

# Brazil

## Infrastructure Investment Opportunities

Brasil 11.21.2011

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Special Advisor

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# PAC – Growth Acceleration Program

## In 2007 – PAC 1

- To accelerate economic growth
- To increase employment and income rates
- To decrease social and regional inequalities
- To overcome infrastructure bottlenecks

## In 2009, a new goal

- To reduce the impact of the international economic crisis – countercyclical policy

In 2010, launched a new stage: PAC 2 – 2011-2014

# PAC – Growth Acceleration Program Concept

Two blocks of action:

- Make the investment environment better :
  - Credit raise
  - Tax relieves
  - Tax system improvements
  - Regulation refinements
  
- Infrastructure works
  - To incentive private investment
  - To remove obstacles - bureaucratic, administrative, normative, law-abiding, environmental impacts and legislative - related to growth
  - To increase public investment in infra -structure

# GROWTH ACCELERATION PROGRAM – PAC 1, 2007-2010

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Infrastructure projects in three areas

US\$ billion

Area	2007-2010	After 2010	TOTAL
LOGISTICS	54.5	28.9	83.3
ENERGY	171.7	429.4	601.1
SOCIAL AND URBAN	146.8	18.0	164.9
<b>TOTAL</b>	<b>373.0</b>	<b>476.3</b>	<b>849.3</b>

# GROWTH ACCELERATION PROGRAM – PAC 2, 2011-2014

## Preliminary investment forecast

US\$ billion

Area	2011-2014	After 2014	TOTAL
LOGISTICS	59.4	2.6	61.9
ENERGY	262.3	356.2	618.5
SOCIAL AND URBAN	221.0	-	221.0
<b>TOTAL</b>	<b>542.6</b>	<b>358.8</b>	<b>901.4</b>

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# INVESTMENT OPPORTUNITIES:

POWER GENERATION AND TRANSMISSION

OIL AND GAS

HOUSING AND SANITATION

HIGHWAYS

RAILROADS – High-Speed Rail

AIRPORTS

PORTS

URBAN MOBILITY

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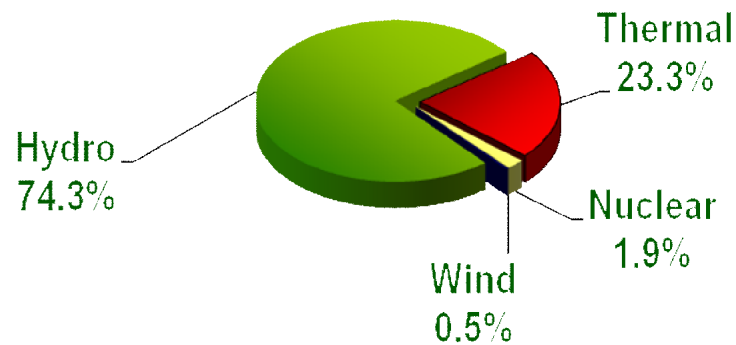
# ELECTRIC POWER

## GENERATION AND TRANSMISSION



# ELECTRIC POWER SYSTEM – GENERAL FEATURES

Installed Capacity – 105,066 MW



- Number of Customers – 64.6 million
- Energy Production – 463.2 TWh / year – 60% of South America
- Peak – 67,632 MW

• Transmission Lines – 96,207 km 230kV



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# ELECTRIC POWER GENERATION

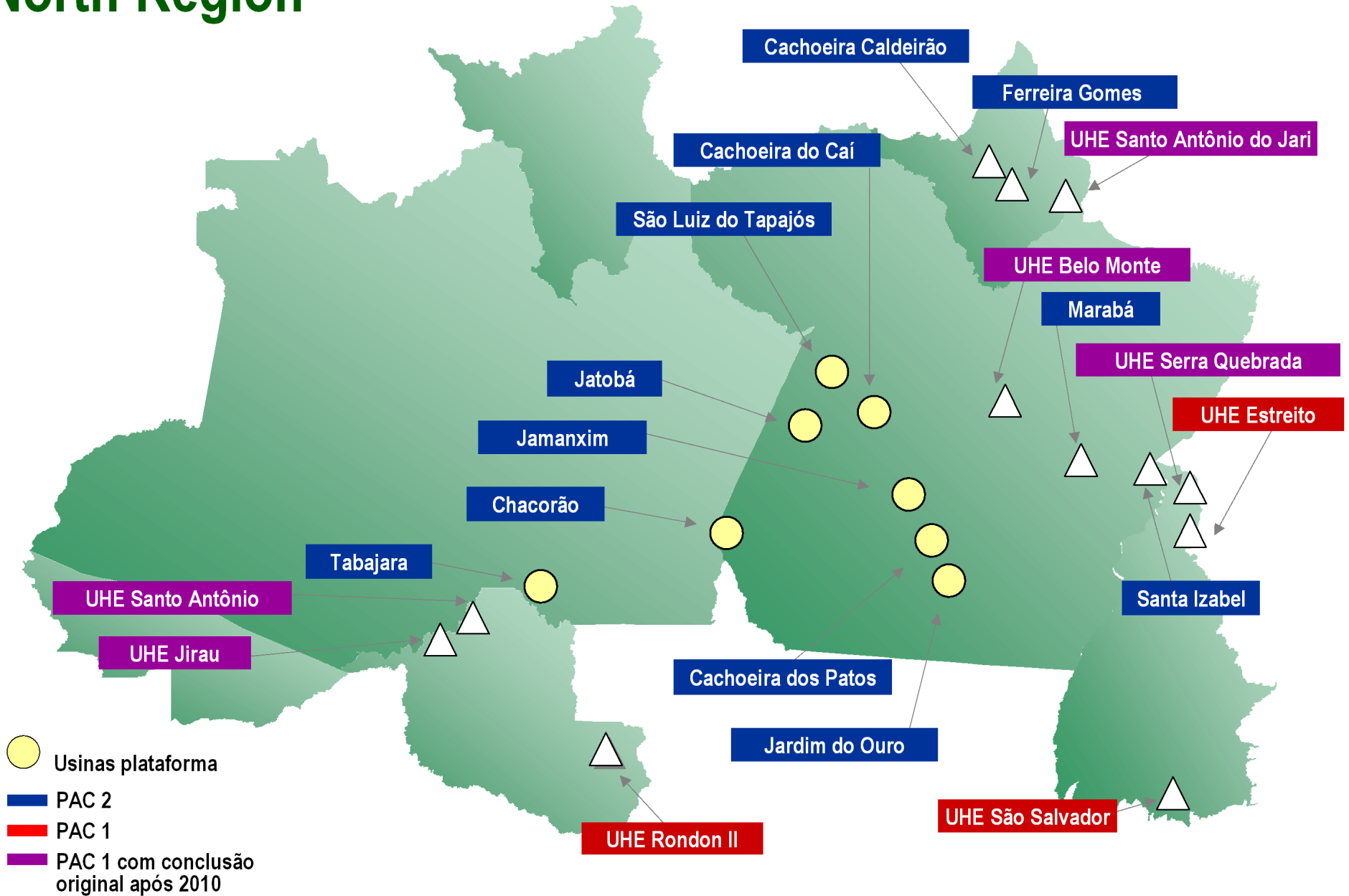
2011-2014

54 HPP – 47.856 MW – US\$ 54,8 billion

- Annual tenders to contract energy in the regulated contracts environment
  - Hydroelectric power plants – energy to be delivered at the fifth year after the tender
  - Thermal power plants and others – energy to be delivered at the third year after the tender
  - Needs previous environmental license to participate
- Tenders planned
  - 2011 → 7 HPP – 1,470 MW – US\$ 2,1 billion – 1<sup>st</sup> half
  - 3 HPP – 1,096 MW – US\$ 1,5 billion – 2<sup>nd</sup> half

