

# RNP Update

South American Astronomy Coordination Committee (SAACC)

**RNP Brazilian Academic NREN**

Rede Nacional de Ensino e Pesquisa (RNP)  
Research and Development Directorate - DPD

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AMLIGHT SAACC Virtual Semi-Annual Meeting – Monday, April 11th, 2016

# Planned Backbone

## Northeast and Southeast

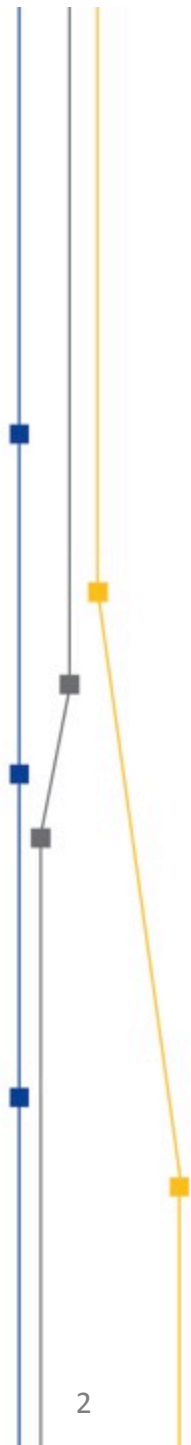
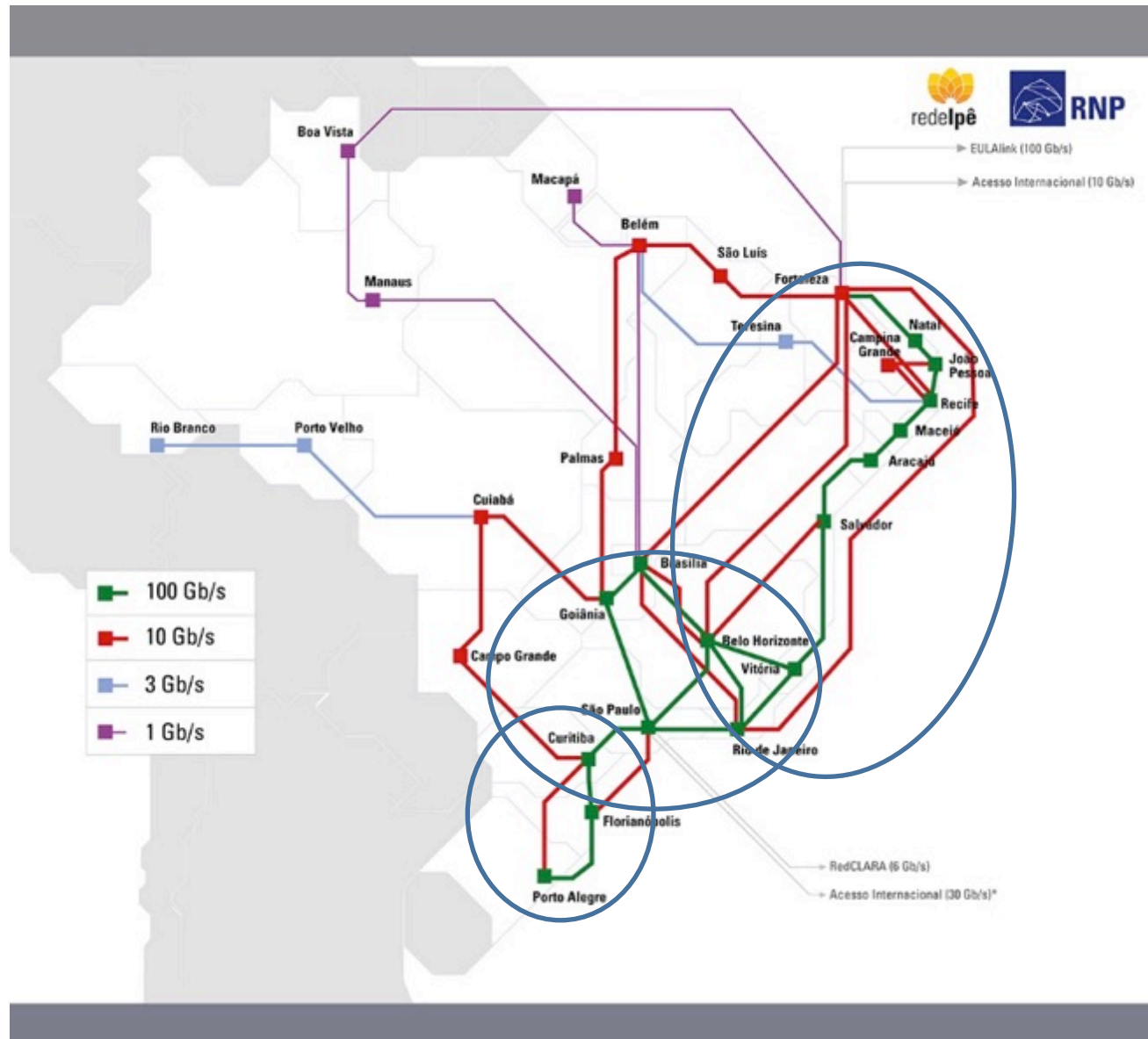
- CHESF
- Aloo Telecom
- BRFibra

