

National Oil Company Database Definitions of Indicators and Filters

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I. Introduction

This document provides the definitions of the indicators used in the Natural Resource Governance Institute’s National Oil Company Database, including a description of how each indicator was calculated, the sources from which each indicator was most commonly derived, and notes for the consideration of users of the database when interpreting each indicator. These indicators are organized into eleven indicator groups, and the definitions here follow the order in which the indicators appear on the database website, www.nationaloilcompanydata.org.

The document also provides a definition of the filters available on the website to help users create peer groups across NOCs. These filters are found on the “Explore by Indicator” page of the website, at <https://www.nationaloilcompanydata.org/indicator>.

For a thorough discussion of the methodology used to create and populate the National Oil Company Database, see [National Oil Company Database: Methodology Guide](#).

II. Definitions of Indicators

The published database contains 135 indicators, divided into the 11 indicator groups below. This document lists the indicators in the order in which they appear on www.nationaloilcompanydata.org. You can click on the name of an indicator group to jump to the definitions of the indicators in that group.

Indicators covering NOC activities and finance:

- A. **Exploration and production:** Reserves and production attributed to the NOC, as well as proxies for their upstream operational activities (seismic exploration, wells, rigs employed).
- B. **Revenues:** NOC revenues from sales, other business activities and any transfers received by the company from the state. NOC net income.
- C. **Transfers to government:** Payments by the company to the state, via royalties, income tax, bonus payments, dividends, transfers of sales proceeds and other vehicles.
- D. **Expenditures:** NOC operational and capital expenditures, with an attempt to break down spending into upstream and downstream, core and non-core, etc.
- E. **Cash flows:** From operating, investing and financing activities.
- F. **Balance sheet:** Assets, liabilities and equity.

Performance metrics and NOC data in context:

- G. **Operational performance:** Efficiency of upstream operations, measured in terms of revenues, costs and profits, on per-reserves, per-barrel and per-employee bases.
- H. **Financial performance:** Various measurements including return on capital employed, profit margin, and net income after taxes/total assets.
- I. **NOC data in context:** Puts various measures of revenues, spending and profits into context as a share of GDP, government revenues, spending and other measures.

Background information:

- J. **Reporting questions:** Accounting standards used in NOC/government reports, presence or absence of audits and EITI reports.
- K. **Country variables:** National GDP, general government revenues, government revenues from oil and gas, general government total expenditure and total national oil and gas production. Derived from the IMF, World Bank, ICTD, BP Energy outlook and Rystad Energy.

Indicators covering NOC activities and finance

Indicators in the first six indicator groups comprise indicators come from the reports of NOCs and their governments, covering the companies' activities and finances.

A. EXPLORATION AND PRODUCTION

Reserves and production attributed to the NOC, as well as proxies for their upstream operational activities (seismic exploration, wells, rigs employed) and number of employees. Excludes downstream activities. We used barrel of oil equivalent as the primary unit or measure. When NOC reported in different units, we used approximate conversion factors by BP.¹

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|---------------------------------|---------------------------------|--|--|---|--|
| Oil & gas production | Barrels of oil equivalent / day | Denotes the amount of barrel oil equivalent (boe) of hydrocarbons that a NOC produces as an operator, but also that it markets on its own or through partnerships with other oil companies, per day in a given year. Includes production at home and abroad. | Calculated by adding up total hydrocarbon production that is crude oil, condensate, NGLs, natural gas in boe. Sometimes figures need to be converted to boe. Annual production figures need to be divided by 365 for daily prod. | Annual report, EITI report or company/ government website | NOC reports are often inconsistent and group several things into what they deem "production." Production figure does not necessarily mean that the NOC is an operator of the total boe listed, it can also have a non-controlling interest in a producing field, while another company operates the field. |
| Oil production | Barrels of oil equivalent / day | Denotes the amount of barrel oil equivalent (boe) of all liquid crude that a NOC produces a day in a given year (as an operator or in partnerships with private companies). Includes oil production at home and abroad. Oil refers to all hydrocarbon <u>liquids</u> including crude oil and condensate NGL. | Sometimes figures need to be converted to boe. Annual production figures need to be divided by 365 for daily. Sometimes calculated by subtracting all gas from total hydrocarbon production. | Annual report, EITI report or company/ government website | NOC reports are often inconsistent and group several things into what they deem "production." Production figure does not necessarily mean that the NOC is an operator of the total boe listed, it can also have a non-controlling interest in a producing field, while another company operates the field. |

