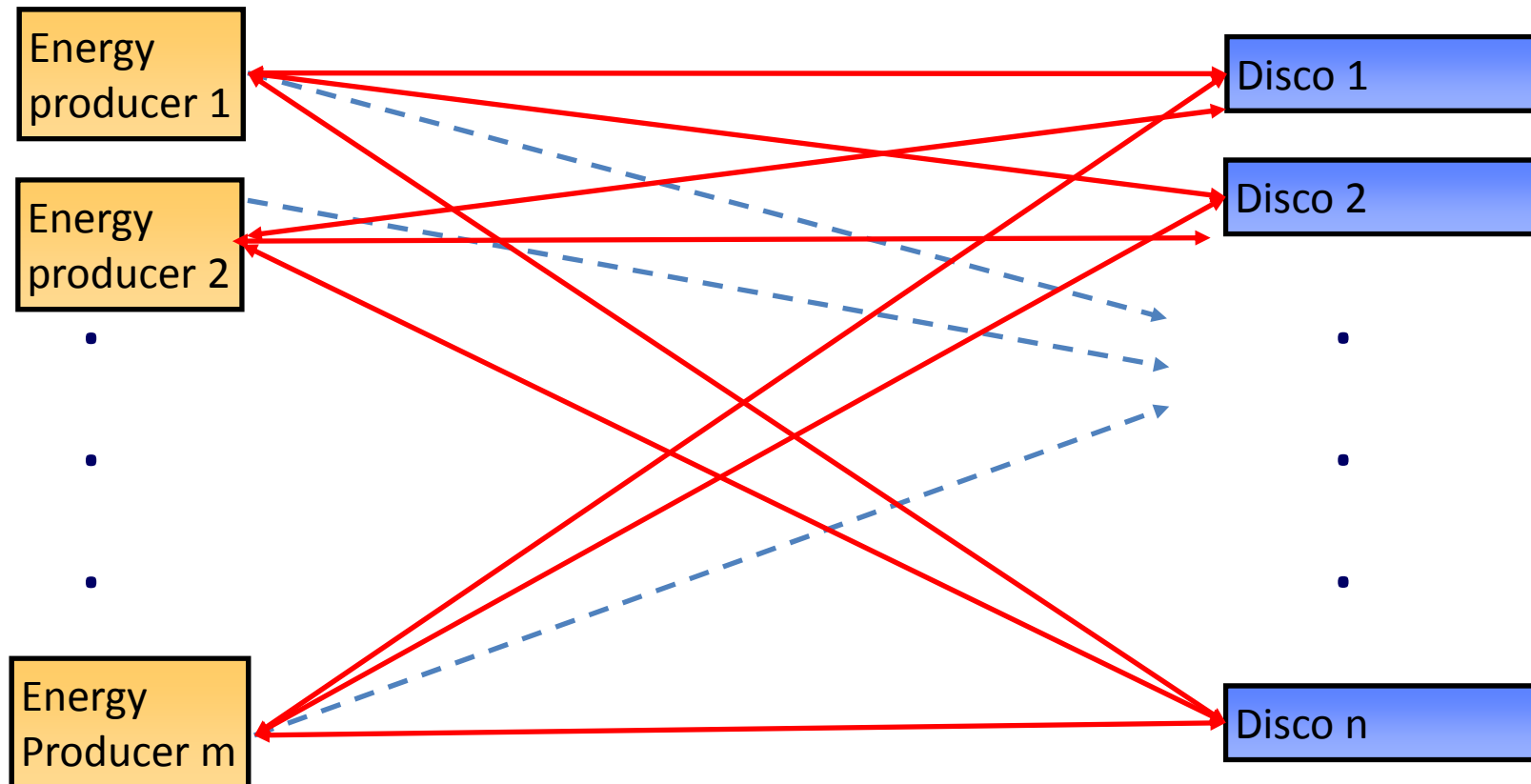
(year 2007)