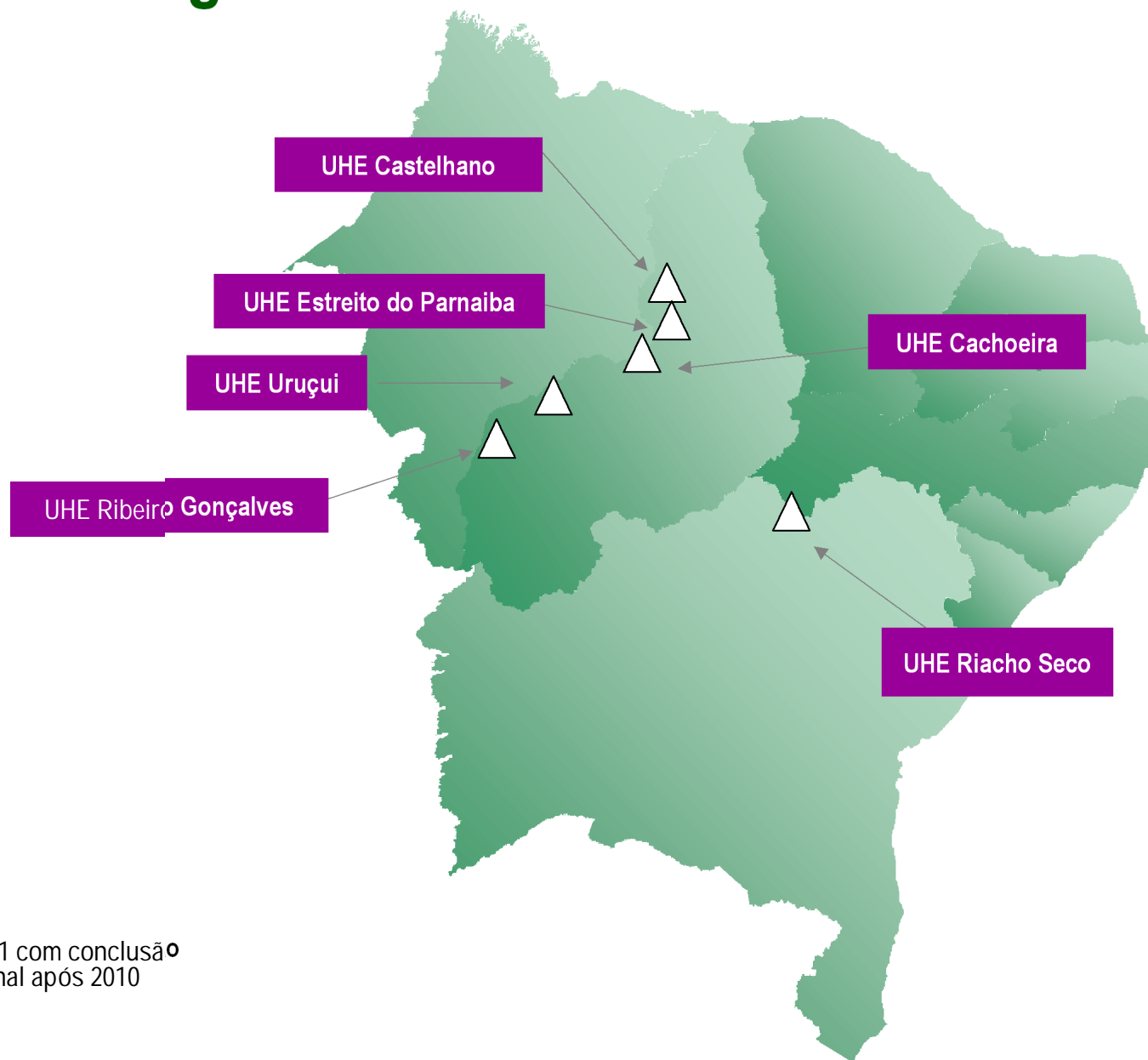
# HYDRIC SOURCES – ELETRIC POWER GENERATION

## North Region



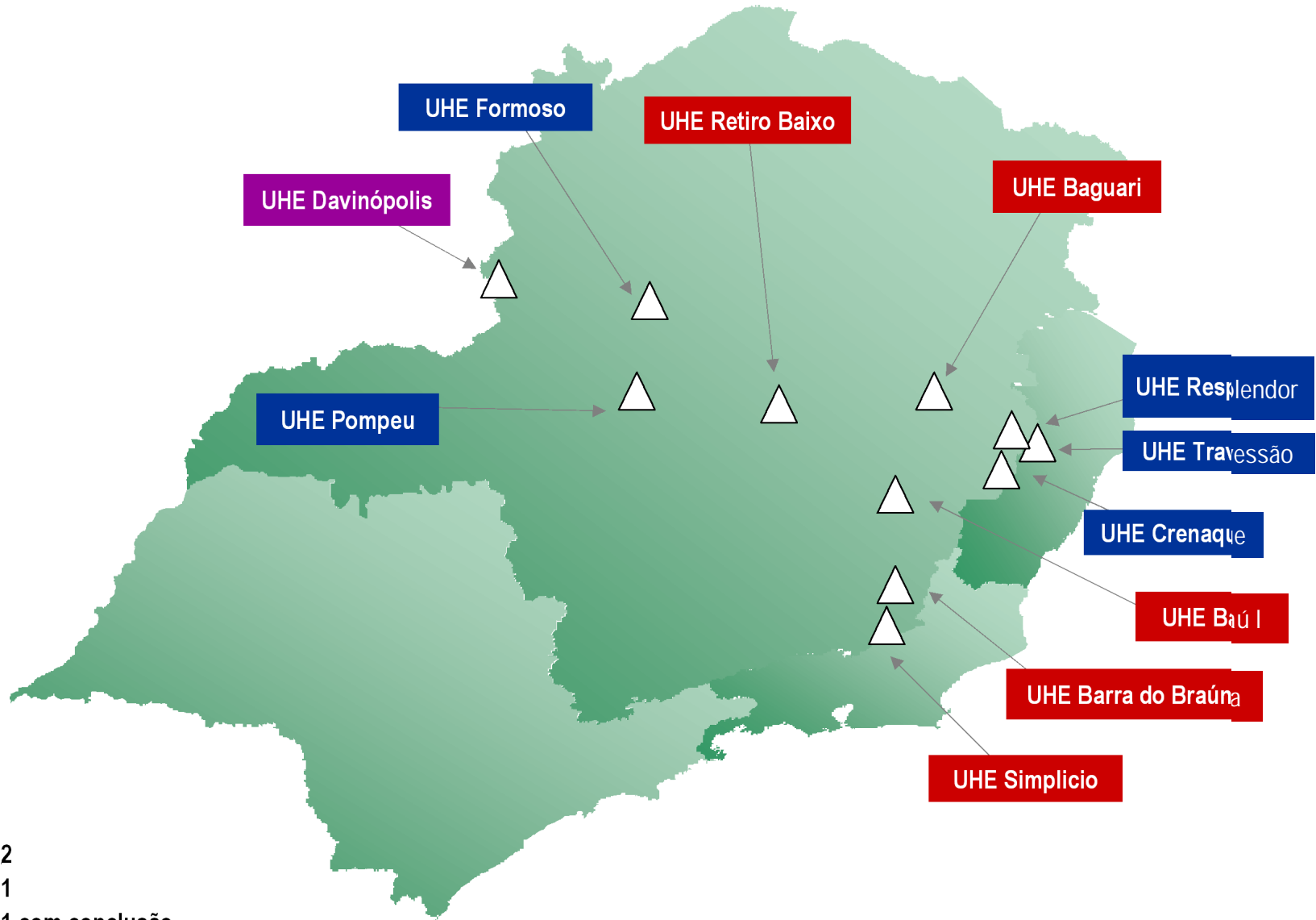
# HYDRIC SOURCES – ELETIC POWER GENERATION