¹ BP's approximate conversion factors are available at: <https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review-2017/bp-statistical-review-of%20world%20energy-2017-approximate-conversion-factors.pdf> (Access: 24 August 2018)

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|--|---------------------------------|--|---|---|--|
| Gas production | Barrels of oil equivalent / day | Denotes the amount of barrel oil equivalent (boe) of natural gas that a NOC produces a day in a given year (as an operator or in partnerships with private companies). Includes gas production at home and abroad. | Commonly requires conversion from cubic meters or cubic feet of natural gas (bcm) to barrel oil equivalent (boe). See BP conversion factors. | Annual report, EITI report or company/ government website | NOC reports are often inconsistent and group several things into what they deem "production." Production figure does not necessarily mean that the NOC is an operator of the total boe listed, it can also have a non-controlling interest in a producing field, while another company operates the field. |
| Reserves | Barrels of oil equivalent | Denotes the amount of oil and gas in barrels of oil equivalent (boe) that has been booked and reported by an NOC in that year. It thus refers to the amount of proven reserves that a NOC reports to be recoverable under reasonable certainty. | Calculated by adding up total proven developed and undeveloped reserves of all hydrocarbon reserves in boe. | Annual report, EITI report or company/ government website | Reserves declarations require significant judgement on the part of the declaring entity and may be subject to manipulation in countries that lack controls over reserves reporting. |
| NOC operator of any production? | Binary Yes/No | Whether or not (YES/ NO) NOC acts as an operator, as opposed to only managing or selling production/ holding stakes in fields operated by other oil companies in a given year. An NOC is generally an operator if the company is responsible for managing the exploration, development, and production of an oil or gas well or lease. | Where we found evidence that the NOC was operating any production, we answered yes to this question, even in the absence of precise production figures. | Annual report, EITI report or company/ government website | NOCs often do not distinguish between total production and production of which NOC is an operator. |
| NOC has stake in fields abroad? | Binary Yes/No | Whether or not (YES/NO) an NOC owns an equity stake in fields in other countries in a given year. This indicator demonstrates international presence/ internationalization through the investment portfolio. | N/A | Annual report, EITI report or company/ government website | N/A |
| NOC operator of fields abroad? | Binary Yes/No | Whether or not (YES/NO) an NOC operates a field in abroad in a given year. This indicator demonstrates international presence and further shows whether NOC behaves like an international oil company. | N/A | Annual report, EITI report or company/ government website | N/A |

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|--|---------------------------------|--|--|---|---|
| Production on which NOC is operator | Barrels of oil equivalent / day | Denotes the amount of barrel oil equivalent (boe) oil and gas that an NOC produces a day as an operator of a field in a given year. This indicator acts as a proxy for operational/production capacity of a NOC. In other words, it measures how big the company is in terms of oil and gas production. | Sometimes figures (esp. natural gas) need to be converted to boe. Annual production figures need to be divided by 365. | Annual report, EITI report or company/ government website | NOCs often do not distinguish between total production and production of which NOC is an operator. |
| Exploration – Seismic (2D) | Km | Denotes the amount of 2D seismic data in square kilometers that was acquired by the NOC in the given year. Measures exploration activities of an NOC. | N/A | Annual report, EITI report or company/ government website | N/A |
| Exploration – Seismic (3D and 4D) | Square km | Denotes the amount of 3D seismic data in square kilometers that was acquired by the NOC in the given year. Measures exploration activities of an NOC. | N/A | Annual report, EITI report or company/ government website | N/A |
| Wells drilled | Number of wells | Denotes the number of wells drilled (exploratory, delineation and development) to extract oil and gas by an NOC if in operational mode. Demonstrates whether NOC is engaged in significant drilling. Measures exploration and development activities of an NOC. | N/A | Annual report, EITI report or company/ government website | NOC often do not explicitly disclose whether wells have been drilled by themselves or other companies. |
| Number of rigs | # of rigs | Number of rigs (offshore/onshore platforms) operated by an NOC at home or abroad. Since a rig is removed after a well is drilled and replaced by a wellhead, rig activity reflects exploration and development of oil and gas wells rather than actual production. Rig count data is often used for private companies to benchmark performance in exploration. | N/A | Annual report, EITI report or company/ government website | N/A |
| Employees | # of employees | Refers to the total number of staff employed by an NOC. | N/A | Annual report, EITI report or company/ government website | The definition of “employee” is not consistent across NOCs. We use the figures included in official documents for each company. |

B. REVENUES

NOC revenues from sales, other business activities and any transfers received by the company from contractors or the state. NOC net income (from core revenues and from all revenues) and net income after taxes. These indicators allow us to measure how much revenue an NOC is generating through its activities, as well as various measures of profitability.