## Southeast and West Center

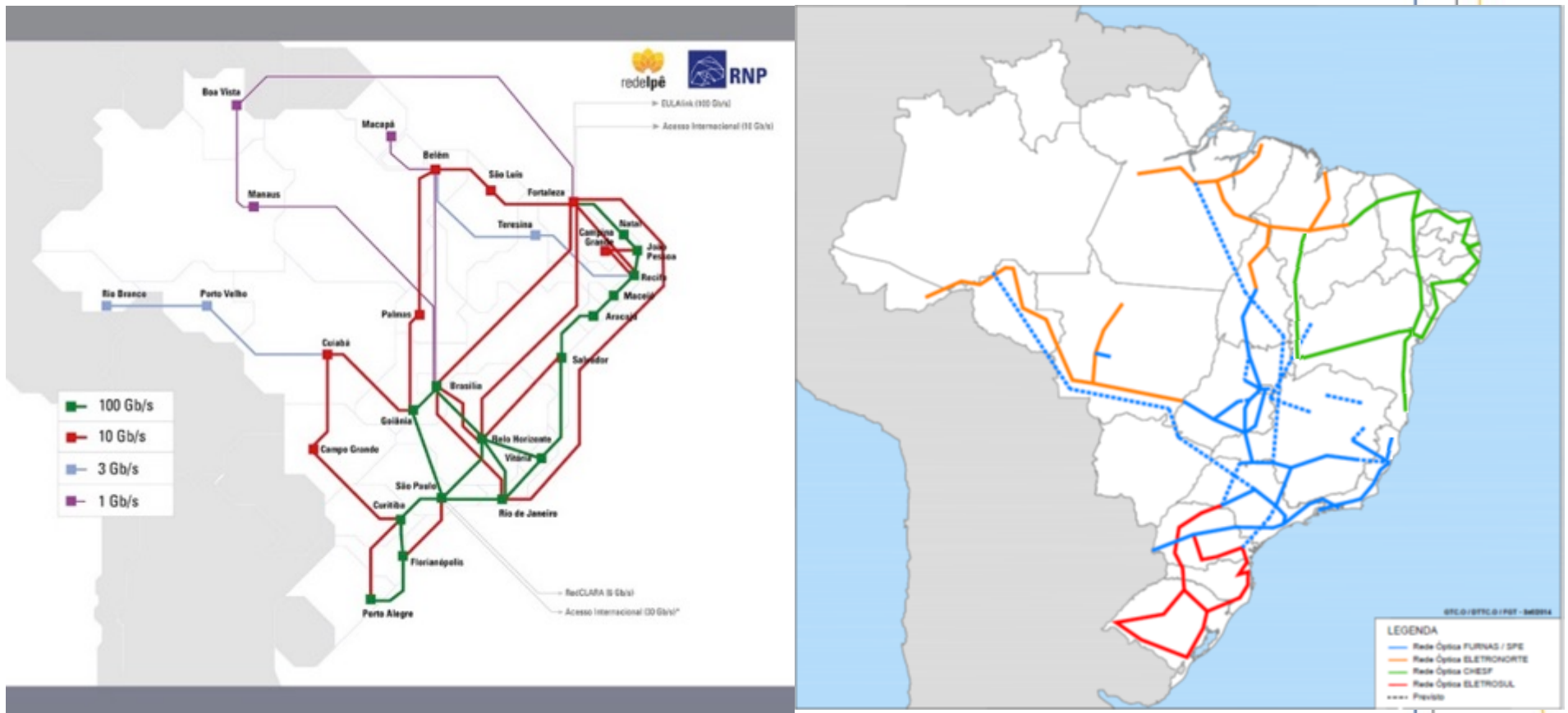
- Furnas

## South

- Furnas
- Eletrosul (?)
- BRFibra (?)
- SouthTech (?)

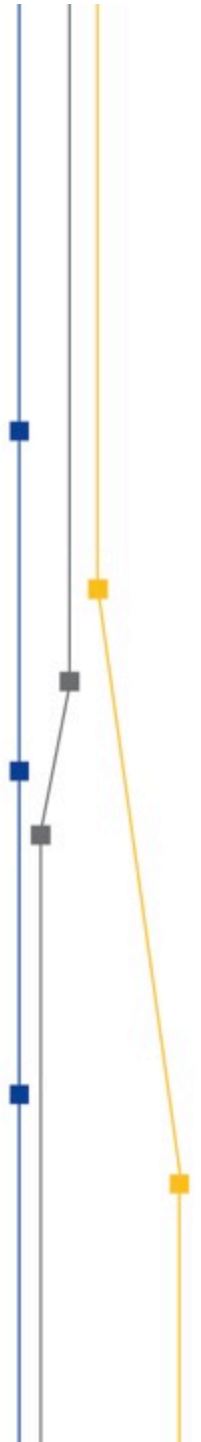


# Backbone RNP Backbone x Eletrobrás System



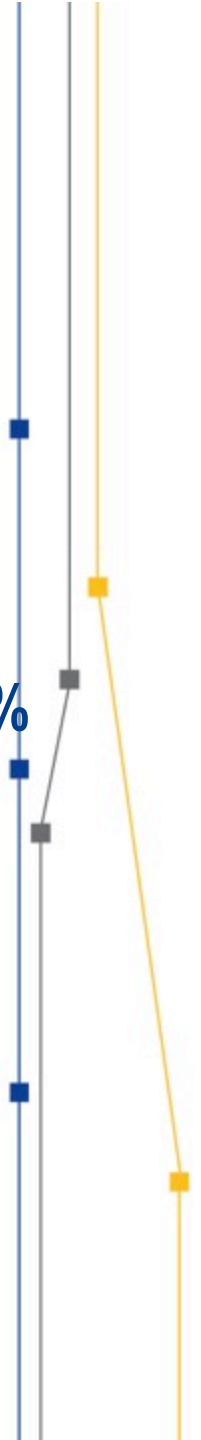
# Why the Electrical Grid System?

- **Investments in a Public Company**
- **Unused fiber optic capacity**
  - Optical fibers available in companies backbone (former Eletronet)
- **Network Capilarity**
  - Covers all RNP's points of interest
- **New business opportunities**
  - New services by electrical grid companies - Transport in telecom networks as well as utilities (ex.: Eletronorte, Eletrosul)
- **OPGW Fibers**
  - Secure network
  - Already established OEM (Operations and Maintenance)
- **Fortaleza Network Core – Porto Alegre**
  - Eletrosul
  - Chesf
  - Eletronorte

