The Influence of Geology on the Development of Petrobras

Brian Sandstrom

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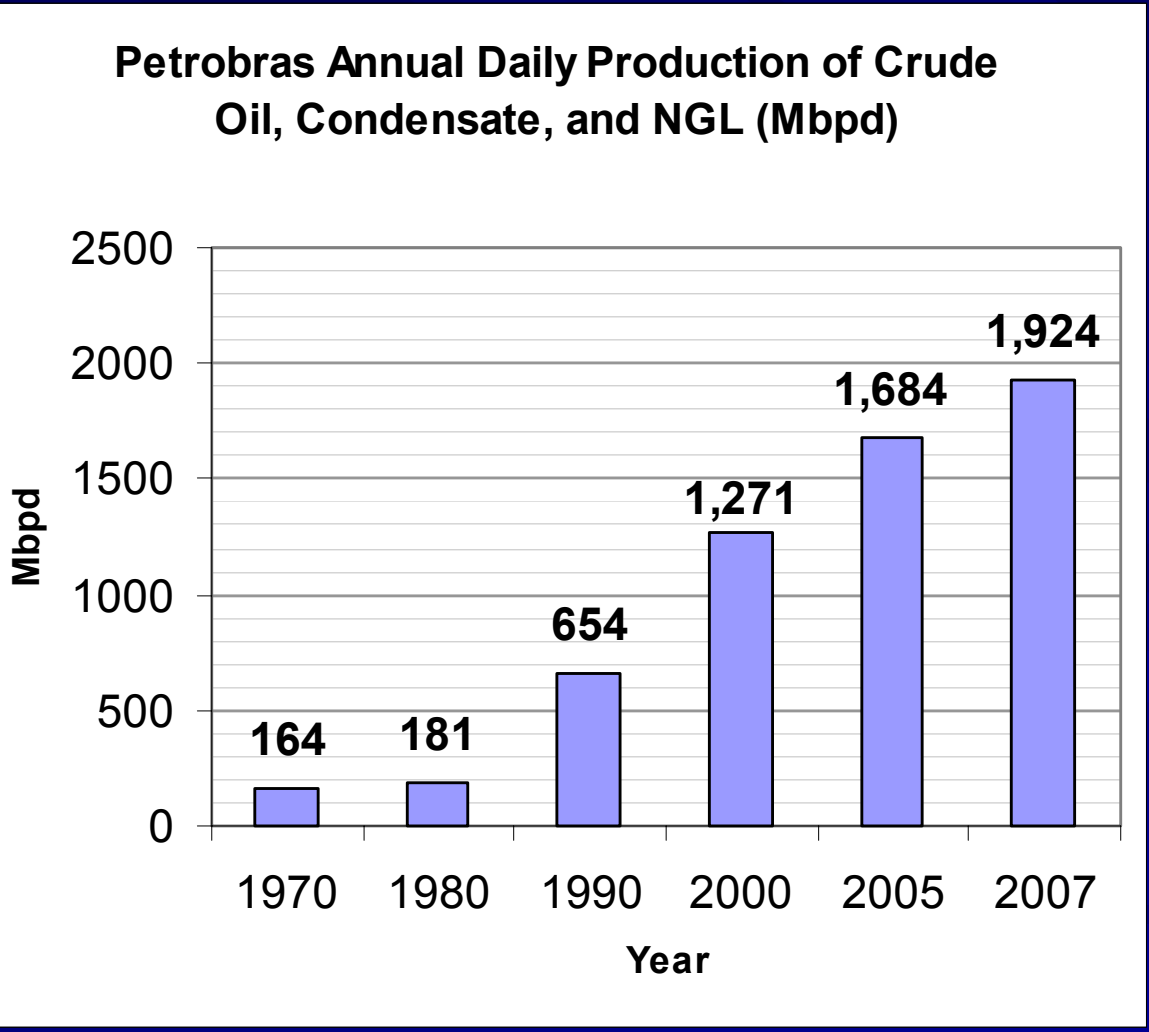
Petrobras Performance



- Company market valuation increased from $15.3 billion (2003) to $107.8 billion (2007)
- Partnerships with dozens of companies for Brazilian E&P, especially offshore
- Record-breaking deepwater exploration

Petrobras achieves Brazilian energy self-sufficiency in April 2006 with launching of P-50 platform.

Background on Brazilian Hydrocarbon Resources

- 15,023 Mmboe equivalent in total reserves†
  - 13,753 Mmboe in Brazil (11,671 Mmbbl of crude oil)
  - 1,270 Mmboe overseas (656 Mmbbl of crude oil)

- Of 11,671 Mmbbl in Brazilian crude reserves, 10,792 Mmbbl are located *offshore* (92%)
  - Campos Basin alone contains 10,187 Mmbbl (74% of all domestic crude reserves)
  - Onshore Brazilian crude reserves total only 878 Mmbbl (8% of all domestic crude reserves)

† Petrobras, Investor Relations, Operational Highlights, Exploration and Production, Crude Oil Net Reserves by Region (SPE Criteria).

How Geology Has Influenced Company Development

- Geology influenced corporate culture from Petrobras' founding in 1953
  - Company was never seen as a "cash cow," giving Petrobras the autonomy to take large risks
  - Imposed higher degree of fiscal discipline, meritocracy within the company's career staff, and a heavy emphasis on training and education.
- Lack of resources forced Petrobras to invest in technology, research and development
  - Refining technology developed to facilitate domestic refining of crude imports early on
  - Need to develop offshore reserves led to investment in offshore exploration and production technology

Domestic Refining Expansion (1953 – 1972)

- Petrobras' original emphasis was on reducing country's foreign trade deficit.
- Refining capacity was expanded domestically to reduce expenditure on refined products from overseas
- Technical and engineering staff engages in reverse engineering of refinery equipment; contracts with foreign suppliers call for training of Petrobras technicians.

Offshore Development

- Military government (1964-1985) shielded Petrobras from political pressure and allowed it to take risks.
- Link Report (1960) recommendations adopted: company begins offshore exploration in 1968; overseas expansion begins in 1972.
- Heavy investment in CENPES , Petrobras' research and development facility.
- Oil crises of 1970s seriously threaten balance of payments, making offshore E&P "affordable."

Offshore Development (cont'd)

- Company begins to invest heavily in offshore development in 1970s; drastic gains in production in the 1980s with discoveries offshore and of exploration of up to ~200 m
- Collaboration with European researchers / North Sea operators in 1980s for further developments (e.g. robotics)
- By mid-1990s company reaches depths of 1000 m; develops plastic cables, other deepwater technologies to prevent oil congealing, etc.
- Late 1990s, embracing capital markets allows for investment in E&P expansion. Today exploration at 3000 m

Offshore Today

- Brazil reaches self-sufficiency in April 2006 with launching of P-50 offshore platform
- Production of 2.2 Mboe per day; 83% of which is from the Campos Basin
- Petrobras takes offshore expertise overseas (e.g. Gulf of Mexico, eastern Africa, Middle East)
- Current Business Plan 2006-2010 calls for 60% of US$56.4 billion plan to be invested in E&P (US$34.1 billion) (includes overseas operations)

Lasting Impact of Geology

- Petrobras is seen as a world leader in deepwater exploration, and consistently partners with other companies in operations
- Investors and lenders have confidence in Petrobras' ability to find and produce "hard to reach" reserves
- *But* the company risks attracting the attention of those who would use it for political ends