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|--|-----------------------------|--|---|--|---|
| Total Revenue | LCU million; USD million | Denotes all revenues (core, non-core and financial) of a NOC in a given year. | Where the reporting makes available the component revenue streams, this total revenue figure is calculated by the sum of the components. In other cases, where the reporting only makes available a total revenue figure rather than disaggregated components, that is what we record here. | Income/ Profit & Loss (P&L) Statement, EITI reports | In some cases, a company may report some individual component revenue streams (e.g., oil and gas sales), but it is not clear that the reported figure represents the total. In such cases we leave this “total revenue” figure blank. |
| Oil, gas & product sales | LCU million; USD million | Refers to the ‘core revenue’ of an upstream NOC in a given year, which is defined as income from oil, gas and product sales. Core revenue excludes financial income and revenues from activities in other parts of the oil and gas value chain i.e. refining, transport and storage or retail or activities in non-oil sectors (i.e. construction or services. Revenues from these activities are defined as non-core. | N/A | Income/ P&L Statement and accompanying notes in consolidated financial statement, EITI reports | Sometimes NOCs do not use well-defined distinctions between core and non-core revenues. The categories can be non-exact and sales data needs to be disaggregated and individual items identified based on our definition. |
| Domestic oil, gas & product sales | LCU million; USD million | Denotes the revenue from oil, gas and product sales to the domestic market in a given year. | N/A | Income/ P&L Statement and accompanying notes in consolidated financial statement, EITI reports | Data is often not disaggregated in domestic and foreign sales or core and non-core revenues. |

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|--|-----------------------------|--|--|--|--|
| External oil, gas & product sales | | Denotes the revenue from oil, gas and product sales to the foreign markets in a given year. | N/A | Income/ P&L Statement and accompanying notes in consolidated financial statement, EITI reports | Data is not always disaggregated in domestic and foreign sales or core and non-core revenues. |
| Revenue – non-core activities | LCU million; USD million | Refers to revenue from any other activities of an NOC besides oil and gas sales (non-core revenue). Based on our definition, this indicator includes financial income and revenues from activities in other parts of the oil/gas value chain i.e. refining or non-oil sectors. | Some reports enumerate their non-core revenues specifically (in an aggregated or disaggregated fashion). Where that is not done, we generate by subtracting total revenues minus revenue from oil gas and product sales. | Income/ P&L Statement and accompanying notes in consolidated financial statement, EITI reports | Sometimes NOCs do not make a clear distinction between core and non-core revenues. |
| Fiscal payments from contractors | LCU million; USD million | Refers to any payments in the NOC receives from other oil companies in a given year. NOCs sometimes collect revenues from contractors on behalf of the state for bonuses, royalties, taxes, cash transfers for training programs etc. | N/A | Income/ P&L Statement and accompanying notes in consolidated financial statement, EITI reports | Sometimes NOCs do not disaggregate these payments. |
| Government transfers | LCU million; USD million | Denotes any transfer payments an NOC receives from the government in form of budgetary allocations, subsidies, repayments, capitalization, etc. This seems to be most common for NOCs that are not yet producing oil/gas or are at an early stage of their development. | N/A | Income/ P&L Statement and accompanying notes in consolidated financial statement, EITI reports | NOCs and governments do not always clearly report on transfers from the government to the company that take the form of equity increases or loans. |

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|---|-------------------------------------|--|--|---|--|
| <p>Net income from core revenues (before transfers to govt.)</p> | <p>LCU million; USD million</p> | <p>This indicator is the result from running the operations, also known as operating profit. Includes only core revenues, since these are our primary revenues of interest and the primary source of revenues to most companies, and thus excludes financial income. See our definition of “operational expenditures,” for manner of calculation of that component.</p> <p>For another measure of the results from the year from running the company’s operations, see “cash flows from operating activities” in the Cash Flows indicator group.</p> | <p>Calculated by taking revenues from oil, gas and product sales and subtracting operational expenditures.</p> | <p>Taking individual data points from Income/ P&L Statement</p> | <p>A lack of detail and a high degree of inconsistency in NOC reporting on expenditures means that it was difficult to achieve complete consistency in various profit measures calculated using operational expenditure data (including net profits from core revenues, net profits from all revenues, and net income after taxes).</p> <p>Our calculated figure might diverge from a “net operating income” figure reported by the NOC, for two reasons. First, as noted above the inconsistency in NOC practices on expenditure reporting impacts this indicator.</p> <p>Second, wherever sufficiently disaggregated information is available we record non-tax transfers to the treasury as “transfers” rather than as operational expenditures. NOC practice is inconsistent, but some NOCs include these transfers in their measures of operational expenditures. Since we do not record them as part of operational expenditures, these non-tax transfers are not subtracted from core revenues in our calculations of net income. Not all companies disaggregate the components of their “operational expenditure” measurements in detail, so it is likely that there are some companies whose data for “operational costs” in our database also include these non-tax transfers.</p> |