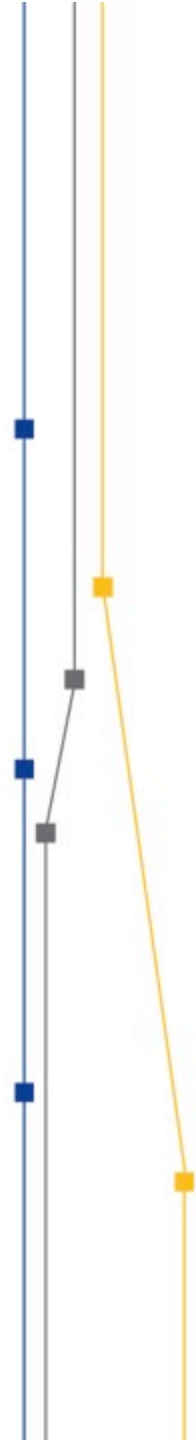
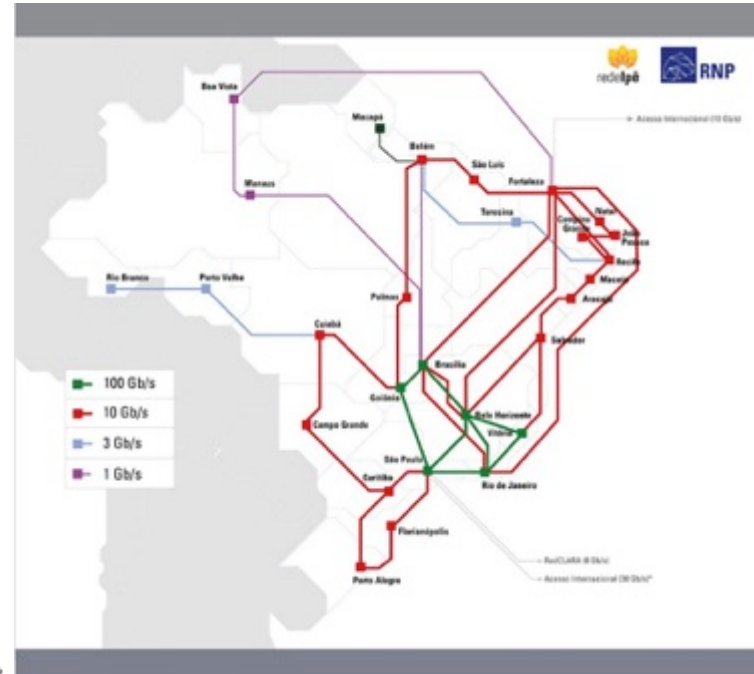