## Northeast Region



# HYDRIC SOURCES – ELETRIC POWER GENERATION

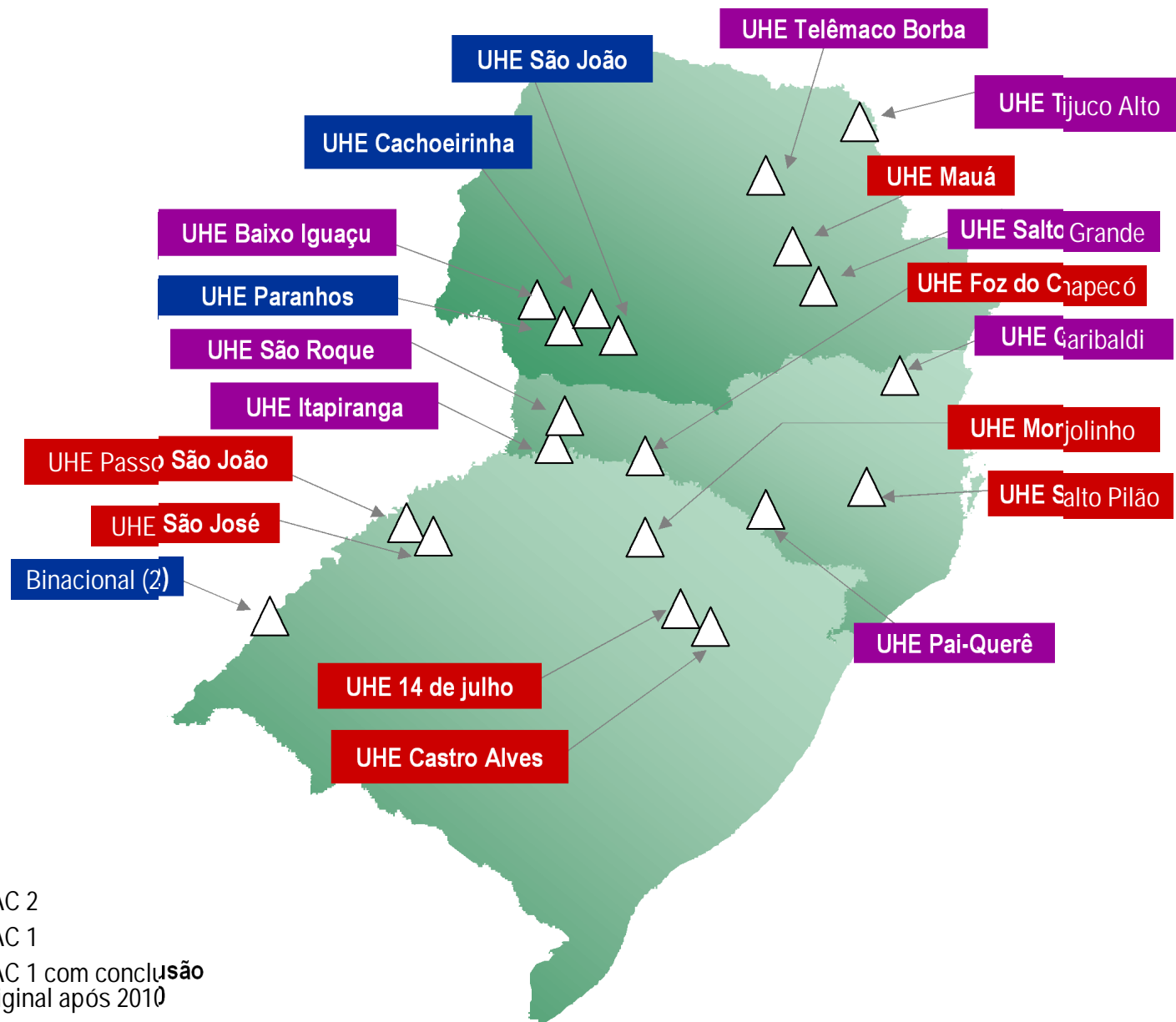
## Southeast Region



- PAC 2
- PAC 1
- PAC 1 com conclusão original após 2010

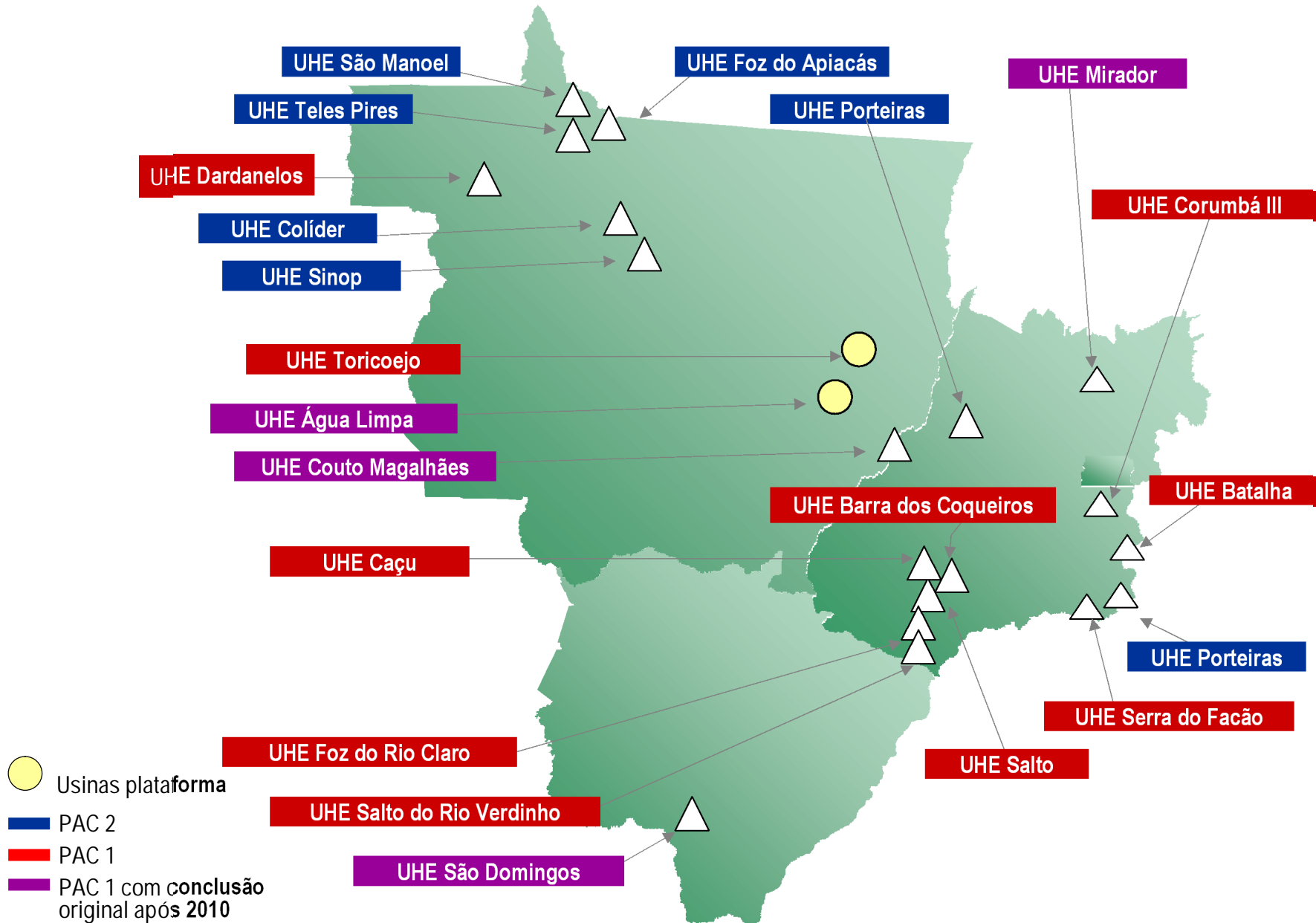
# HYDRIC SOURCES – ELETRIC POWER GENERATION

