

NTS and the New Gas Market

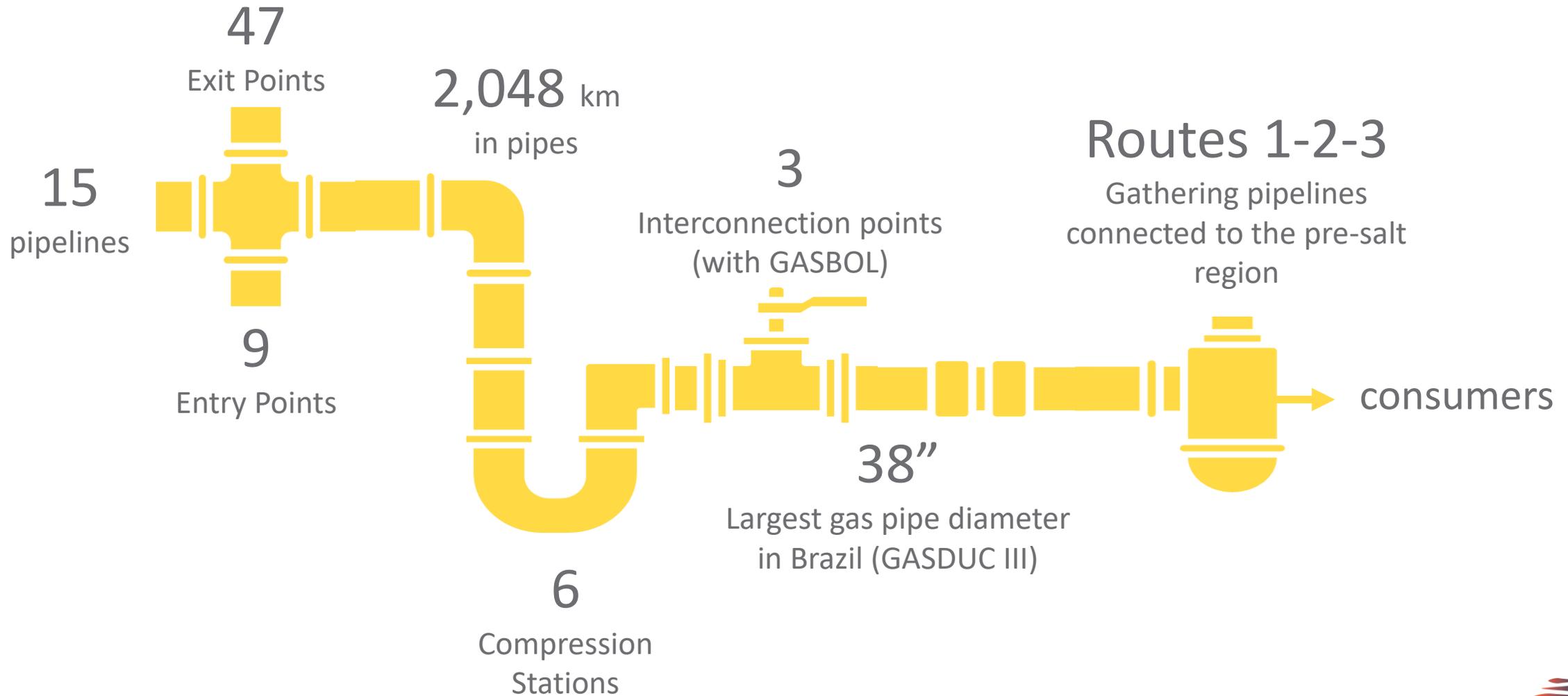
October 22, 2019



Summary

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 - c. Current GTAs
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NTS Network Characteristics