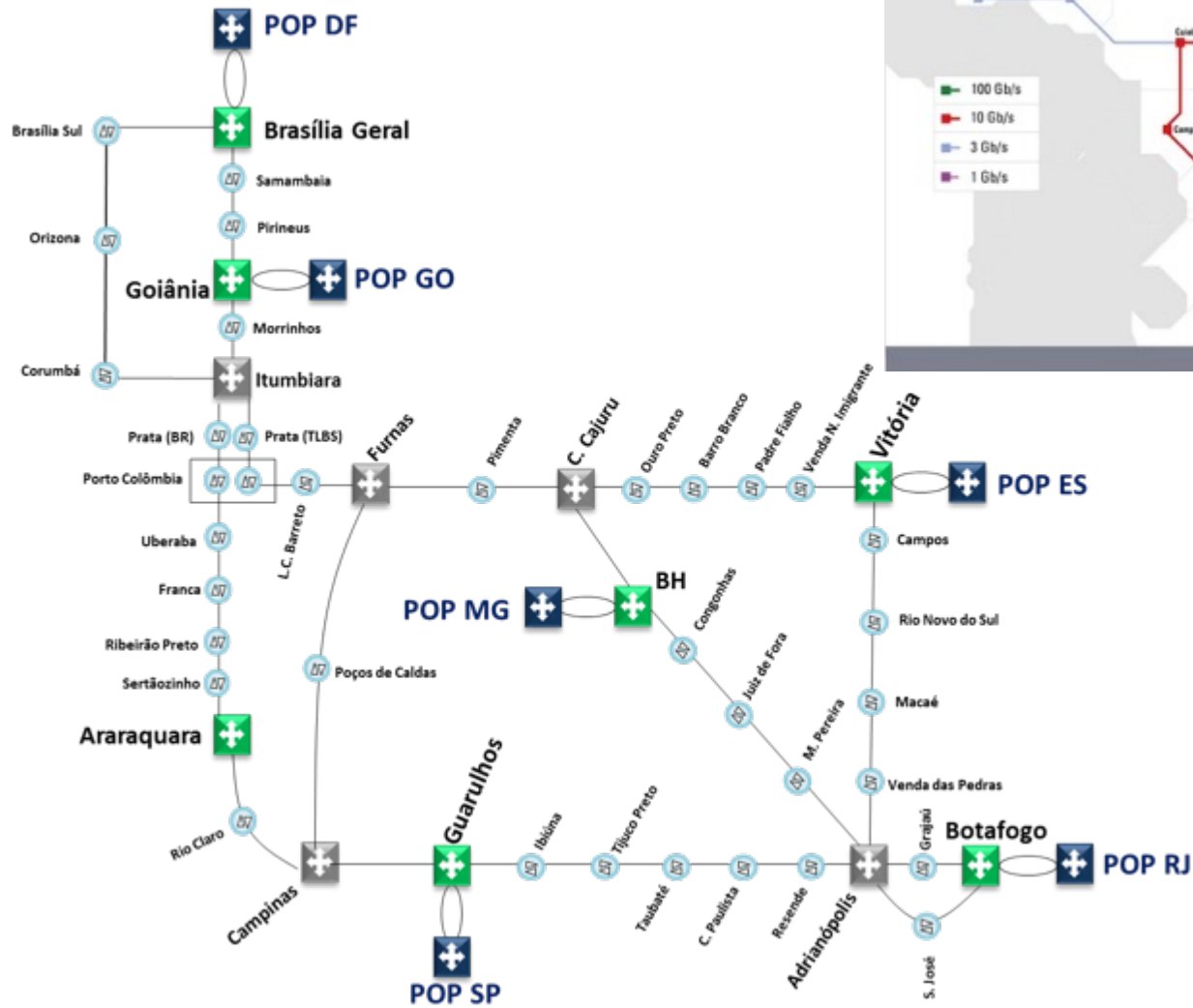