## South Region



# HYDRIC SOURCES – ELETRIC POWER GENERATION

## Center-west Region



# ALTERNATIVE ENERGY SOURCES

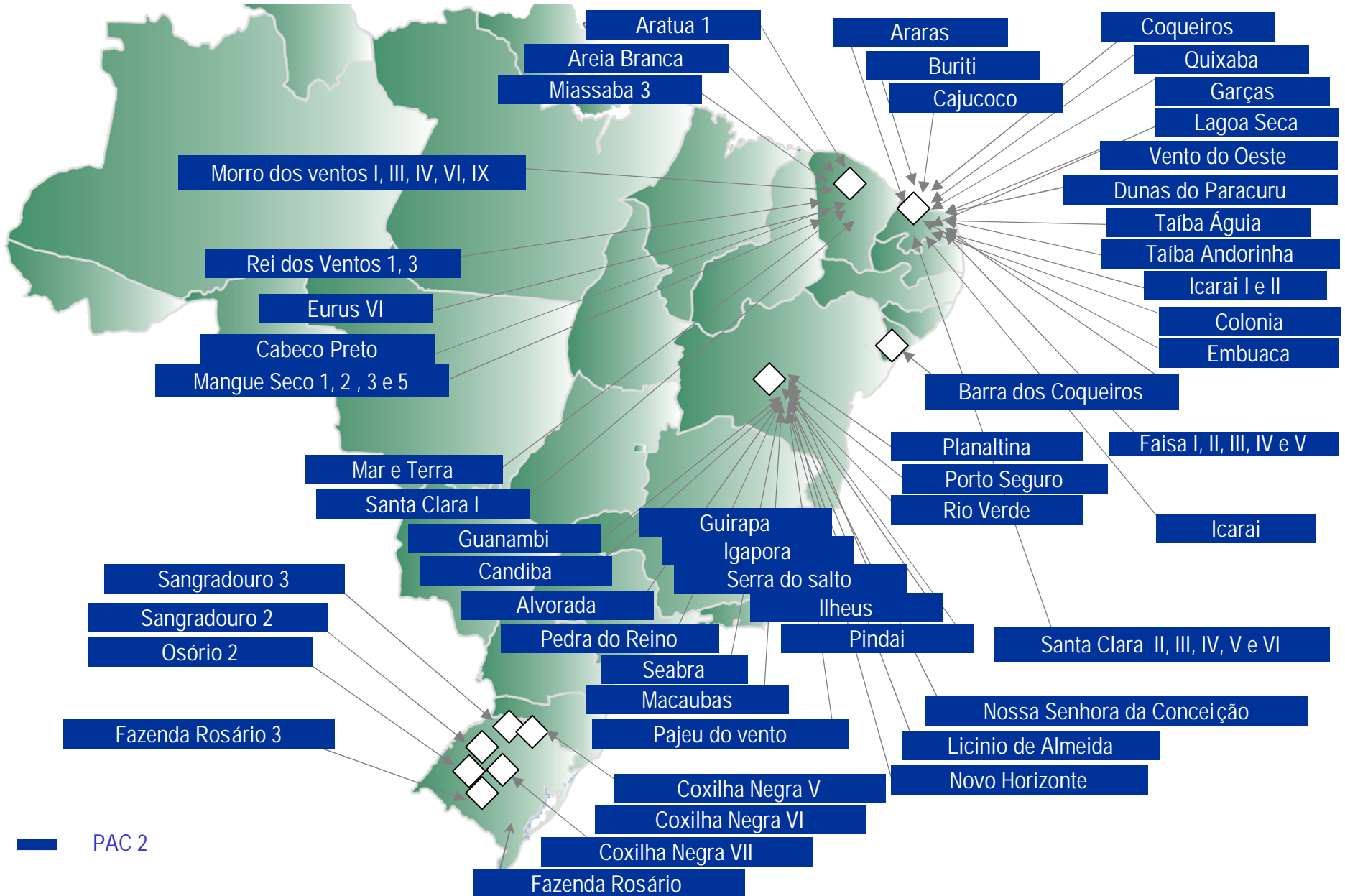
- From 2011 to 2014
  - 71 Wind Power Plants – 1.803 MW
  - 3 Biomass TPP – 224 MW

TOTAL PROJECTED INVESTMENT - US\$ 5.5 billion

New alternative energy sources bidding will be planning annually and added to the programm, according to the energy long-term plan

# Alternative Energy Sources

## Wind Power





# ELECTRIC POWER TRANSMISSION

## ➤ Large interconnections

- To provide greater security and reliability to the electric power supply
- To complete the interconnection of the Isolated Systems to the National Interconnected System
- To ensure the energy flow from large hydropower projects – Belo Monte, Tapajós and Teles Pires
- To meet the expanding demand in all country regions

## ➤ Tenders planned

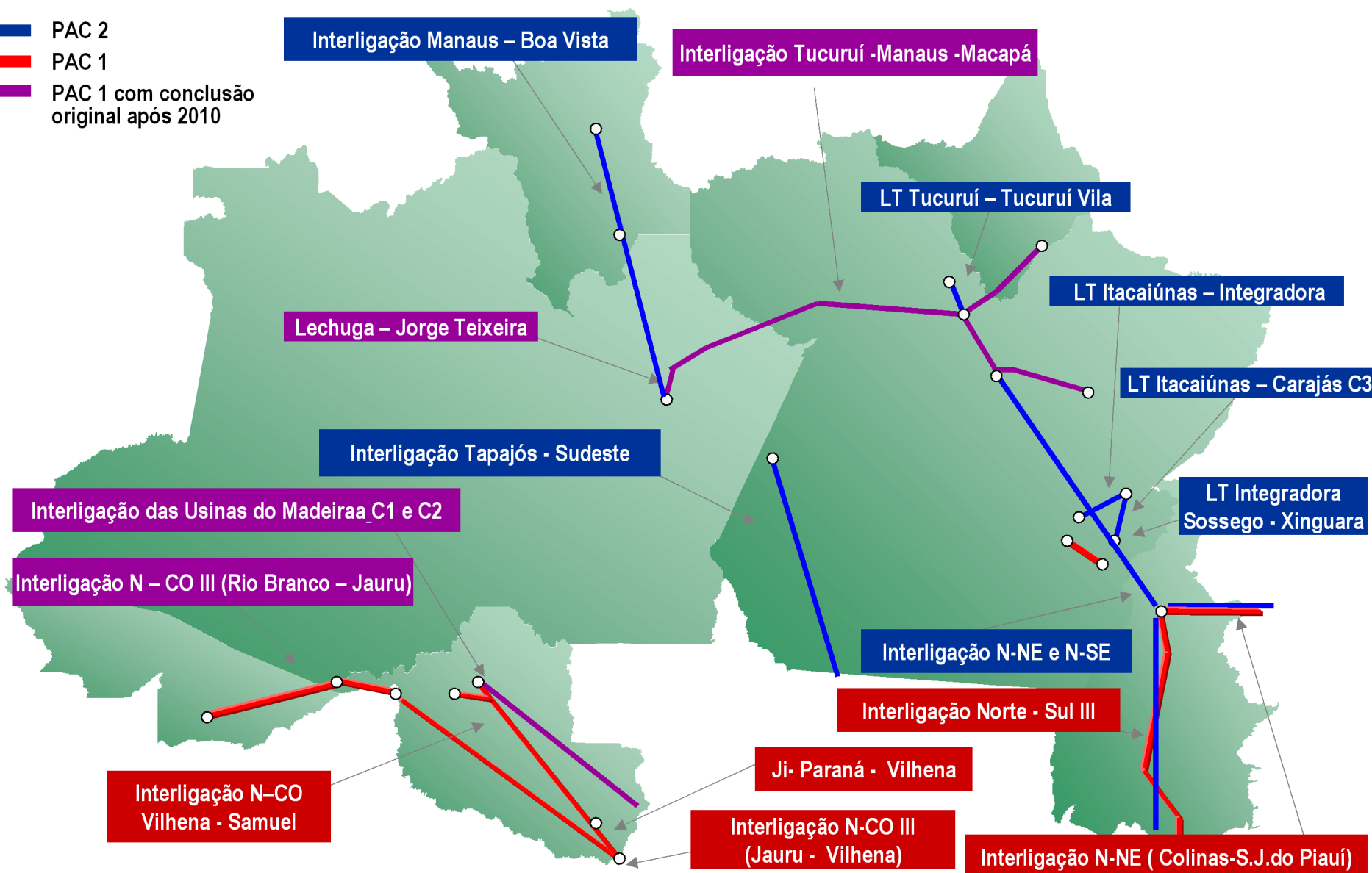
2011  615 km – US\$ 553 million – 1st half 2010

