# Oil and natural gas extraction data

**Richard Heede**  
*Climate Mitigation Services*  
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## Petroleo Brasileiro (Petrobras), Brazil

www.petrobras.com  
Rio de Janeiro

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### Production / Extraction data

<table>
<thead>
<tr>
<th>Year</th>
<th>Crude Oil &amp; NGL</th>
<th>Natural Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Net production</td>
<td>Net production</td>
</tr>
<tr>
<td></td>
<td>Thousand bbl /d</td>
<td>Million bbl /yr</td>
</tr>
</tbody>
</table>

#### 1950 - 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Net production</th>
<th>Petrobras gas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Million SCM /day</td>
<td>Bcf /yr</td>
</tr>
</tbody>
</table>

#### Background data

- **Data: petrobras.com**
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**PetroBras**

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**Natural Gas**

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**Compare EIA stats**

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**Net production**

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**PetroBras stats**

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**Petrobras (2011) Sustainability Report 2010, page 85.**

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**Net production**

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**PetroBras stats**

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**Petrobras (2011) Sustainability Report 2010, page 85.**

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**OilGasOxy_Shell.xls**
Additional information on Petrobras

Alternate production estimate for 2008

<table>
<thead>
<tr>
<th>Year</th>
<th>Oil (mbbl/d)</th>
<th>Synthetic Oil (mbbl/d)</th>
<th>Nat. Gas (mmcf/d)</th>
<th>Synthetic Gas (mmcf/d)</th>
<th>Total (mbbl/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,921</td>
<td>701</td>
<td>1,713</td>
<td>623</td>
<td></td>
</tr>
</tbody>
</table>

Source: Hults, & Thurber, 2012, Introduction, Table 1.1, page 24, in Victor et al, eds, 2012, Oil and Governance. Table 1.1 is based on information from Wood Mackenzie’s Pathfinder Database; www.woodmacresearch.com


Natural gas production figures are the production volumes of natural gas available for sale, excluding flared and reinjected gas and gas consumed in operations.

Oil production includes LNG and production from extended well tests.


Petrobras energy consumption, Terajoules, excludes flaring


Petrobras

Cell: J9
Comment: Rick Heede:
petrobras.com / history: In October 1953, after Law 2.004 was passed, Petróbras was allowed to be incorporated to undertake oil sector activities in Brazil on behalf of the Union. Petróleo Brasileiro S/A - PETROBRAS commenced its activities with the collection it inherited from the old National Oil Council (Conselho Nacional do Petróleo, CNP), which, however, preserved its inspection function for the sector.

The oil exploration and production operations, as well as the remaining activities connected to the oil, natural gas, and derivative sector, except for wholesale distribution and retail via service stations, were a monopoly Petróbras held from 1954 to 1997. Rick Heede:

History (Wikipedia, en.wikipedia.org/wiki/Petrobras):

Petrobras standard model for its land oil pump, popularly known as Wooden Horse (Cavalo de Pau in Portuguese) in UFRN, Natal, Brazil. Petrobras was created in 1953 during the government of Brazilian president Getúlio Vargas, with the support of both the ruling parties and the opposition alike in Congress.

Petrobras commenced its activities with the collection it inherited from the old National Oil Council (Conselho Nacional do Petróleo, CNP), which, however, preserved its inspection function for the sector.

The oil exploration and production operations, as well as the remaining activities connected to the oil, natural gas, and derivative sector, except for wholesale distribution and retail via service stations, were a monopoly Petróbras held from 1954 to 1997. During this period, Petróbras became the leader in derivative marketing in Brazil, and, thanks to the company’s performance, it was awarded the Offshore Technology Conference (OTC) in 1992, one of which it was granted again in 2001.

After 40 years of exploration, production, refining and transportation of Brazil’s oil, Petrobras started to compete with other foreign and domestic companies in 1997. The Brazilian government created the National Petroleum Agency (Agência Nacional do Petróleo, ANP), responsible for the regulation and supervision of activities in the petroleum industry, and the National Council of Energy Policies, a public agency responsible for the development of public energy policy. In 2003, commemorating its 50 years, Petrobras doubled its daily production of oil and natural gas, surpassing the mark of 2 million barrels (320,000 m3).