# Proposals

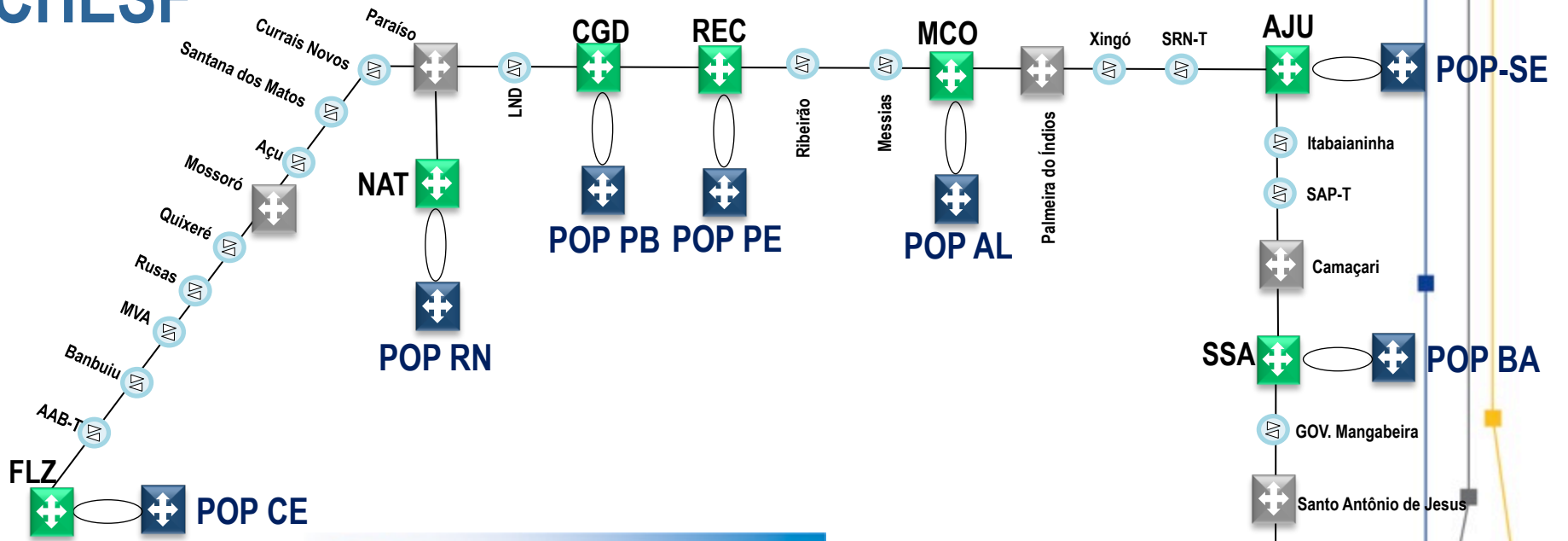
- **Spectrum split: 50% for each partner**
- System supports a minimum of 40x100G
- Opening 1x100G for RNP at RNP PoPs
- Opening 1x100G (10x10 Gb/s) at Furnas PoPs in capitals
- Opening of 1 channel in interior cities and split capacity 50%-50%
- **Partner O&M de responsabilidade do parceiro**
- **Project in phases.** Can be fully deployed in 3 to 4 years



# FURNAS



# CHESF



Furnas/Vitória



# Eletrosul

- Already has na operational backbone
- Network covers South states and the Mato Grosso do Sul (MS) state
- Conects to Furnas in Araraguara e Ivaporã
- Already has a data transport network service





# Cronograma Financeiro

- Annual Project's Costs

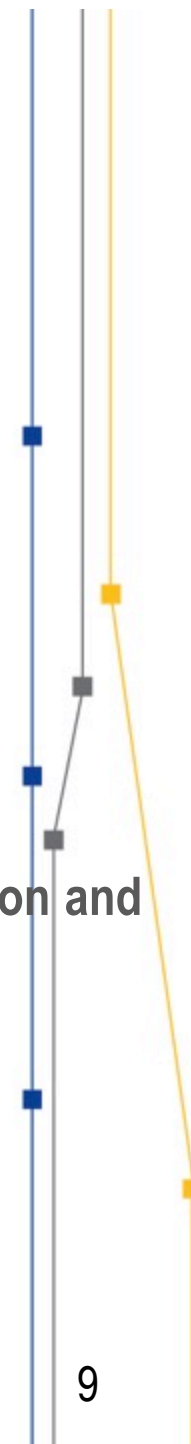
<b>2016</b>	R\$ 26.434.961,79
<b>2017</b>	R\$ 22.926.337,03
<b>2018</b>	R\$ 11.305.878,59
<b>2019</b>	R\$ 6.342.555,87
<b>Total</b>	<b>R\$ 67.009.733,28</b>

- Avoided Annual Costs

<b>2017</b>	R\$ 4.572.415,68
<b>2018</b>	R\$ 4.768.050,48
<b>2019</b>	R\$ 6.113.171,88
<b>2020</b>	R\$ 6.113.171,88
<b>2021</b>	R\$ 6.113.171,88
<b>Total</b>	<b>R\$ 27.679.981,80</b>