2011-14  36,000 km – US\$15.6 billion

# ELECTRIC POWER TRANSMISSION

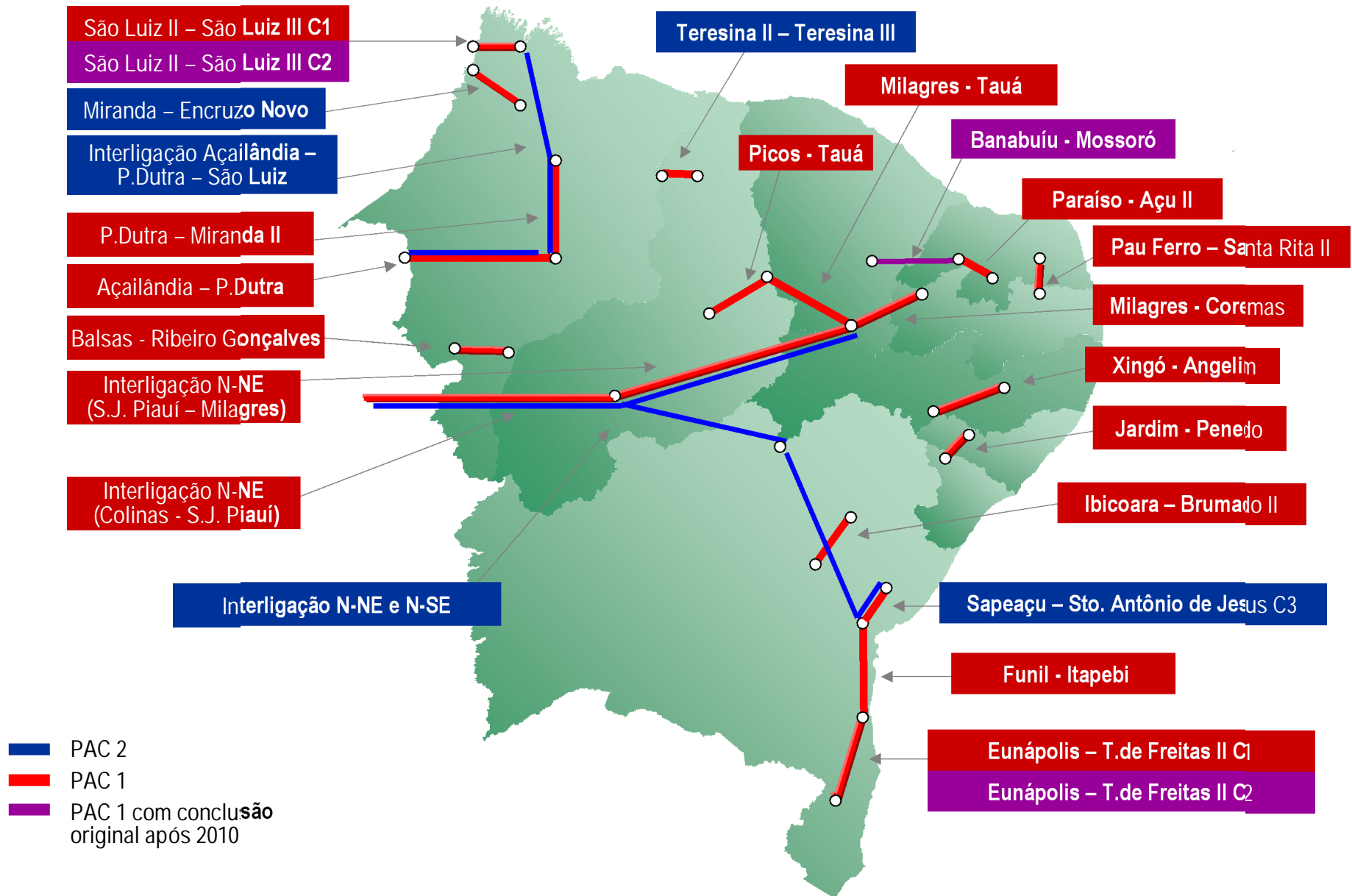
## North Region

- █ PAC 2
- █ PAC 1
- █ PAC 1 com conclusão original após 2010



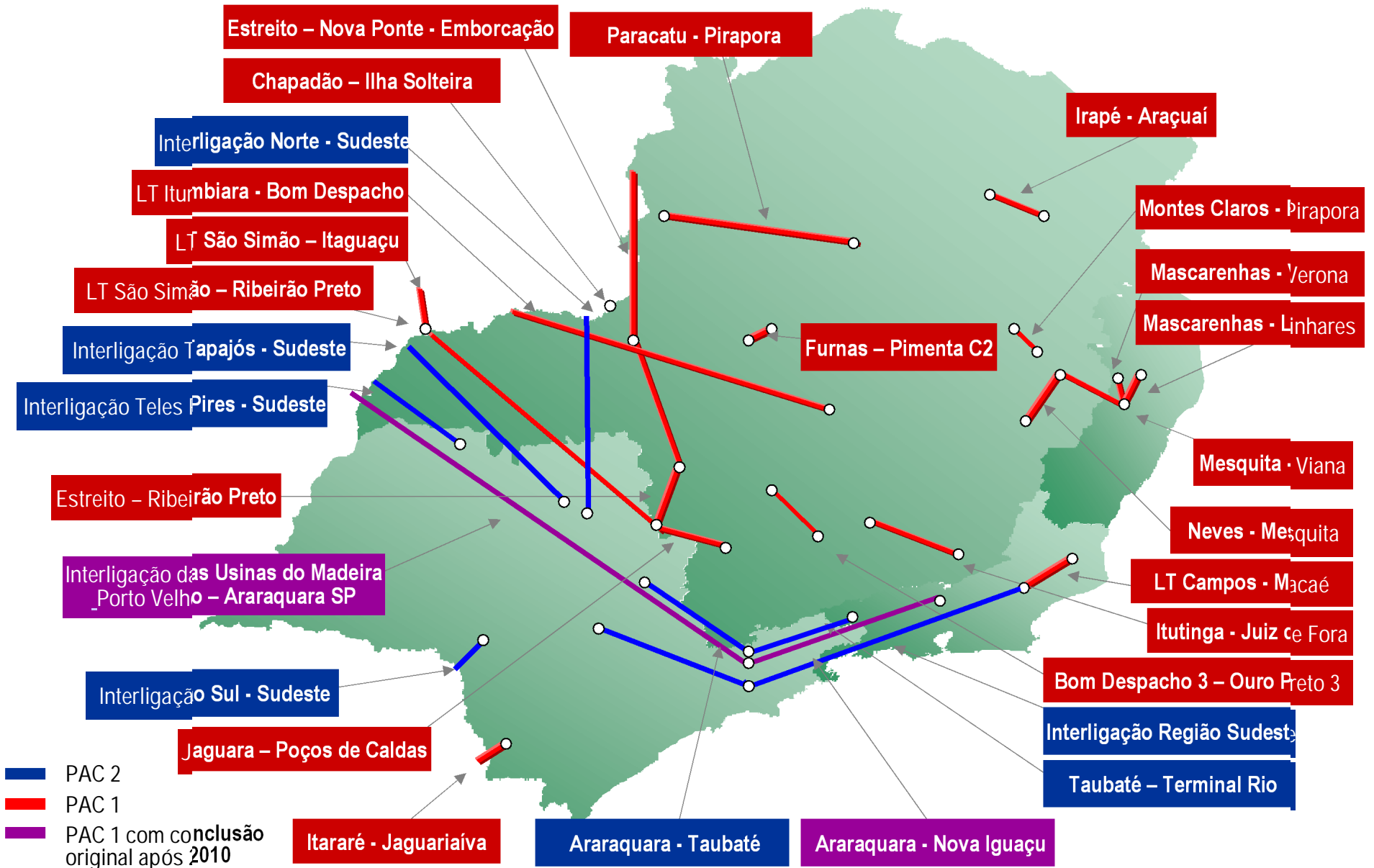
# ELECTRIC POWER TRANSMISSION

## Northeast Region



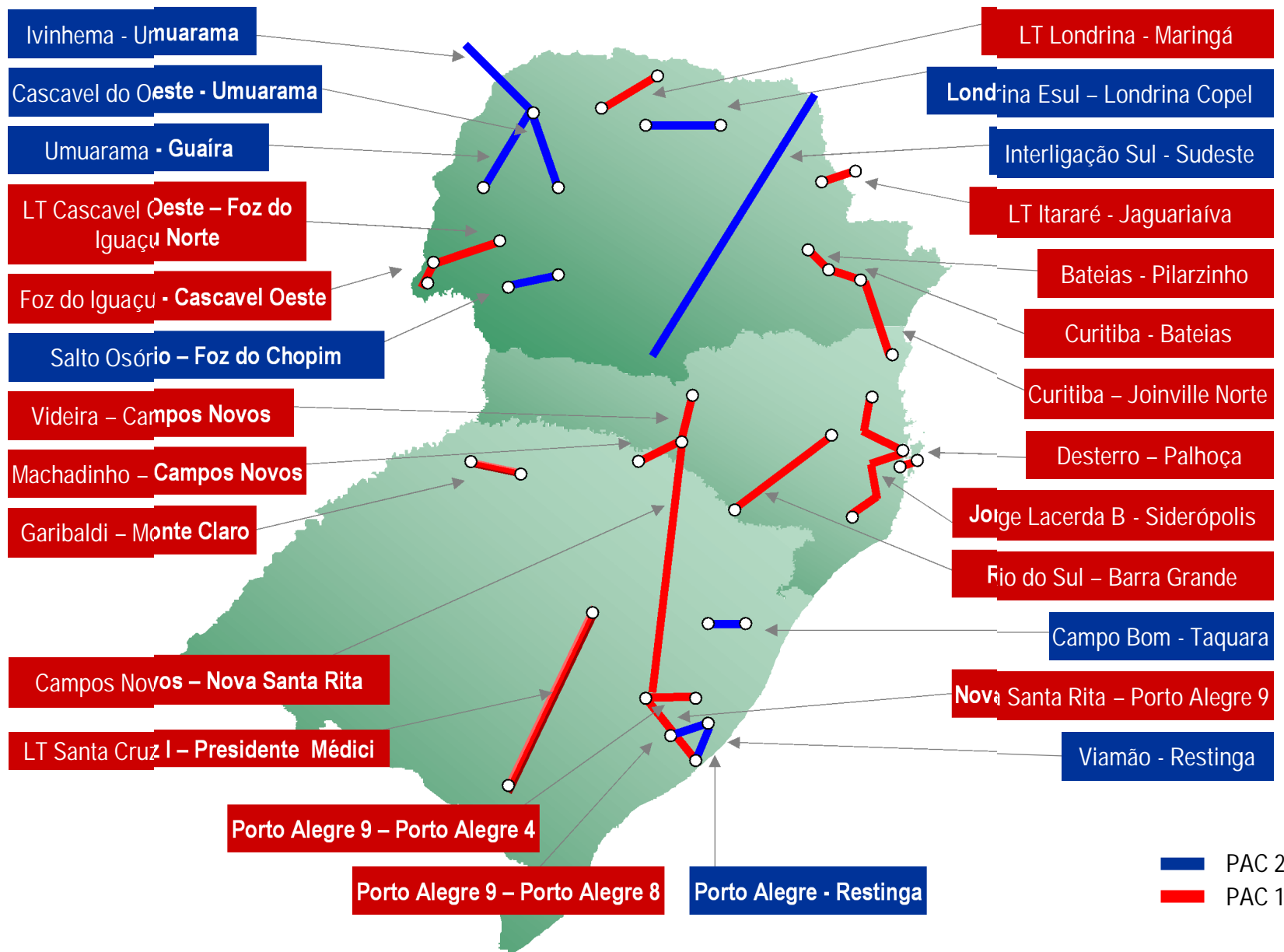
# ELECTRIC POWER TRANSMISSION

## Southeast Region



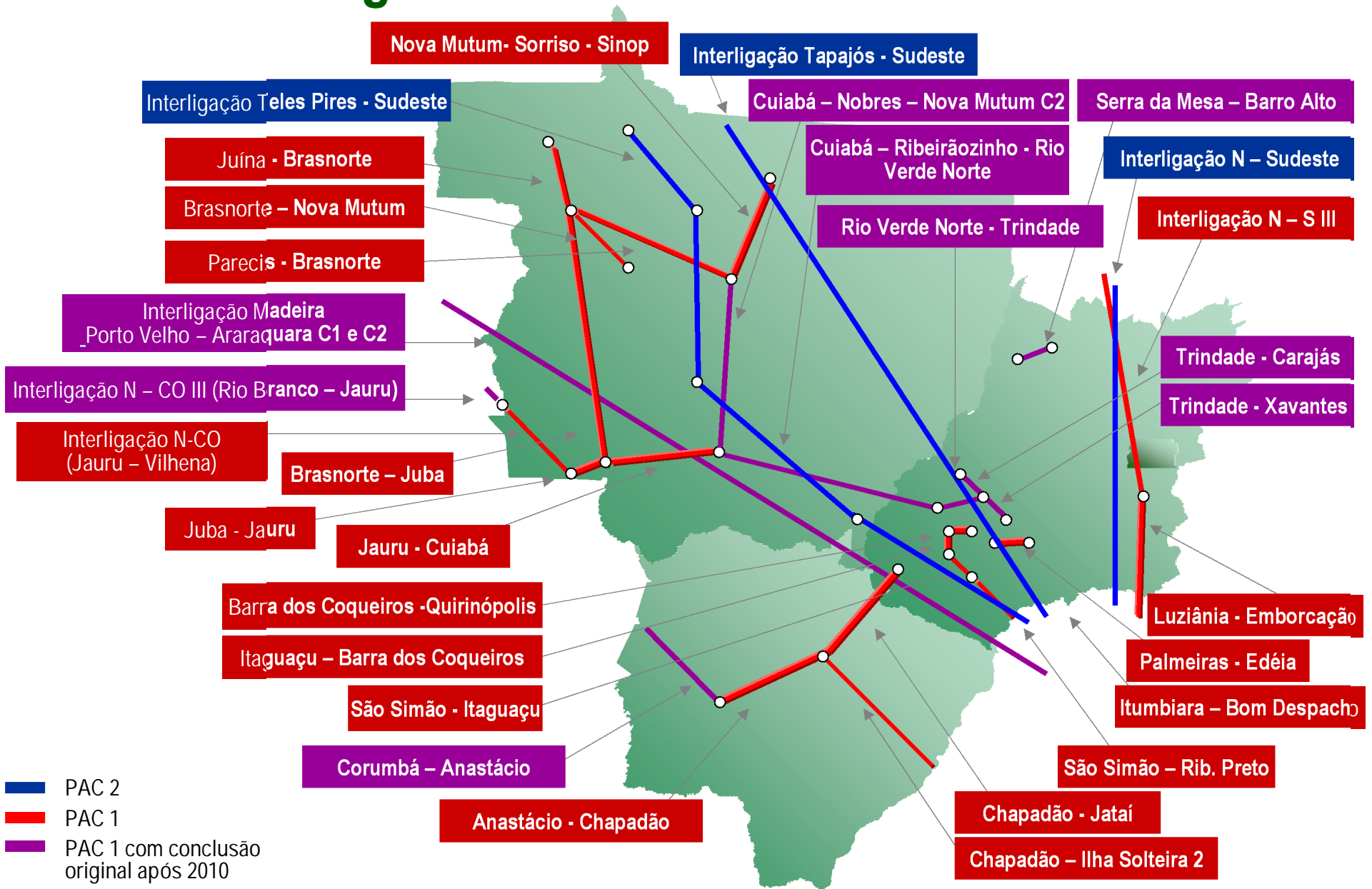
# ELECTRIC POWER TRANSMISSION

## South Region



# ELECTRIC POWER TRANSMISSION

## Center-east Region



# OIL AND GAS

Exploration, Production and Natural Gas Transport Infrastructure



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# PRODUCTION AND EXPLORATION

## Increase oil and gas production

Seismic assessment, drilling, platform production



- To explore the reserves and enlarge national production, including the new Pre-Salt discoveries
- Value chain: naval industry; mechanical engineering, steel, chemical, precision engineering among other

US\$ 418,5 billion  
2011-2014 – US\$ 110.4 billion  
Pós 2014 – US\$ 308 billion



# PRODUCTION AND EXPLORATION – Pré-salt level



Bacia de Santos

TLD Tupi

Piloto Tupi

Piloto Guar

8 FPSO

Piloto - Tupi  
Nordeste

Bacia de Campos

Parque das Baleias – P-57 e P-58  
Baleia Azul, Jubarte,  
Baleia Franca e Baleia An