| | | | | | |
|--|-------------------------------------|--|---|---|--|
| <p>Net income from all revenues (before transfers to govt.)</p> | <p>LCU million; USD million</p> | <p>Denotes the total amount of revenues an NOC generates in in a given year from all revenues after covering all its expenses except those of a financial or tax nature.</p> | <p>Calculated by taking total revenues (include core, non-core, and financial income) and deducting total operating expense (excluding tax expenses and other transfers to the government).</p> | <p>Taking individual data points from Income/ P&L Statement</p> | <p>A lack of detail and a high degree of inconsistency in NOC reporting on expenditures and financial revenues means that it was difficult to achieve complete consistency in various profit measures calculated using operational expenditure data (including net profits from core revenues, net profits from all revenues, and net income after taxes).</p> <p>Our calculated figure might diverge from an “EBIT” figure reported by the NOC, for two reasons. First, as noted above the inconsistency in NOC practices on expenditure reporting impacts this indicator.</p> <p>Second, wherever sufficiently disaggregated information is available we record non-tax transfers to the treasury as “transfers” rather than as operational expenditures. NOC practice is inconsistent but some NOCs include these transfers in their measures of operational expenditures. Since we do not record them as part of operational expenditures, these non-tax transfers are not subtracted from core revenues in our calculations of net income. Not all companies disaggregate the components of their “operational expenditure” measurements in detail, so it is likely that there are some companies whose data for “operational costs” in our database also include these non-tax transfers.</p> <p>Third, because many NOCs did not clearly differentiate between financial and operational income, some of our measurements of “total income” include</p> |
|--|-------------------------------------|--|---|---|--|

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|--------------------------------------|-----------------------------|--|--|--|---|
| | | | | | financial income, whereas some NOCs do not include financial income when calculating EBIT. |
| Net income after taxes (NIAT) | LCU million; USD million | NIAT measures how much income the NOC retains after paying income taxes to the state and covering all its expenses. The indicator is basically the sum of all revenues minus expenses (that is costs and income taxes paid to the treasury). | Calculated by taking net income from all revenues and subtracting income taxes | Taking individual data points from Income/ P&L Statement | <p>A lack of detail and a high degree of inconsistency in NOC reporting on expenditures means that it was difficult to achieve complete consistency in various profit measures calculated using operational expenditure data (including net profits from core revenues, net profits from all revenues, and net income after taxes).</p> <p>This measure does not include financial costs (interest). This cannot consistently be regarded as the bottom-line profit for an NOC, since the NOC also makes other non-tax transfers.</p> |

C. TRANSFERS TO GOVERNMENT

These indicators allow us to measure the size and nature of NOC fiscal contributions to government. They include any payments made (tax and non-tax transfers) by the NOC to the state and thus revenue collected by the government/ Ministry of Finance from the NOC. NOCs follow many different systems governing how much they must pay. The type and size of transfers depend on a NOC's national mission and the fiscal/ taxation regime of a country. We standardized these into five common categories and tried to fit NOC payments into a category wherever possible. Where no category applied, we recorded the transfer as "other." NOCs do not always explicitly report on non-tax transfers such as royalties or dividends, which are often sub-summed in operating costs.