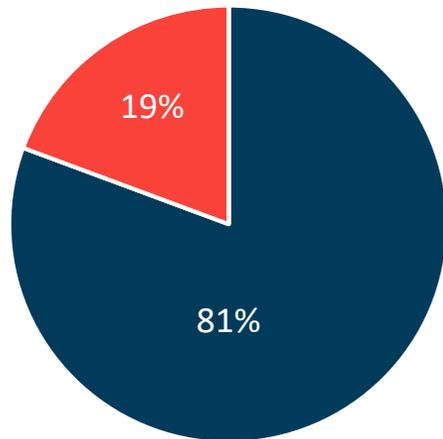


NTS Supply and Demand Profile

NTS:

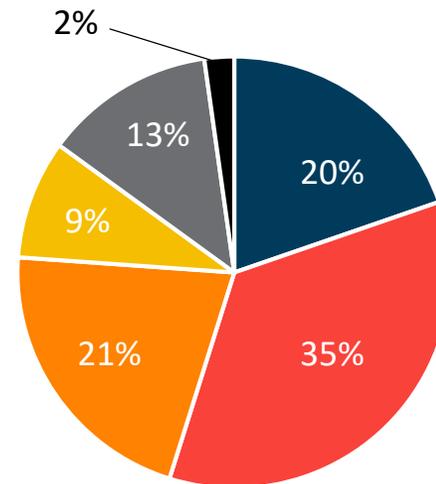
- Transports **48%** of Brazil's natural gas volumes
- Covers the **3** most relevant Brazilian states in natural gas consumption - RJ (Naturgy), MG (Gasmig) and SP(Comgas)
- Fuels **6** refineries – RPBC, RECAP, REVAP, REDUC, REGAP and REPLAN (TBG)

Receipts



■ Domestic ■ Bolivia ■ LNG

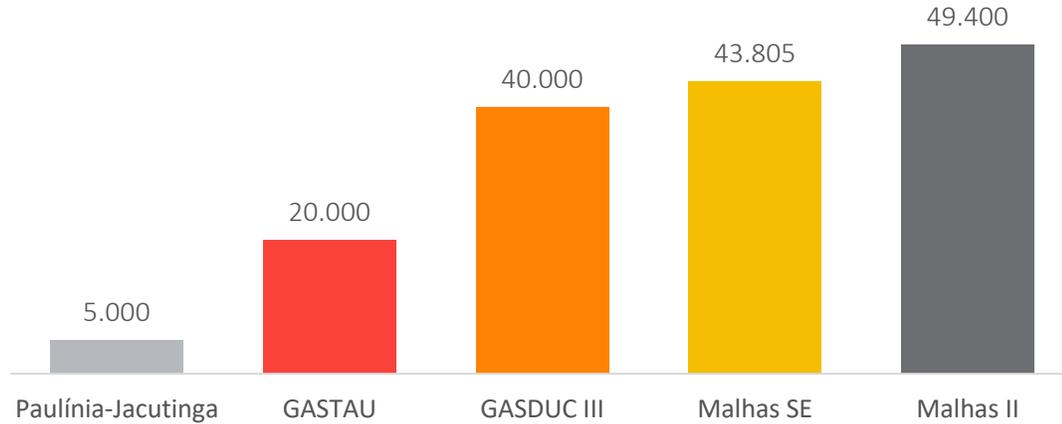
Deliveries



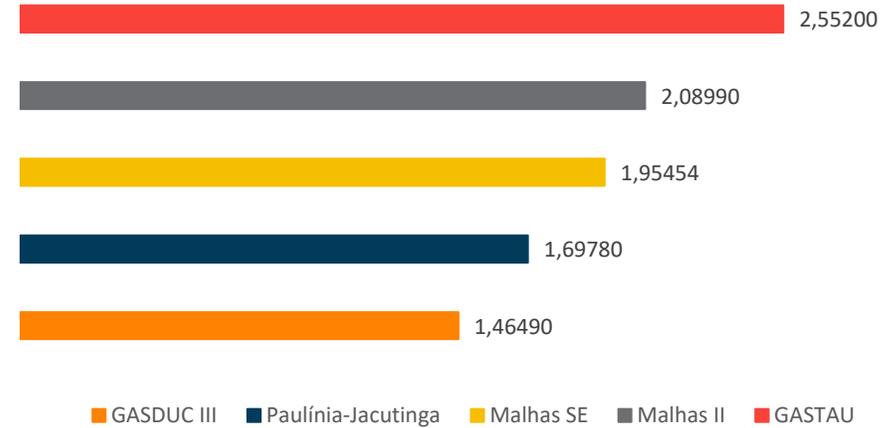
■ NaturgyRJ ■ Naturgy ■ COMGAS
■ GASMIG ■ Refineries ■ TBG