Piloto - Baleia Azul

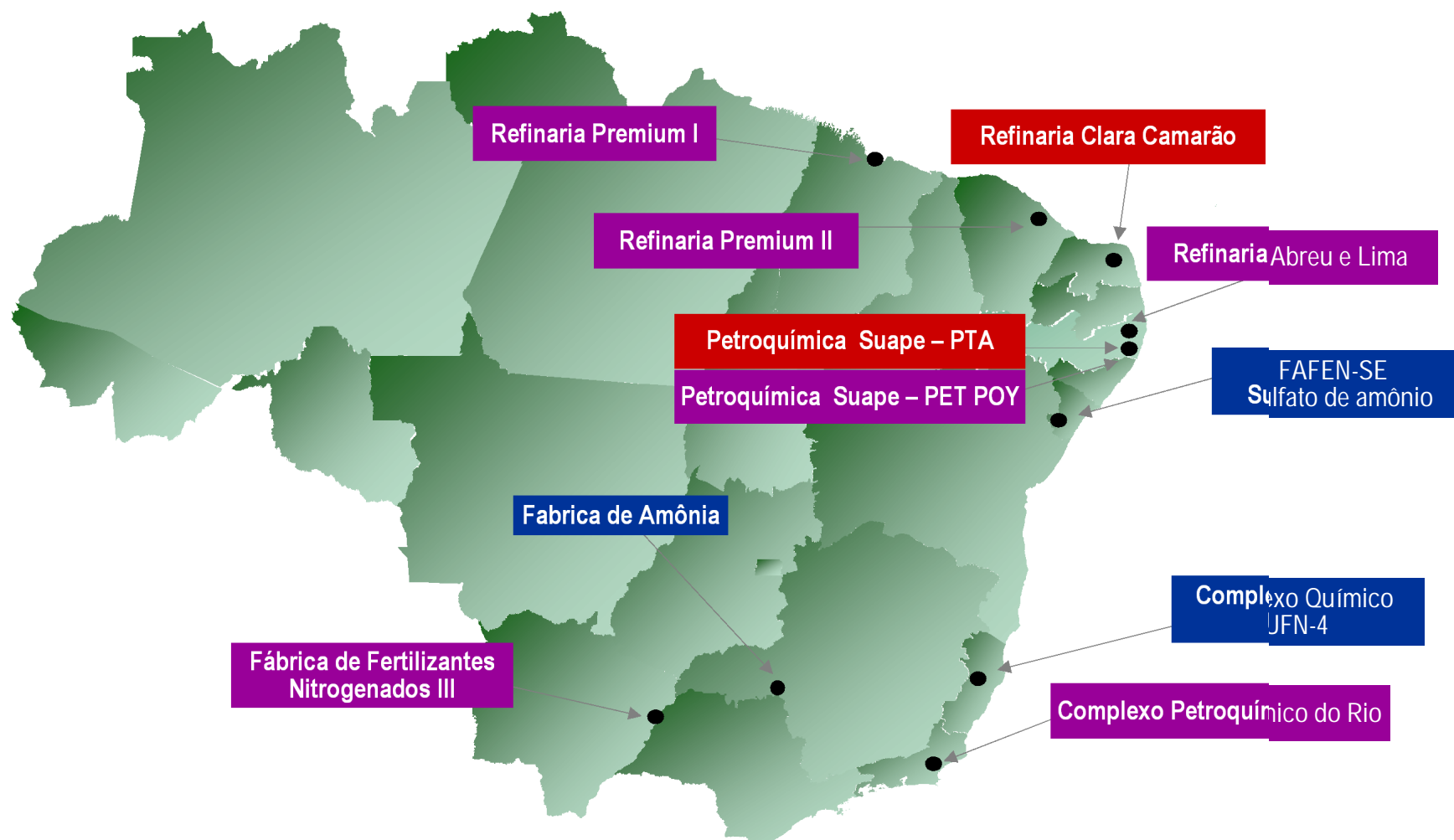
Novas Descobertas  
Explorao Pr-Sal

Pr - Salt  
17 TLD´s

- PAC 2
- PAC 1
- PAC 1 com concluso original aps 2010

**US\$ 73.9 billion**  
 2011-2014 – US\$ 37.9 billion  
 Ps 2014 – US\$ 61.2 billion

# REFINEMENT, PETROCHEMESTRY and FERTILIZER



**US\$ 76.6 billion**

2011-2014 – US\$ 41,8 billion

Pós 2014 – US\$ 34,71 billion

- PAC 2
- PAC 1
- PAC 1 com conclusão original após 2010

# HIGHWAYS

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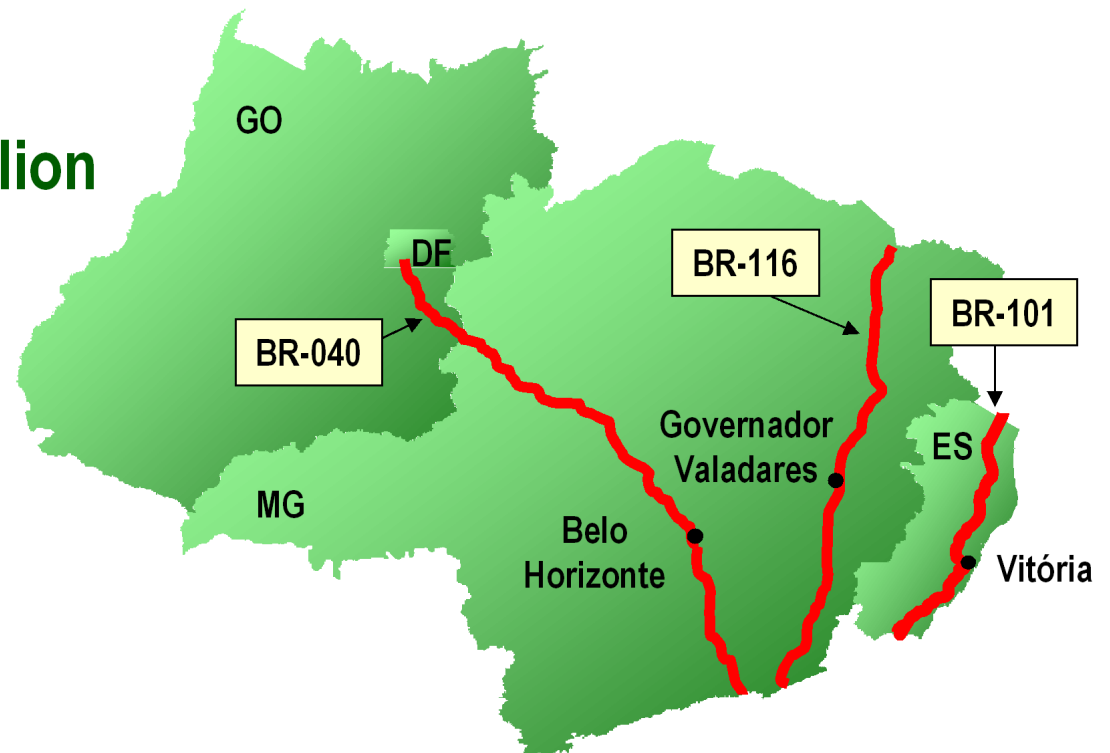
# FEDERAL HIGHWAY CONCESSION PROGRAM

Central-South Region  
54% of Brazil's GDP

Length: 2,212.4 km

- BR-040/Distrito Federal-Goiás-Minas Gerais – 937 km
- BR-116/Minas Gerais – 817 km
- BR-101/Espírito Santo – 458.4 km

Total Investment: US\$ 5.5 billion



Concession bidding  
1<sup>st</sup> Half, 2011

# CONCESSION MODEL

Internal Rate of Return: 8.0% per year

- Reference value used on the 3<sup>rd</sup> Phase of the Federal Highway Concession Program

Term of Concession: 25 years

Annual tariff adjustment according to inflation variation

Investments described in the Highway Usage Program

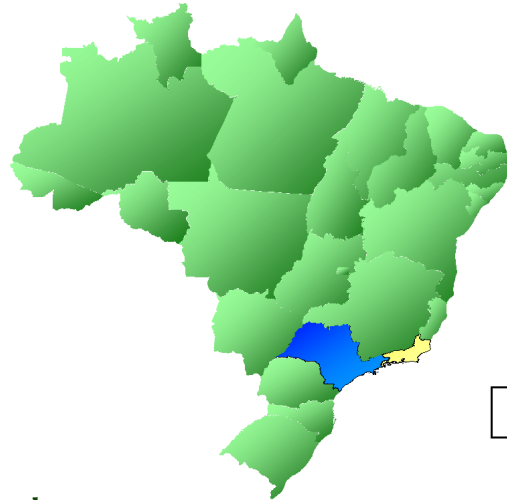
- Constructions required (recovery, duplication, lighting, and others)
- Constructions conditioned to the volume of traffic (to expand capacity)
- Performance Parameters: paving, safety, signage, lighting, user assistance, and others.

Focus on service quality