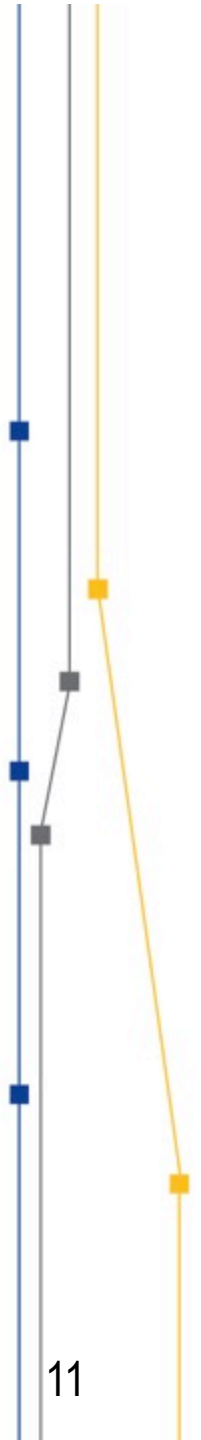
Annual Project's costs includes the necessary financial resources for acquisition and deployment of DWDW equipments for, at least, 40 channels of 100Gb/s each.

Avoided costs are referentes ao que a RNP deixaria de pagar com conexões de instituições clientes ao longo das rotas conforme sua implantação.

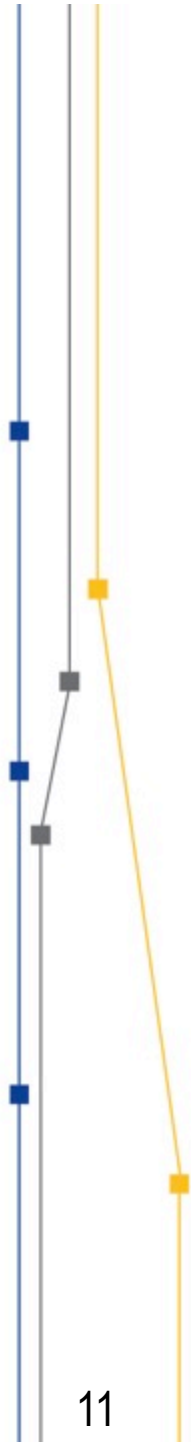


# Update

- **Business**
  - Negotiations
  - Contract minutes and agreements
  - Communication between each partner legal representatives
  - Project presentation to board of directors
  - Procurement for financial resources
  - Signed contracts
- **Technical**
  - RFI for study of providers solutions
  - Public consultation of potential providers
  - Cost estimates
  - Benchmarking
  - RFP