| Indicator | Units | Description | Source/ Calculations | Notes on Interpretation |
|--------------------------------------|-----------------------------|--|---|-------------------------|
| Total transfers to government | LCU million, USD million | Total transfers by the NOC to the state in a given year. | Where the component transfers are available, this figure is the sum of all transfers. In some cases, the NOC only publishes a total transfer figure, in which case that is what we record for this indicator. | N/A |

| Indicator | Units | Description | Source/ Calculations | Notes on Interpretation |
|-----------------------|-----------------------------|---|---|---|
| Royalties | LCU million, USD million | <p>Denotes the payment made by the NOC (as a producing company using the resource asset) to the government (as the owner of rights to the resource) in a given year. In other words, a royalty is a payment for the right to use the resource for production.</p> <p>A royalty is often based on a percentage of gross production from the property, free and clear of most or all costs relating to production. They are either ad valorem levies (based on the percentage of value of output) or specific per unit volume levies (based on a fixed amount).²</p> | Income statement under taxes/ cash flow statement and corresponding notes, EITI reports | <p>NOCs can be tasked with collecting royalties from other oil companies and then transferring them to the state, which is captured by the “fiscal payments from contractors” indicator in the “Revenues” indicator group. Sometimes it is difficult to determine whether an NOC paid or received the royalty reported. We engaged in our best effort to only her include royalty payments made by an NOC to the government.</p> <p>Some NOCs include royalties as part of their operational expenditures. Where the NOC disaggregates this information in its reporting, we record the royalty here (and do not include it as part of our measure of operational expenditures). But in some cases it is likely NOCs lump their royalty payments into operational expenditures without providing disaggregated information.</p> |
| Income Tax | LCU million, USD million | <p>Denotes the current income tax expense paid by a NOC to the government (federal or state level). Income tax is a profit-based instrument levied on a NOC (as opposed to any production- based tax).</p> <p>In some cases, the NOCs are subject to the general corporate income tax rate prevailing for all businesses in a country; in other cases, there is a special tax rate higher than for other sectors.</p> | Income statement or cash flow statement, EITI reports | When NOC is an internationalized operator, this figure includes income tax payments both to the home government and to governments abroad. Ideally, we would have captured income tax paid to the home government only, but the strong majority of internationalized operators did not disaggregate in this manner, so in order to be consistent we recorded income tax payment across jurisdictions/activities. Some NOCs recorded income tax liability only on their income statement and not on the cash flow statement. In some of these cases, the figure recorded may reflect an income tax liability generated rather than the explicit amount transferred during the year. |
| Bonus Payments | LCU million, USD million | A one-time payment is made by the NOC to the state upon the finalization of a contract, the launch of activities on a project, or the achievement of certain goals laid out in the law or contracts. | Income statement under taxes (sometimes opex) or cash flow statement and corresponding notes, EITI Reports | Bonus payments are frequently used as incentives for private oil companies and are not as common for NOCs. |

²Natural Resource Governance Institute (NRGI), Oil, Gas and Mining Fiscal Terms: <https://resourcegovernance.org/analysis-tools/publications/oil-gas-and-mining-fiscal-terms>

| Indicator | Units | Description | Source/ Calculations | Notes on Interpretation |
|--|-----------------------------|--|---|---|
| Dividends | LCU million, USD million | Denotes amount of dividend payments to the state as a (majority) shareholder of a NOC out of the company's earnings or reserves in a given year. Size of dividend transferred to treasury depends on the share government ownership interest. | Income statement/ cash flow statement, EITI reports Can be calculated from the number of shares the government own times the share's price for a given financial period. | NOCs sometimes do not report dividend payment, which could mean that they either did not pay dividends or that dividends were subsumed under other line items on the financial report. Sometimes there is a disparity between the figure a NOC reports as dividend declared versus dividend paid in a particular year. We only reported on dividends paid, where the information was available. |
| Proceeds of state profit/equity petroleum | LCU million, USD million | Some NOCs automatically transfer proceeds from the oil it sells – whether it accesses that oil as a result of production-sharing contracts or the state's or NOC's equity holdings – directly to the state treasury or a fund, sometimes after deducting a service or transaction fee. | Income statement or cash flow statement, EITI reports | This fiscal tool is most common in countries that employ production-sharing contracts and in which the NOC has no or only a small operational role. Some NOCs include this transfer as part of their operational expenditures. Where the NOC disaggregates this information in its reporting, we record the transfer here (and do not include it as part of our measure of operational expenditures). But in some cases it is likely NOCs lump these payments into operational expenditures without providing disaggregated information. |
| Other transfers to government | LCU million, USD million | Any additional transfers made to government in a given year that have not been captured above i.e. rentals, fees, special petroleum taxes or export duties etc. | Financial statement (cash flow; operational expenses and notes); EITI reports | Some NOCs include non-tax transfers as part of their operational expenditures. Where the NOC disaggregates this information in its reporting, we record the transfers here (and do not include it as part of our measure of operational expenditures). But in some cases it is likely NOCs lump these payments into operational expenditures without providing disaggregated information. |

D. EXPENDITURES

These indicators allow us to record how much NOCs are spending and investing. NOC operational and capital expenditures. Indicators are ordinal variables that measure amount in USD/ LCU spend by a NOC. Due to poor disaggregation of NOC expenditure data and explicit assumptions we had to made to standardize measurement, these indicators are subject to greater inconsistency than indicators in other indicator groups.