Short term marginal cost

Spot price

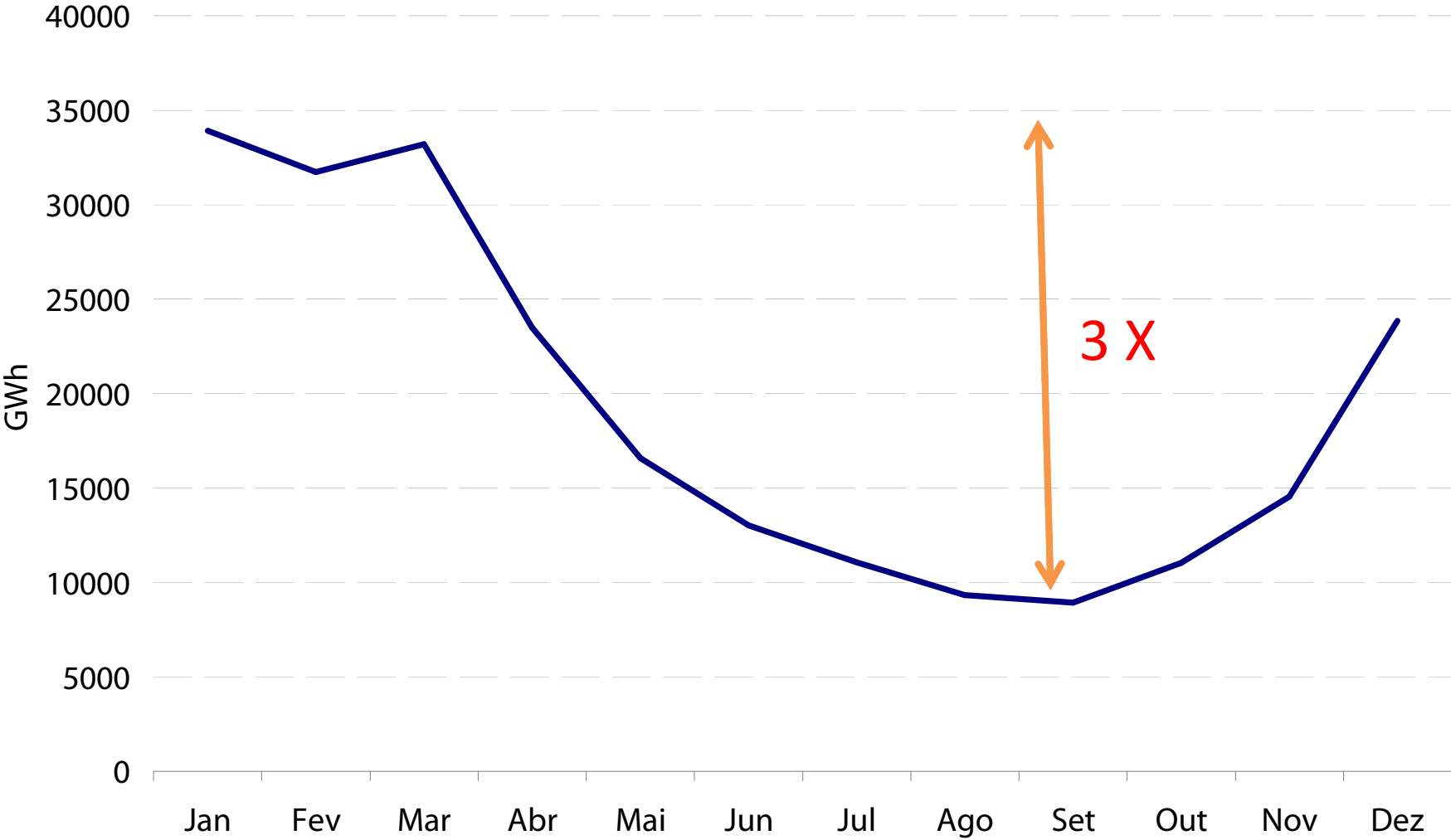


New power plants are built if their proponents win Government organized auctions of PPAs