NTS Current GTAs (Gas Transportation Agreements)

Booked Capacity (x 1,000 m³/day)



Total Tariff per GTA (R\$/MMBTU)



| GTA | Shipper | Contract Type | Term (years) | Expiry |
|--------------------|-----------|---------------|--------------|-----------|
| Malhas SE | Petrobras | Firm | 20 | Dec. 2025 |
| Paulínia-Jacutinga | Petrobras | Firm | 20 | Jan. 2030 |
| GASDUC III | Petrobras | Firm | 20 | Nov. 2030 |
| Malhas II | Petrobras | Firm | 21 | Oct. 2031 |
| GASTAU | Petrobras | Firm | 20 | Nov. 2031 |

| Tariffs (R\$) | | | | |
|---------------|---------|----------|--------|---------|
| Entry | Exit | Capacity | Flow | Total |
| 0,18006 | 0,18688 | 1,5876 | - | 1,95454 |
| 0,2016 | 0,0469 | 1,4493 | - | 1,69780 |
| 0,0388 | 0,0004 | 1,4146 | 0,0111 | 1,46490 |
| 0,1492 | 0,0287 | 1,9009 | 0,0111 | 2,08990 |
| 0,1417 | 0,1937 | 2,2065 | 0,0101 | 2,55200 |

Current capacity allocation mechanism(s) at NTS

NTS utilizes 2 different types of allocation mechanism in its current GTAs:

- **Point to Point**, where contracted path corresponds to the physical gas flows (Malhas II, Gastau, Gaspaj, Gasduc III)
- **Postage Stamp**, where totally flexible nominations are accepted (Malhas SE)

