

# ***COMMERCIAL FRAMEWORKS FOR NATIONAL OIL COMPANIES***

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## **Overview**

This paper analyzes the commercial performance of five national oil companies (NOCs) relative to stated goals and measures non-commercial performance against explicit and implicit targets for social and economic development. It analyzes the impact of country commercial frameworks—public sector governance, corporate governance, fiscal regimes, commercialization, and hydrocarbon regulation—on NOC performance.

The Center for Energy Economics at the Bureau of Economic Geology, University of Texas at Austin, chose to study NOCs because: (1) NOCs control access to the majority of hydrocarbon resources for future reserves and production; (2) NOCs will become increasingly responsible for the required investments to assure future oil and gas supplies, and (3) To gain insight into the capacity of NOCs to deliver the oil and gas supplies demanded by a growing world market.

## **Methods**

We selected five NOCs to illustrate our performance evaluation analysis: Pemex, PetroChina, CNOOC, Petrobras and Statoil. All five companies provide easily accessed, good quality and comparable data in their annual filings of the U.S. Securities and Exchange Commission's (SEC) Form 20F. We have chosen to focus on domestic upstream operations given their importance to the four countries. All five NOCs report results of upstream operations in accordance with U.S. accounting standard FAS 69. Oil and gas production and reserves of all five companies are audited by third party independent and recognized petroleum engineering consulting firms.

The selected NOCs are evaluated relative to stated goals and objectives that fall into two categories: (1) Effective development of the country's hydrocarbon sector, and (2) Contribution to the overall social and economic development of the country. Performance metrics in the first category include efficient finding and development, production and marketing of hydrocarbons as well as meeting targeted profitability measures. Performance metrics in the second category include capital formation by generating profit and foreign exchange earnings from hydrocarbon sector operations as well as provision of adequate affordable energy to the country's citizens, among others.

Key factors in the commercial frameworks surrounding each NOC as stated in the Overview are analyzed to determine their impact on NOC performance. The countries of these NOCs span a wide spectrum of commercial frameworks. At one end of the spectrum is Mexico where Pemex has a complete upstream monopoly and a dominant midstream and downstream position. At the other end of the spectrum, there is Norway where Statoil must compete with other public and private (including foreign) companies on a relatively level upstream playing field. This wide spectrum allows us to assess the impact of commercial policies, practices and regulation on NOC performance.

## **Results**

Performance varies significantly among the five NOCs and is heavily influenced by governance structures, tax and capital budget regimes and, crucially, the importance of competition in the upstream sector as a positive contributing factor to NOC and country hydrocarbon sector performance and fiscal contributions.

With respect to the NOCs' ability to **find and develop** hydrocarbons cost-effectively Pemex has the weakest production replacement (20%) over the period 2003-2005. Petrobras, PetroChina and CNOOC replaced well over 100% of their production over the same period. Statoil replaced only 80% of its production as its North Sea continental shelf properties continue to mature. Over the same time period Pemex's reserve replacement cost (RRC) was slightly under \$20/barrel of oil equivalent (BOE); the other companies RRCs were between \$6-\$8/BOE. All NOCs except Pemex can fund their capital expenditures from operating cash flow.

The measures relating to the NOCs' ability to **produce** hydrocarbons profitably indicate that all five companies have comparable earnings **before** taxes and depreciation per BOE. However, Pemex had almost no earnings **after** taxes and depreciation in 2005 due to the punitive Mexican tax regime (in 2005 the government collected 99% of the company's earnings before taxes) which deprives Pemex of needed investment capital. The Chinese companies earned between \$20 and \$23/BOE after taxes and depreciation and Petrobras' comparable figure was \$15/BOE. Statoil's comparable figure was about \$7/BOE: Statoil's tax burden is also high at 77% of earnings before taxes which may become problematic as the company moves into frontier and international areas.

With respect to the NOCs' performance on their domestic social and economic development objectives, we calculated the amount that each NOC contributed to their countries in terms of direct taxes, dividends, bonuses, price subsidies and directly funded social programs on a \$/BOE basis. The results were: Pemex- \$34/BOE; Statoil: \$28/BOE; Petrobras-\$20/BOE, and PetroChina and CNOOC \$16-17/BOE. However, when the entire hydrocarbon sectors' (all NOCs, all non-NOC participants and any directly state owned and managed interests outside of its NOCs) performance was evaluated on the same measures the results were: Mexico-\$34/BOE; Norway-\$28/BOE over a quadrupled production base; Brazil-\$21/BOE and China-\$14/BOE over a 40% larger production base. Norway's results do not include the investment income on its petroleum fund which is currently valued at about \$300 billion. If Norway earned 3% per annum on its fund in 2005, it's hydrocarbon sector would contribute an amount equivalent to Mexico's--\$34/BOE. These results suggest that a robustly competitive upstream sector like Norway's produces a NOC with good commercial performance with a total sector fiscal contribution to the country approaching or surpassing that of Pemex. It also suggests that increasing non-NOC participation in Brazil and China's hydrocarbon sectors to levels like Norway's could benefit total sector contribution to their countries' economies.

Our country commercial frameworks analysis showed that only Norway has well-defined hydrocarbon policies addressing all sectors (upstream, midstream, downstream). Brazil has well-defined policies for the upstream but lacks coherent policies for the mid and downstream natural gas sectors. Conversely, Mexico has defined policies for the mid and downstream natural gas sectors but they don't fit well with current upstream organization. China's policy, commercial and regulatory functions are decentralized, overlapping and highly fragmented. This uncertain and opaque governance situation discourages non-NOC investment particularly in the natural gas sector. The partially privatized NOCs (Petrobras, Statoil, the Chinese NOCs especially CNOOC) have the best corporate governance and commercial performance. Mexico's fiscal regime starves Pemex of capital and Norway's could be problematic in the future. In China, the fiscal regime favors its' NOCs which could discourage non-NOC investment. Overall upstream competition matters and can overcome faults in governance and regulatory regimes.

## Conclusions

Commercial and social/economic development performance varies significantly among the five NOCs and is heavily influenced by governance structures, tax and capital budget regimes and, crucially, the importance of competition in the upstream sector as a positive contributing factor to NOC and country hydrocarbon sector performance and fiscal contributions.

## References

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