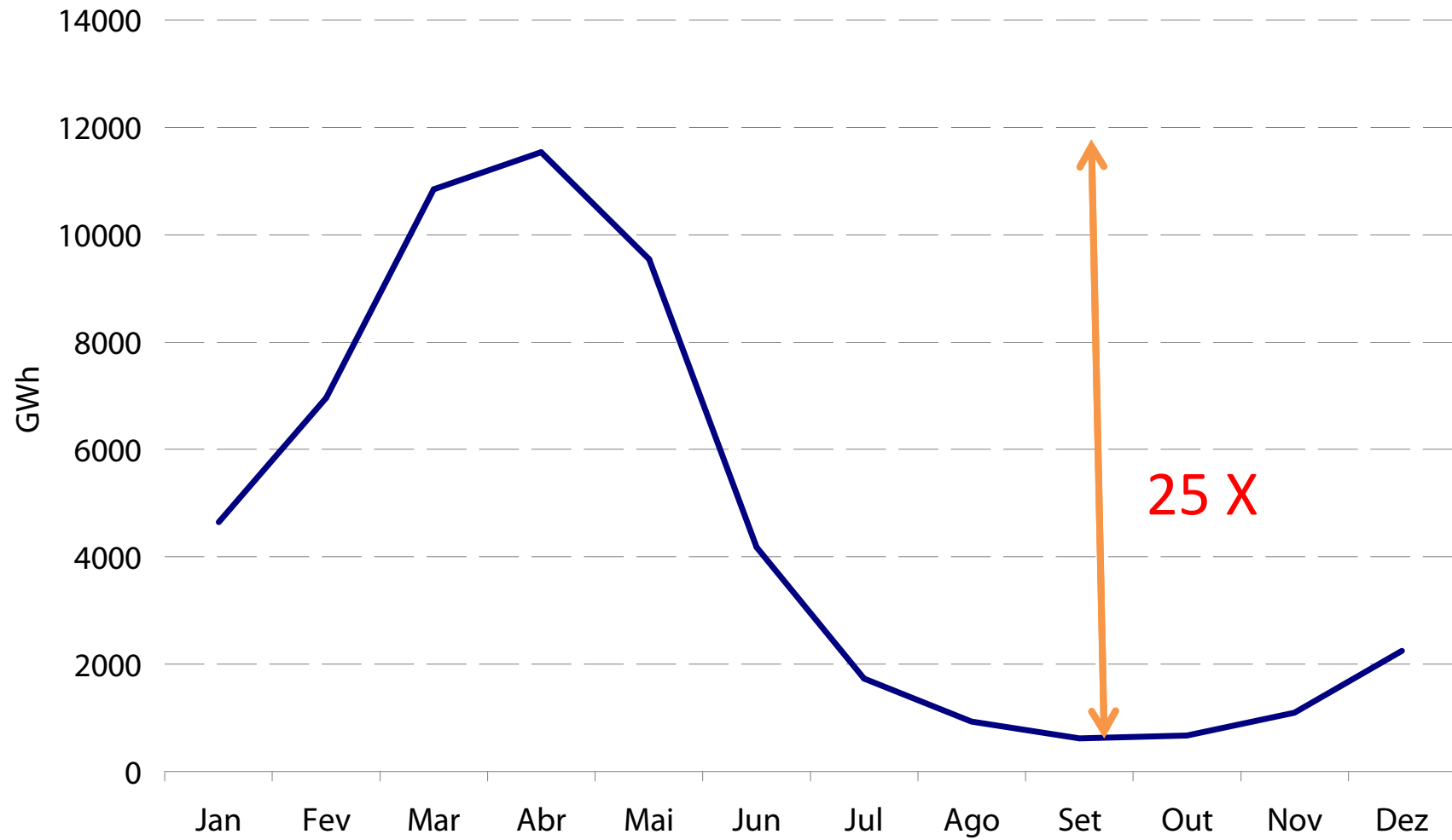




Streamflow variability of existing power plants in the Southeast



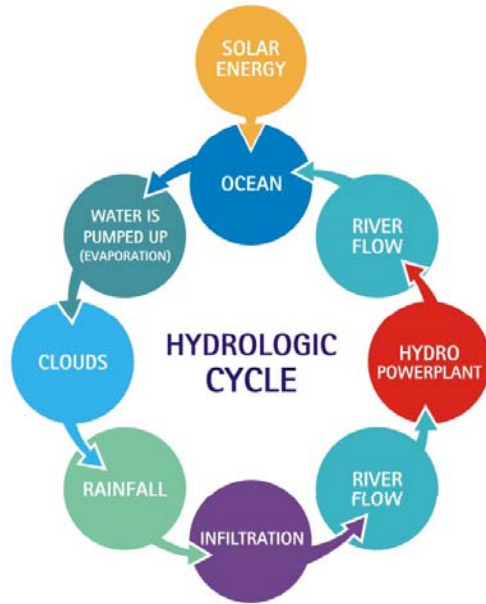
Streamflow variability of the future Belo Monte power plant