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|-----------------------------|--------------------------|---|---|--|--|
| Capital expenditures | LCU million, USD million | <p>Denotes the amount in cash spent by a NOC on the purchase or upgrade of a fixed (physical) assets in a given year. In other words, the investments a NOC makes through acquisition or leasing of property, assets or equipment (wells, plants etc.), or costs relating to upgrading and maintenance of exiting assets to extend their life.</p> <p>Essentially, the indicator denotes any acquisition cost that is capitalized. Exploration activities, such as costs of drilling exploratory wells are only included when NOC explicitly capitalizes these costs.</p> <p>This indicator measures the investments a NOC makes into the future growth of the company.</p> | <p>Calculated by summing up individual investment items that are interpreted as investments into fixed assets.</p> <p>Usually calculated from Cash flow statement: Purchases of fixed assets minus proceeds of sales from fixed assets.</p> | Company financial statements. In most cases, found in cash flow statement under cash flows from investing activities | <p>A lack of detail and a high degree of inconsistency in NOC reporting on expenditures means that it was difficult to achieve complete consistency in our measurements of capital and operational expenditures.</p> <p>It is sometimes difficult to interpret whether a cost has been capitalized, and to distinguish between operational and capital expenditures.</p> |

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|---------------------------------|--------------------------|--|---|--|---|
| Operational expenditures | LCU million, USD million | <p>Denotes the amount spent by a NOC relating to reoccurring costs from day-to day operations, thus expenses accruing from sales of oil, gas and products in a given year. Includes:</p> <ul style="list-style-type: none"> - general, operating, selling, administrative, marketing costs - employee and facility expenses (i.e. rent) - exploration expenses if not capitalized - depreciation, impairment and amortization (under the assumption it relates to a company's operations) - costs relating to purchase of oil, gas and products - financial costs <p>Does not include any tax or non-tax transfers to the state.</p> | Calculated by summing up individual cost items from the income statement that are not capital expenditures, tax or non-tax transfers. | Income/ P&L statement and accompanying notes | <p>A lack of detail and a high degree of inconsistency in NOC reporting on expenditures means that it was difficult to achieve complete consistency in our measurements of capital and operational expenditures.</p> <p>It is sometimes difficult to interpret, and to distinguish between operational and capital expenditures.</p> <p>Wherever sufficiently disaggregated information is available we record non-tax transfers to the treasury as "transfers" rather than as operational expenditures. NOC practice is inconsistent, but some NOCs include these transfers in their measures of operational expenditures. Not all companies disaggregate the components of their "operational expenditure" measurements in detail, so it is likely that there are some companies whose data for "operational costs" in our database also include these non-tax transfers.</p> |

E. CASH FLOWS

Cash flows from operating, investing and financing activities.

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|---|--------------------------|--|-------------|----------------------------------|---|
| Cash flows from operating activities | LCU million, USD million | Denotes the net total amount of cash flows provided by operating activities. | N/A | Consolidated cash flow statement | N/A. Generally, we took the figure directly from the cash flow statement. |
| Cash flows from investing activities | LCU million, USD million | Denotes the net total amount of cash flows used in investing activities. | N/A | Consolidated cash flow statement | N/A. Generally, we took the figure directly from the cash flow statement. |
| Cash flows from financing activities | LCU million, USD million | Denotes the net total amount of cash flows provided by (used in) financing. | N/A | Consolidated cash flow statement | N/A. Generally, we took the figure directly from the cash flow statement. |

F. BALANCE SHEET

These indicators allow us to measure the size of NOC asset bases as well as their liabilities, in the short and long term. Include assets, liability and equity.

