



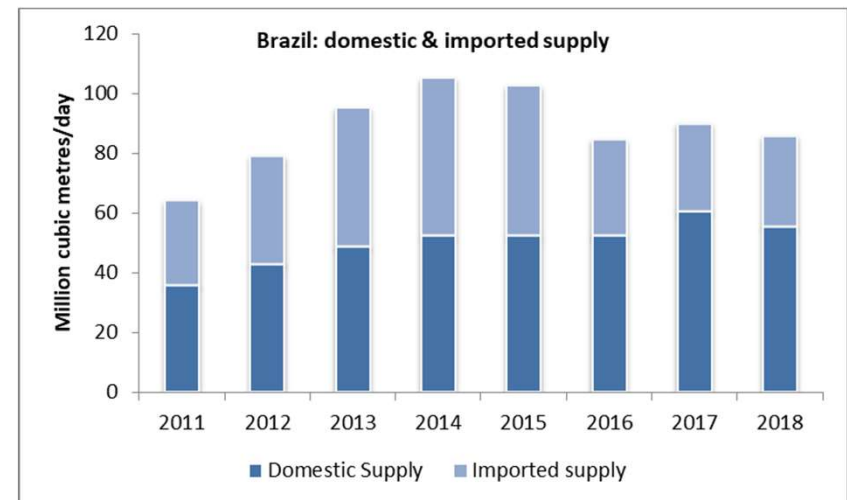
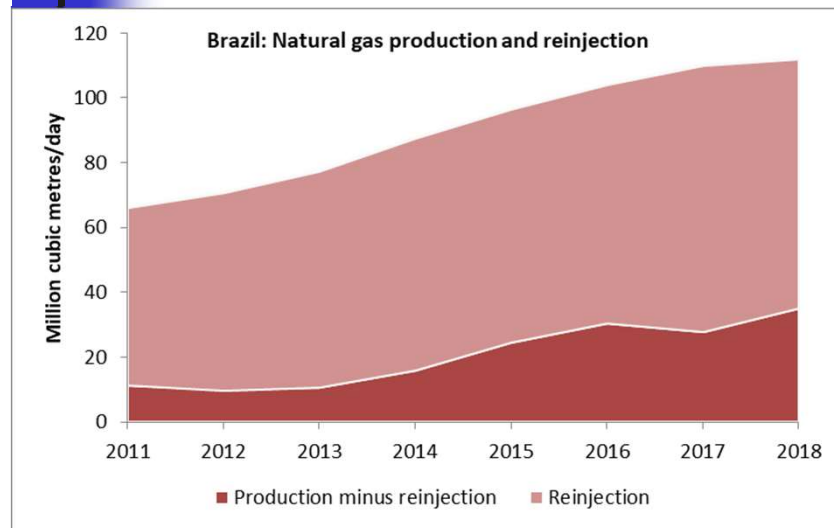
# CHANGING DYNAMICS OF THE BRAZILIAN OIL & GAS INDUSTRY

Brazil's natural gas and LNG market

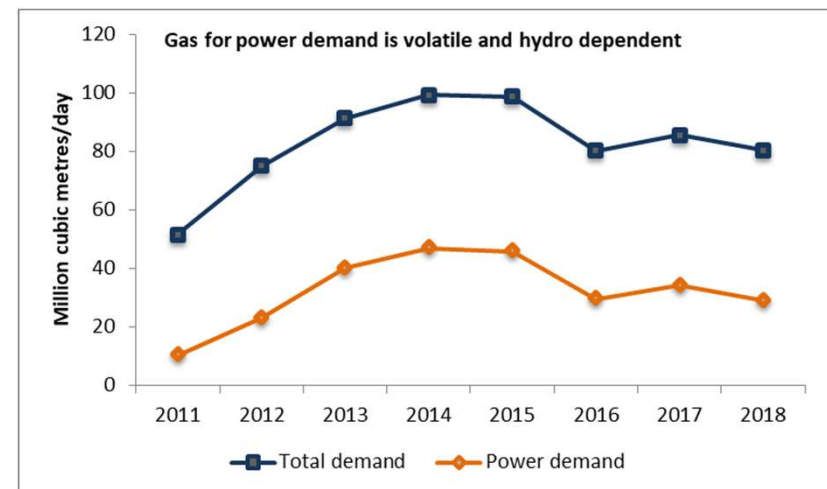
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30/01/2019