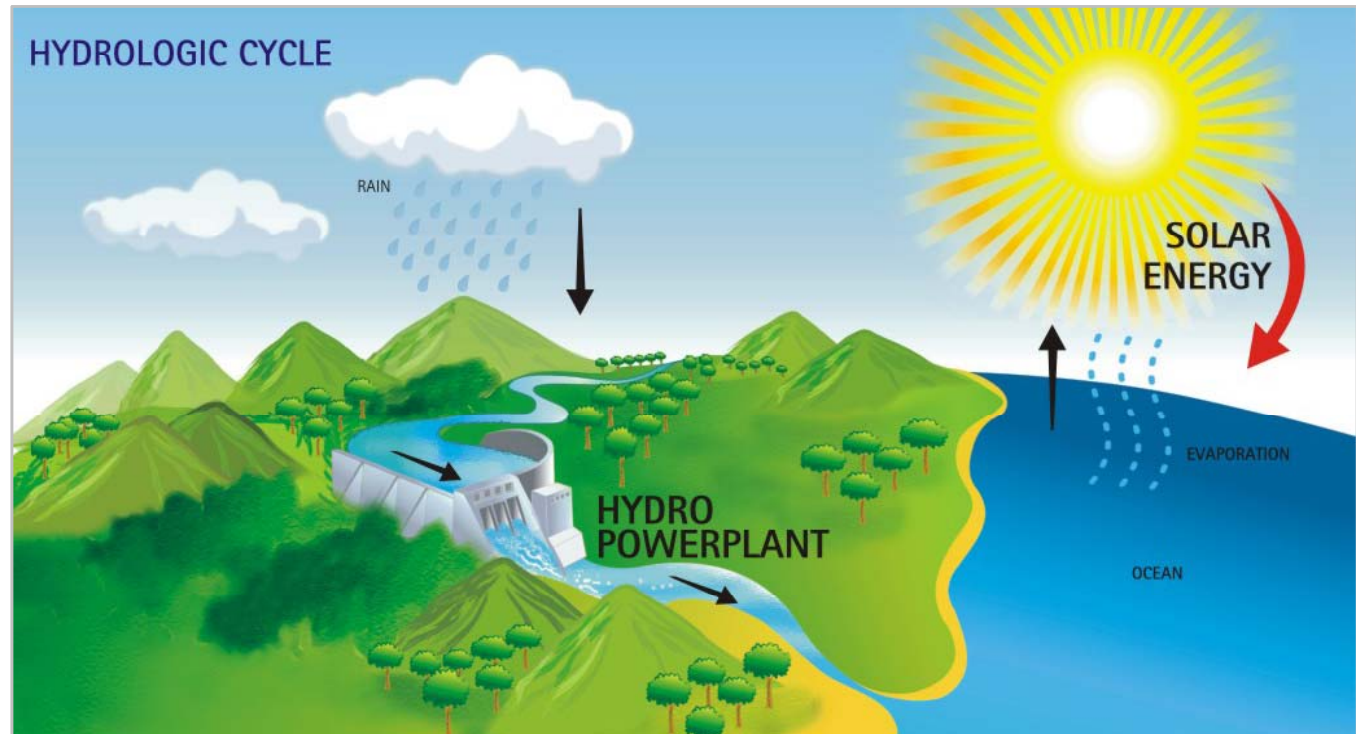
Relationship between storage and monthly consumption