| Indicator | Units | Description | Calculation | Sources | Notes on Interpretation |
|---|-----------------------------|--|--|----------------------------|---|
| Total assets | LCU million, USD million | Denotes the total value of assets an NOC holds in a given year. Total assets refer to the resources that have been put into the company in a given year. | Sum of current and non-current (fixed) assets. | Consolidated balance sheet | N/A. Generally, we took the figure directly from the balance sheet. |
| Total current Assets | LCU million, USD million | Denotes the value of current an NOC holds that can be liquidated into cash within a year. | N/A | Consolidated balance sheet | N/A. Generally, we took the figure directly from the balance sheet. |
| Total long-term/ fixed assets | LCU million, USD million | Denotes the value of fixed assets an NOC holds that cannot be liquidated into cash within a year. | N/A | Consolidated balance sheet | N/A. Generally, we took the figure directly from the balance sheet. |
| Cash and cash equivalents | LCU million, USD million | Reports the total value of an NOC's assets that are cash or can be converted into cash immediately in a given financial year. Measures the liquidity of an NOC. | N/A | Consolidated balance sheet | N/A. Generally, we took the figure directly from the balance sheet. |
| Total liabilities | LCU million, USD million | Denotes the total value of accounts payable, debt and other liabilities within a year. Measures the total amount of debts of an NOC. | Sum of current liabilities and fixed liabilities | Consolidated balance sheet | N/A. Generally, we took the figure directly from the balance sheet. |
| Total current liabilities | LCU million, USD million | Denotes the value of amounts due to be paid to creditors within a year. | N/A | Consolidated balance sheet | N/A. Generally, we took the figure directly from the balance sheet. |
| Total long-term/ fixed liabilities | LCU million, USD million | Denotes the value of liabilities due to be paid to creditors after more than a year. | N/A | Consolidated balance sheet | N/A. Generally, we took the figure directly from the balance sheet. |
| Equity | LCU million, USD million | Denotes the total value of common stocks, capital surplus, retained earnings, treasury stock and other equity an NOC holds in a given year. | N/A | Consolidated balance sheet | N/A. Generally, we took the figure directly from the balance sheet. |

Performance metrics and NOC data in context

Common metrics and ratios allow comparisons among companies and across a company’s own time horizon. There are various approaches to industry benchmarking and a wide variety of performance metrics for the oil and gas industry and SOEs. However, there has not previously been a consistent for measuring overall performance for National Oil Companies, who have more diverse and mixed goals than their private counterparts.

Based on the data collected from the NOCs and their governments – along with country-level data described below – we use several metrics to benchmark the performance of NOCs across three indicator groups:

- **Operational performance**
- **Financial performance**
- **NOC data in context**

Notably, NOCs have certain other non-commercial goals besides fiscal transfers, such as contribution to national development, employment and local content. Our database does not measure this “National Mission Performance,” which Ash (2011) and Wolf (2009) have identified as a key component in their NOC value creation index. The main reason behind our decision was limited data availability and inconsistent accounting on underlying data.

G. OPERATIONAL PERFORMANCE

Efficiency and productivity of upstream operations, measured in terms of revenues, costs and profits, on per-reserves, per-barrel and per-employee bases. Our measurements are most meaningful for companies for which upstream production sits at their core business. These indicators are calculated by formula based on data collected elsewhere in the database.

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|--|-------|---|--|--|
| O&G production / Total reserves | % | Denotes the share that NOC oil and gas production for the year represents of the total proven oil and gas reserves the NOC has booked. A <u>high</u> ratio means that a NOC has either relatively few reserves still in the ground or high production levels. As oil and gas is produced, reserves are depleted. This ratio thus gives an indication about depletion of NOC reserves at current production levels. In other words, the higher the ratio the more likely the NOC would run out of its reserves at current proven reserves and production levels. | The amount of natural gas and oil production in boe/d divided by the amount of reserves in boe | Often used to measure the value of a (private) oil company. This ratio says less about the value of a NOC because the amount of oil and gas (boe/d) can be produced by the NOC (if operator) or another oil company in partnership with the NOC. |

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|---|---------------------|--|--|--|
| Reserves/ Production ratio | Years | <p>Denotes the number of years of production at current levels that would be supported by existing reserves. Measured as (P/R), the inverse of the preceding indicator.</p> <p>A high ratio means that a NOC has either relatively large reserves still in the ground or low production levels.</p> <p>As oil and gas is produced, reserves are depleted. The reserves-to-production ratio thus gives an indication about depletion of NOC reserves at current production levels. In other words, the higher the ratio the longer the NOC would be able to produce at current proven reserves and production levels.</p> | The amount of reserves in boe divided by the amount of annual oil and natural gas production (boe/day times 365) | Often used to measure the value of a (private) oil company. This ratio says less about the value of a NOC because the amount of oil and gas (boe/d) can be produced by the NOC (if operator) or another oil company in partnership with the NOC. |
| Total revenue / barrel of reserves | LCU/boe, USD/boe | <p>Refers to the amount of total revenue an NOC generates for each barrel of proven reserve a NOCs has booked.</p> <p>Measures the income a NOC receives for each barrel it holds, in other words how efficiently a NOC produces revenue.³</p> | Total revenue in LCU or USD is divided by the amount of reserves in boe. | <p>The quality of the crude oil or natural gas is an important determinant of this indicator, as are production costs (especially where the NOC is in partnership with private companies and its share of production is wholly or partially determined by profitability). Thus, this indicator is an important measurement, but reflects a broader set of factors than just the NOC's performance.</p> <p>Another source of variance here is that there are some companies (e.g., Indonesia's Pertamina) that sell the oil they produce via their own production and also purchase additional oil or oil products for resale. Where such companies do not disaggregate their sales revenues, the numerator of this equation (revenue) reflects a larger base of sources than is reflected in the denominator (the company's production).</p> |