# Natural gas industry in a nutshell



- Gas production nearly doubled since 2011
- Reinjection: 1/3 of total production:
- Gas consumption (2017)
  - Brazil: 38.3 Bcm
  - UK: 78.8 Bcm
  - Argentina: 48.5 Bcm
- The market:
  - 3.5 million consumers, 27 LDCs, 9400 km pipelines, 34,000 km distribution grid, 3 LNG terminals ( +1 in construction)





# Natural gas market structure

E&P	Transportation	Distribution	Importation
<ol style="list-style-type: none"> <li>1. Open to private investors</li> <li>2. Petrobras is dominant player</li> <li>3. Freely determined prices</li> <li>4. Mixed concession &amp; PSC regime<sup>1</sup></li> <li>5. Regulated by ANP</li> </ol>	<ol style="list-style-type: none"> <li>1. Open to private investors</li> <li>2. Petrobras is dominant player</li> <li>3. Negotiated tariffs</li> <li>4. Concession regime<sup>2</sup></li> <li>5. Open access after 10-year exclusivity period</li> <li>6. Regulated by ANP</li> </ol>	<ol style="list-style-type: none"> <li>1. Open to private investors</li> <li>2. Exclusive geographic concessions</li> <li>3. Tariffs set by States authorities</li> <li>4. Some states allow free consumers</li> <li>5. Petrobras participates in most LDCs</li> <li>6. Regulated by states authorities</li> </ol>	<ol style="list-style-type: none"> <li>1. Open to private investors</li> <li>2. Petrobras is dominant player<sup>3</sup></li> <li>3. Imports from Bolivia and LNG</li> <li>4. No mandatory 3<sup>rd</sup> party access to LNG terminals</li> <li>5. Regulated by ANP</li> </ol>

1. Production sharing for pre-salt blocks tendered after 2010
2. Authorisation regime before 2009
3. Sergipe LNG project under construction will import LNG directly



# Gas prices: blessing or curse?

- City gate and imported prices are “freely” negotiated – only one seller currently
- End-user prices = Supply price + Transportation tariff + Distribution margin
- Producers prefer to sell to Petrobras at well head
- High end user prices hampers growth

Price	US/MMBtu
Brazil	
1. City gate	9.1 – 10.3
2. LNG FOB	8.63
3. Bolivia imp.	8.7
4. Power plants (PPT)	4.2
5. Large industry	13.8
6. Small Industry	16.3
7. NGV	19.9
8. Residential	30.7
US Henry Hub	3.1
UK NBP	7.6

Source: MME (Nov 2018)



# Challenges

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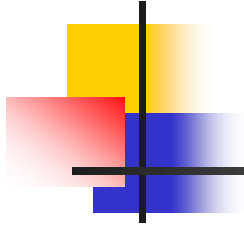
- Petrobras market dominance deters supply competition
- LDCs geographic monopoly discourages free consumers
- Federal and state tax stifles price competitiveness
- Gas market hammered by economic recession, subsidies to LPG and volatile power demand.
- Market slow growth may deter production



# Market-orientated initiatives

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- Gas to Grow programme (MME)
  - Market liquidity
  - Entry exit transportation tariffs
  - Access to essential facilities doctrine
  - Tax simplification
- Bill amendment to Gas Law 11909
  - Mandatory vs negotiated access
  - Authorisation for PLs
- Petrobras divestment programme
- ANP consultation with Competition Authority



Thank you!

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<https://www.oxfordenergy.org/>

# Opportunities



- Divestment of 90% of Petrobras equity TAG pipeline system ( \$8-9 billion)
- Privatisation of states LDCs, ex. Gasmig<sup>1</sup>
- LNG-cum-power projects (ex CELSE, PRUMO)
- Construction of pipelines & power plants
- Spot supply of LNG

1. Market value R\$ 1.2bn 2017