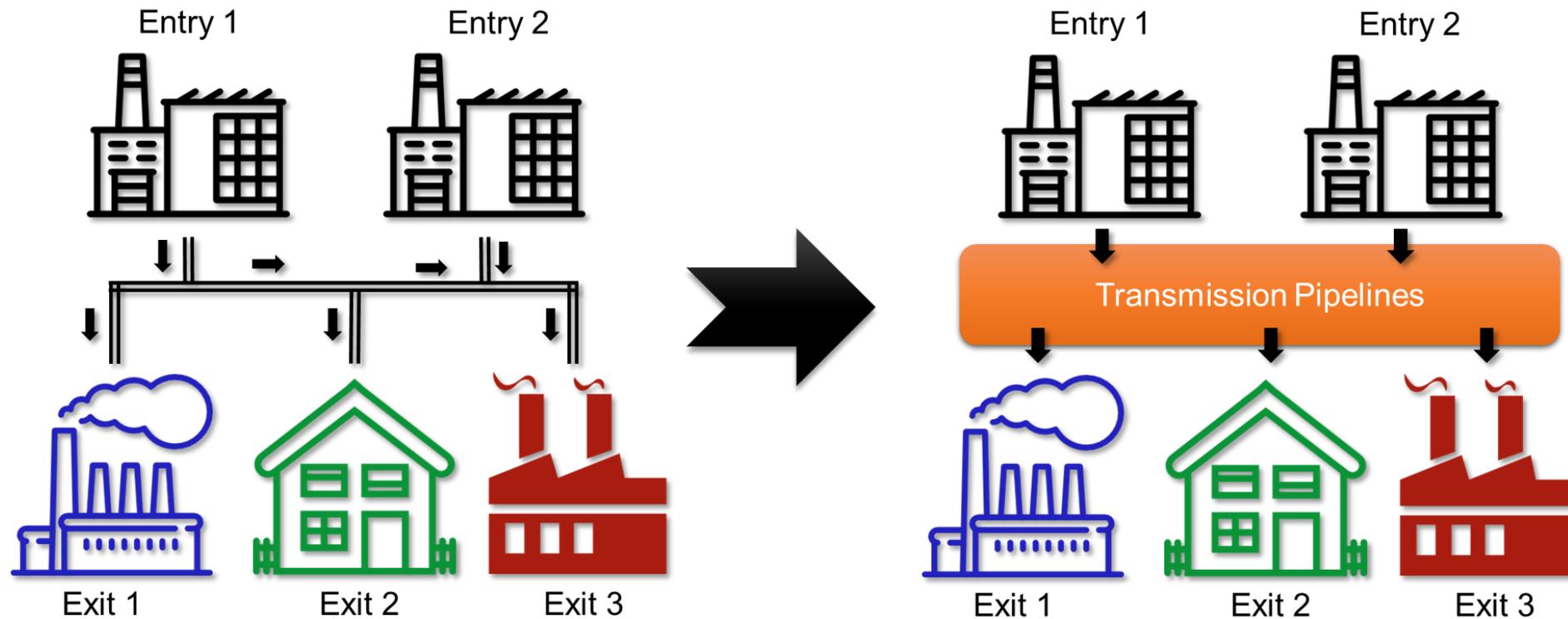
In both cases, tariffs are not distance-based (within their contracts), but once the shipper books inter-contract capacities, tariffs are “pancaked”.

Ex.:



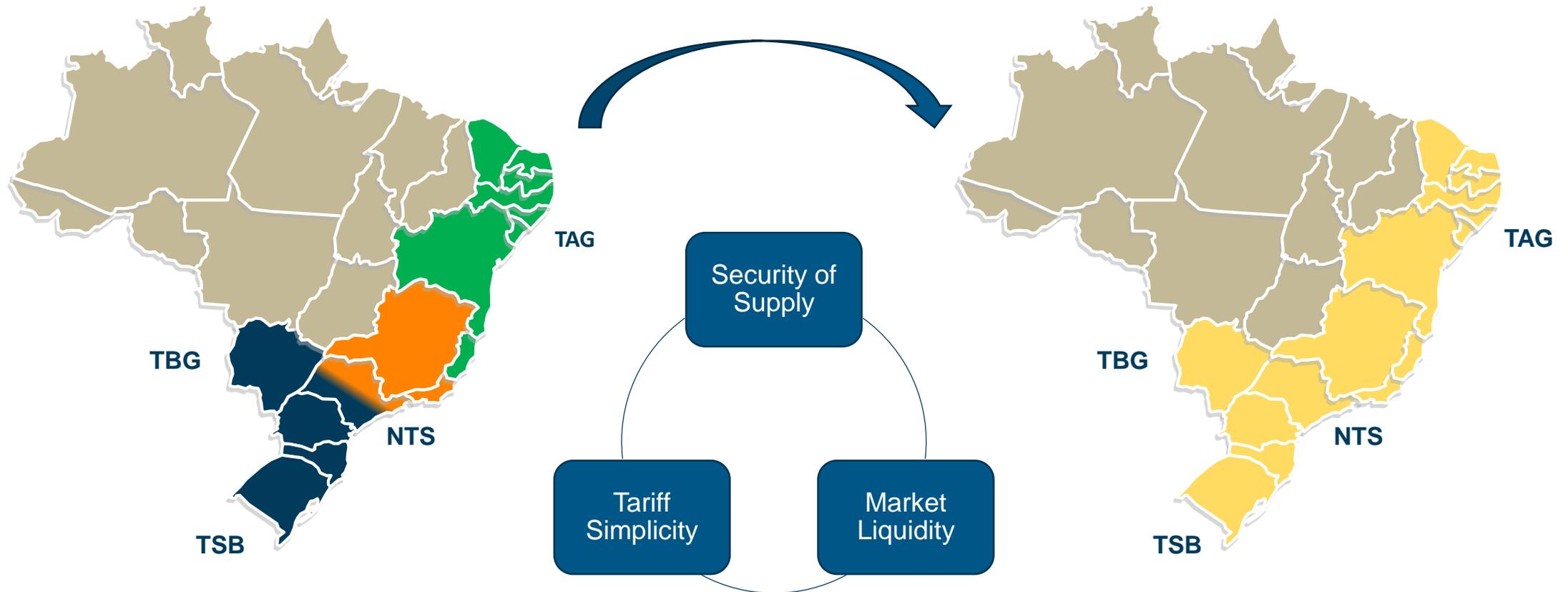
Current capacity allocation mechanism(s) to Entry & Exit model