On 21 April 2006, Brazilian president Luiz Inácio Lula da Silva started production on the P-50 oil platform, in the Albaçor East Field at Campos Basin, which gave Brazil self-sufficiency in oil production. In 2009, Petrobras announced a market capitalization plan to finance its future investments in ultra-deep oil exploration. The share offering in the BM&F Bovespa Stock Exchange took place in September 2010, becoming the largest market capitalization in history, with $120.4 billion (USD 69.97 billion) in shares issued.

Petrobras was established as a state-owned oil and natural gas monopoly in 1954. Significant discoveries — mostly offshore in the Campos Basin — since the 1980s and more recently in deeper waters in “pre-salt” formations (that is, underneath the salt deposits) has allowed Brazil to become self-sufficient (and a net exporter) in petroleum since 2008. The Brazilian government is also creating another state-owned oil company Petrossal, is introducing production-sharing agreements (IOCs have operated in Brazil, but typically on a contractual basis).


Cell: J9
Comment: Rick Heede:


World bank, 2008b, page 306: “Petrobras is a state-controlled company created pursuant to Law No.2,004. A majority of the voting capital must be owned by the Brazilian federal government, a state or a municipality. The Brazilian government controls 58% of Petrobras’ shares.” Older datum.


Cell: D11
Comment: Rick Heede:

Production statistics for PetroBras include domestic and international natural gas production. Data from PetroBras website, in million cf per day. Domestic production in 2004 was 1,591 Bcf/d, and international 0.565 Bcf/d.

Cell: D12
Comment: Rick Heede:

Total net worldwide crude oil plus natural gas liquids produced by each company or state-owned enterprise. Where data is available, we list net production. Crude production includes natural gas liquids (NGL) unless noted.

Cell: H12
Comment: Rick Heede:

Natural gas is typically reported as dry gas; natural gas liquids are reported under crude oil. Carbon dioxide is normally removed from the gas flow at the production site (see “Vented Carbon Dioxide”).

“SCM/d” = standard cubic meters per day, “cf/d” = cubic feet per day.

Net production typically excludes a number of diverted gas streams. Quantities and fractions vary; ExxonMobil’s exclusions are probably typical of the industry: “Net production available for sale quantities are the volumes withdrawn from ... natural gas reserves, excluding royalties and volumes due to others when produced, and excluding gas purchased from others, gas consumed in producing operations, field processing plant losses, volumes used for gas lift, gas injections and cycling operations, quantities flared, and volume shrinkage due to the removal of condensate or natural gas liquids production.”


Cell: F18
Comment: Rick Heede:


Cell: J18
Comment: Rick Heede:

PetroBras data from petrobras.com converted from thousand cubic meters per day. Does not include company international production for 1954-1999 (although other company data for gas 2000-2004 does include international production).

Cell: D24
Comment: Rick Heede:

Minor production variance reported in de Oliveira (2012), page 524: 57,000 bbl per day in 1958.


Cell: E53
Comment: Rick Heede:

OGJ100 production data is in very close agreement with the PetroBras data for 1987-1999.

Cell: J54
Comment: Rick Heede:


Cell: D66
Comment: Rick Heede:

Production statistics for PetroBras include domestic and international crude Oil & NGL production. Data from PetroBras website, in thousand bbl per day. Domestic production in 2004 was 1,493

OilGasOxy_Shell.xls
thousand bbl /d, and international 169 thousand bbl /d.

Jan 10 update 2004-2008: in 2008, domestic "oil" production totaled 1,855,000 bbl per day, plus 124,000 bbl per day internationally. No mention of including condensate production.

Cell: H66
Comment: Rick Heede:
Petrobras natural gas production from Excel spreadsheet covering oil and gas production 2000 to 2010.

Cell: D73
Comment: Rick Heede:

Cell: I76
Comment: Rick Heede:
Petrobras reported gas production data is roughly twice the EIA estimated production for Brazil (445 Bcf in 2010). Oil & Gas Journal O&J 100 estimates are ~5 percent higher than Petrobras own data (935 Bcf in 2010).
Oil production, on the other hand, are in agreement across all three sources.