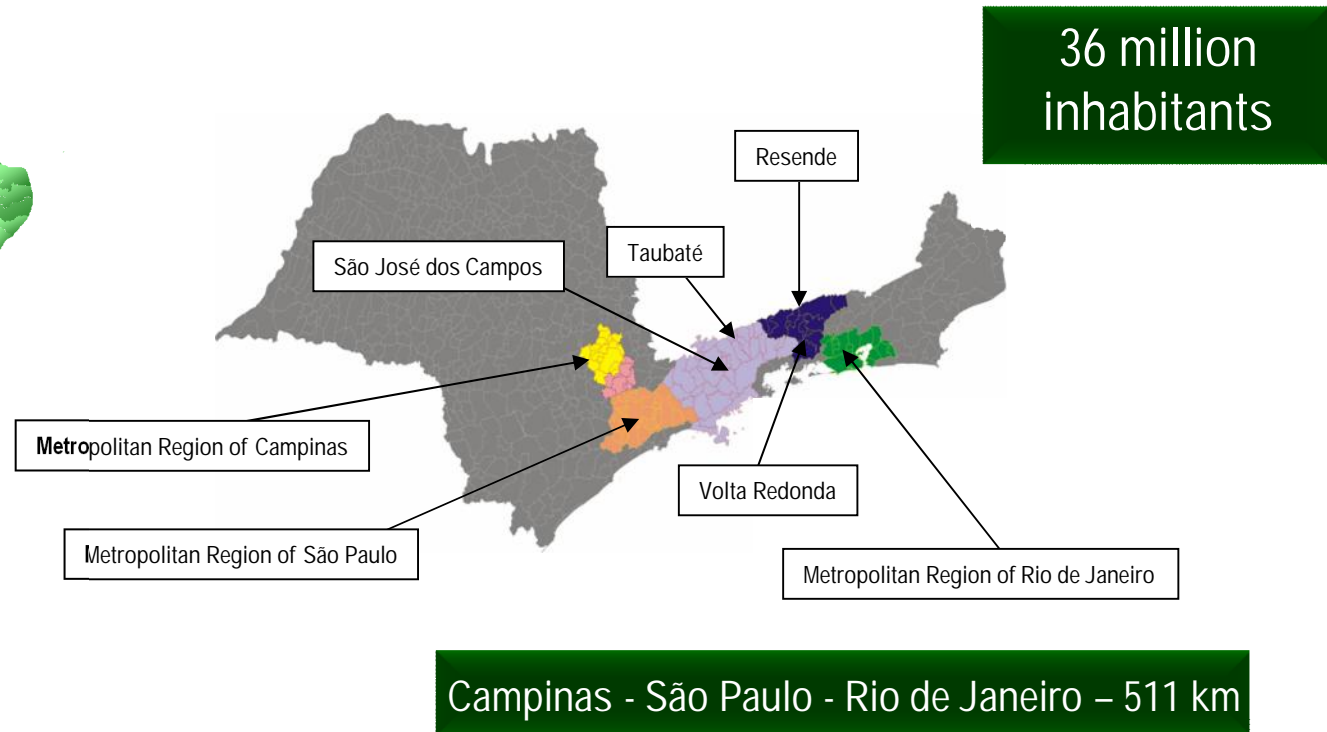
Concessionaire performs the necessary investments in the most efficient way to meet the Performance Parameters

\*Allows the participation of Brazilian or foreign companies, financial institutions, pensions funds and private equity funds, separately or in consortiums

# HIGH-SPEED RAILS PLANNED



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## Market Potential

- Metropolitan Region of São Paulo: 19 million inhabitants
- Metropolitan Region of Rio de Janeiro: 12 million inhabitants
- Metropolitan Region of Campinas: 2.5 million inhabitants

## Economic Importance

- Rio de Janeiro and São Paulo States concentrate 45 % of Brazil 's GDP
- São Paulo is Latin America's biggest financial center, concentrating 70% of t he stock market
- Rio de Janeiro is the biggest Brazilian tourism hub

# HIGH-SPEED RAIL – HSR

## Project scope

- Estimated investment: US\$ 19.7 billion
- Deadline for entry into operation: 2016

Concessionaire responsible for the design, construction, operation and maintenance, complying with technical performance parameters;

Auction to be open to all existing technologies

Compulsory technology transfer

Public sector participation: own capital and financing

Documentation available at [www.tavbrasil.gov.br](http://www.tavbrasil.gov.br)

- Technical studies on demand, alignment, geology, operation and economic-financial modeling completed and available



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