One of the biggest impact on the change to Entry & Exit model and the taxation directives is the migration from physical flow to commercial flow.



The Entry & Exit model (commercial flow) provides more liquidity, transactional capacity, movement, supply reliability, reducing the average price.

Steps toward a single market area



Attaining a single market area will require the elimination of bottlenecks, coordination among TSOs and regulation.

Other issues related to the implementation of the new gas market – our view

Phase I – Learning Curve



- Disassociation of physical and commercial flows for tax purposes
- Conclusion of capacity allocation by the incumbent (for capacity surrender)
- Operational network coordination by TSOs
- Implementation of interconnection agreements
- Development of network codes
- Implementation of a multi-shipper environment
- Definition of market areas (preferably 1 per TSO)
- Definition of a balancing shipper
- Full Unbundling

2019

2021

- First case of an E/E GTA in a multi-shipper environment
- New legislation and ANP regulations

Phase II - Implementation

- Implementation of network codes
- Elimination of physical congestion points and preparation for market area integration (investments)
- Development of trading platforms for promoting liquidity
- Promotion of open seasons

2023

- Conclusion of the network codes
- Effective network operational coordination by TSOs
- Network optimization for integrated efficiency (investments)

Phase III - Consolidation

- Perfecting the transmission coordination system
- Market area integration
- Periodic coordinated open seasons

2025

- Conclusion of the transition to the E/E model
- Creation of trading hubs(s)
- Significant increase in number of players and transactions
- Reduction in the duration of the average capacity booking lengths
- Strong “locational signal” in tariffs (distance based)

Third party access – strategies to provide access to new shippers

In the next few months, Petrobras will be surrendering capacity on NTS' network, as per the "TCC" signed between them and CADE (Brazilian antitrust agency). From then on, NTS will be able to hold an open season and offer this capacity to the market as firm products.

In the meantime, shippers can book interruptible capacity at NTS as a temporary solution.

- Interruptible capacity bookings are subject to interruption for a specified number of days or hours during times of peak demand or in the event of system emergencies
- Interruptible tariffs are calculated based on the probability of interruption at each point on the network (tariffs become lower as the chance of interruption increases)

Steps Towards 3rd Party Access



Main challenges for NG market development

The Brazilian supply of natural gas is expected to increase by 85%* in the next 8 years, however some issues should be addressed to encourage the growth of the demand at the same rate.

1. Develop of proper infrastructure
 - Gathering pipelines, processing plants, transmission pipelines, LNG terminals, etc
2. Legal security to encourage new investments
 - Natural gas bill of law and Intralegal regulations (ANP)
3. Promote the harmonization between the legacy GTAs and Entry & Exit ones
4. Assure that the management of system should be done by TSOs with transparency, isonomy and assets integrity
5. Foster the integration between Power Sector and Natural Gas market
6. Motivate the enhancement of the free market within the states (LDCs)
7. Do not encourage singular projects disconnected with the transmission system





Thank You!