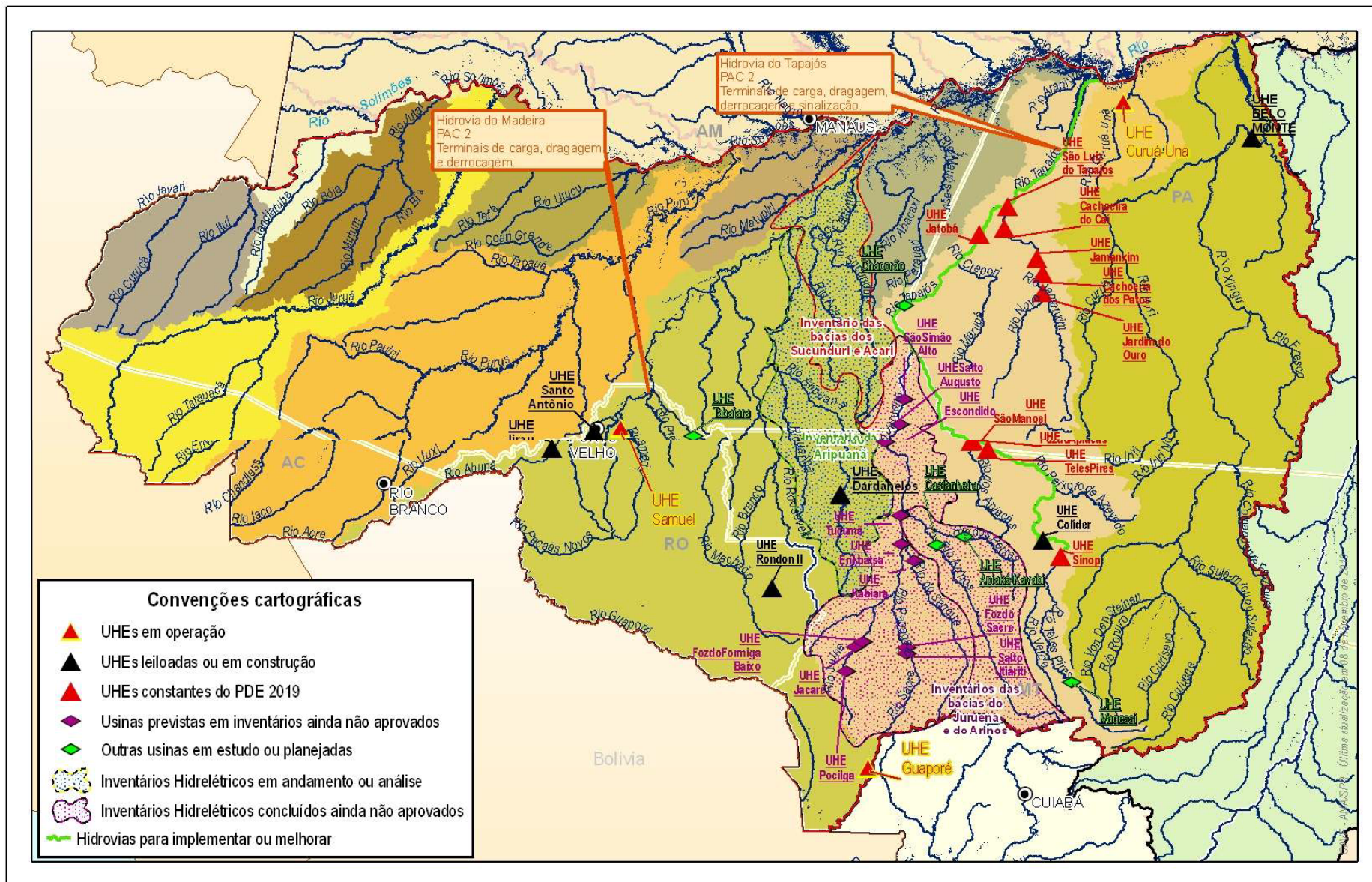


FONTE: EPE.