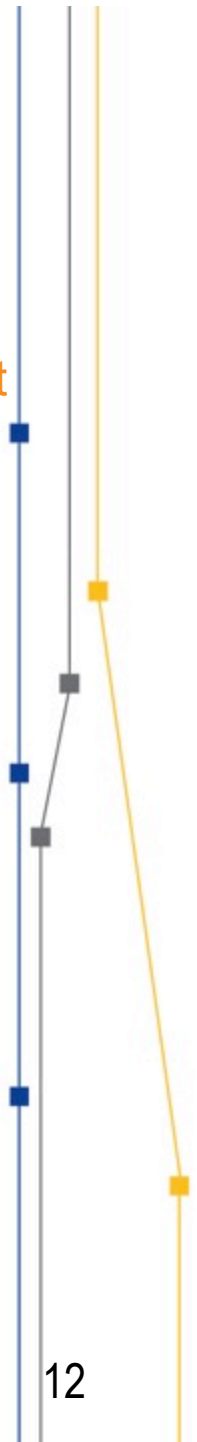


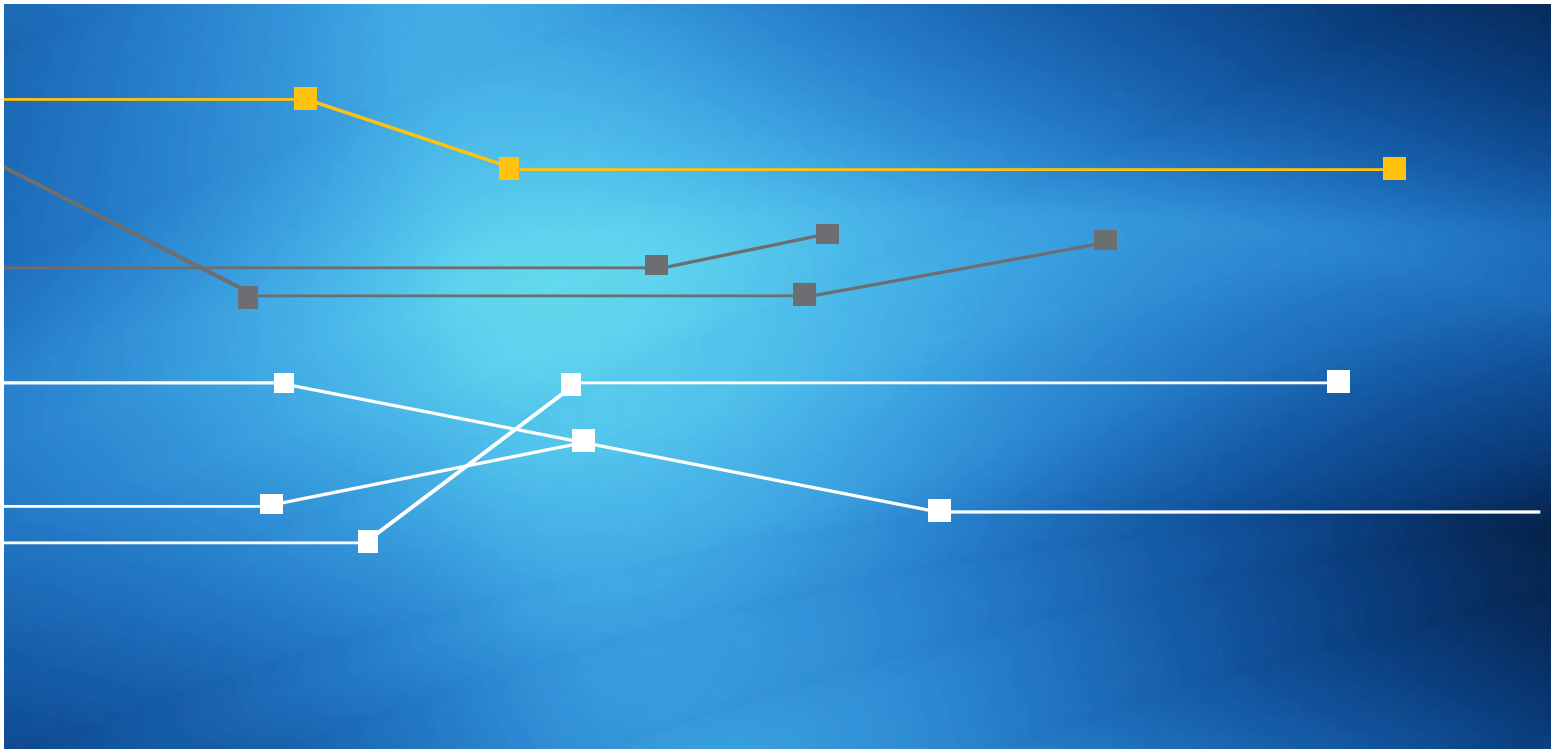
# New undersea cables: 2017-2018



# Conclusion

- **Towards 100G for RNP's Backbone**
  - Tender for backbone segments' tenders (RFIs + RFPs)
  - Partnership between RNP and Eletrobras System Companies would not require RFI / RFP for Project BELLA.
- **TCO\* reduction (\*Total Cost of Ownership)**
  - Fiber swap
  - Investment in Partner Networks in exchange of O&M services
- **Partnerships:**
  - Partnerships with states (companies / IT state companies, State's Secretaries etc)
  - Partnership with local providers and regional networks
  - Partnership with Brazilian Army (Exército Brasileiro, EB)
  - Eletrobras System Companies
    - Partnership: RNP – Furnas
    - EletroSul
    - CHESF
    - EletroNorte





**THANK YOU!**

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