We have been producing electricity from solar energy for more than a century



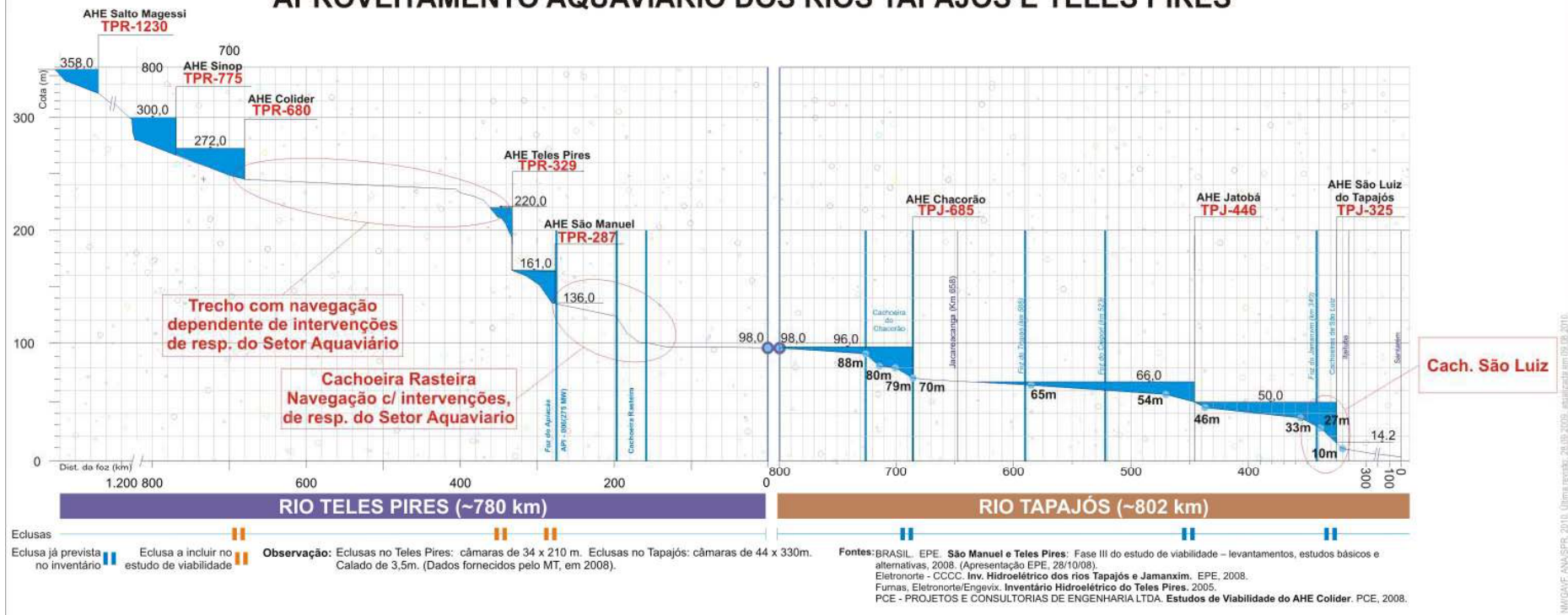


Plano da Margem Direita do Amazonas – ANA - 2012

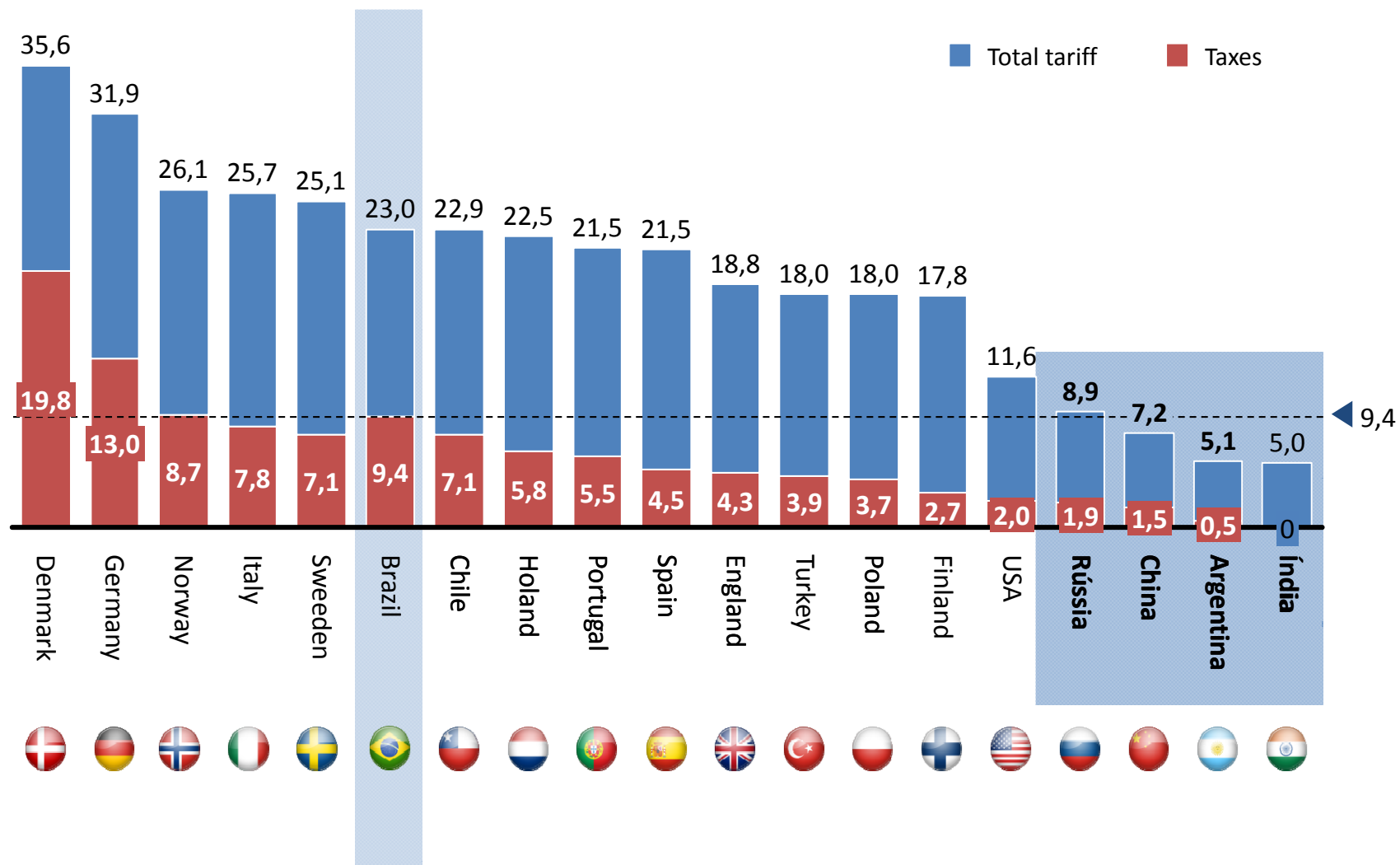
“a construção das usinas hidrelétricas nos rios Tapajós e Teles Pires, previstas no PDE 2019, poderão viabilizar a Hidrovia Tapajós-Teles Pires e permitir o escoamento de parte da grande produção de grãos do Estado de Mato Grosso, estimada em 40 milhões de toneladas/ano no ano de 2020, dos quais 14 milhões de toneladas poderiam ser escoadas pela hidrovia e pelo porto de Santarém”.

(Plano da Margem Direita do Amazonas, ANA, 2012)

APROVEITAMENTO AQUAVIÁRIO DOS RIOS TAPAJÓS E TELES PIRES



Electric energy tariffs for households, US\$/KWh, 2010





Capítulos

12. Vencimento das concessões do Setor Elétrico

13. Um mau exemplo na distribuição de eletricidade

15. Pacote de “bondades” na cota de luz (exceção: lixo)

24. Tentativas de intimidação de servidores públicos

The new Law: reduction of revenues and tariffs

- Generation: 6.9 Billion R\$/y 22 R\$/MWh
- Transmission: 5.7 Billion R\$/y 13 R\$/MWh
- Cross subsidies: 7.6 Billion R\$/y 18 R\$/MWh

- Total: 20.2 Billion R\$/y 53 R\$/MWh

Source: PSR

The Power Grid Situation in Risk Areas

Will the new Law help to reduce the electricity theft and delinquency?



Electronic Meters and Displays



- ▶ Developing specific projects to each area
- ▶ Building a new and modern electric grid
- ▶ Expanding the installed capacity of transformers
- ▶ Reducing visual clutter

Before



After



Smart metering: what are the opportunities in Brazil?

<p>Before # Customers: 80</p> <p>Only 3% of the energy delivered was effectively paid</p>	<p>Santa Marta</p> <ul style="list-style-type: none">• 1,600 families benefited• R\$ 3 Million invested	<p>After # Customers: 1,600</p> <p>95% of the energy delivered have been paid</p>
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