³ Eller, Stacy L., Peter R. Hartley, and Kenneth B. Medlock. "Empirical evidence on the operational efficiency of National Oil Companies." *Empirical Economics* 40.3 (2011): 623-643.

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|---|---------------------|--|---|---|
| O&G revenue / barrel of production | LCU/boe, USD/boe | <p>Refers to the amount of revenue from oil and gas, product sales, a NOC generates for each barrel of oil it produces.</p> <p>A proxy for efficiency of a company's upstream operations.</p> <p>The quality of the crude oil or natural gas is an important determinant of this indicator, as are production costs (especially where the NOC is in partnership with private companies and its share of production is wholly or partially determined by profitability). Thus, this indicator is an important measurement, but reflects a broader set of factors than just the NOC's performance.</p> | Revenue from oil, gas and product sales in LCU or USD is divided by the total production in boe/d | <p>The quality of the crude oil or natural gas is an important determinant of this indicator, as are production costs (especially where the NOC is in partnership with private companies and its share of production is wholly or partially determined by profitability). Thus, this indicator is an important measurement, but reflects a broader set of factors than just the NOC's performance.</p> <p>Another source of variance here is that there are some companies (e.g., Indonesia's Pertamina, Norway's Equinor) that sell the oil they produce via their own production and also purchase additional oil or oil products for resale. Where such companies do not disaggregate their sales revenues, the numerator of this equation (revenue from sales) reflects a larger base of sources than is reflected in the denominator (the company's production).</p> |
| Total revenue / barrel of production | LCU/boe, USD/boe | <p>Refers to the amount of total revenue a NOC generates for each barrel of oil it produces.</p> <p>A proxy for efficiency of an NOC.</p> | Total revenues in USD/LCU is divided by total production in boe/d | <p>The quality of the crude oil or natural gas is an important determinant of this indicator, as are production costs (especially where the NOC is in partnership with private companies and its share of production is wholly or partially determined by profitability) and any requirements that the NOC sell quantities of oil on the national market at a discount. Thus, this indicator is an important measurement, but reflects a broader set of factors than just the NOC's performance.</p> <p>In addition, because different companies engage in varied ranges of activities beyond exploration and production, there can be a significant variance in these figures deriving from these other activities.</p> |

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|--|-------------------------|---|--|---|
| <p>Opex (company-wide) per barrel</p> | <p>LCU/boe, USD/boe</p> | <p>Denotes the unit costs of production. In other words, the operational costs a NOC encounters when producing a barrel of oil.</p> <p>How much it costs a NOC to produce a barrel of oil is not only determined by a NOC efficiency, but also resource characteristics (i.e. technologically more challenging unconventional oil and gas resources are most cost-intensive).</p> | <p>Operational expenditures in USD/LCU is divided by total annual production in boe.</p> | <p>A lack of detail and a high degree of inconsistency in NOC reporting on expenditures means that it was difficult to achieve complete consistency in various performance measures calculated using operational expenditure data.</p> <p>This metric includes opex on all segments of an NOC's activities. Thus, for NOCs which have much broader mandates than just upstream production, one would expect a higher figure than for companies more narrowly focused on the upstream.</p> <p>Because this figure covers company-wide opex, it differs from opex-per-barrel measurements of industry analyst groups that build their cost measurements from projections about individual oil and gas fields, then aggregate upwards to calculate company-wide ratios. Such measures can provide a finer-grained estimation than ours of specific extraction processes and the costs associated with a company's geological portfolios. Our measurement looks at a company's expenditures as a function of how much oil and gas they produce, and thus provides a blunter (and typically higher) but fairly comprehensive picture of how much the company spent as a function of its upstream petroleum-sector output.</p> <p>Our definition of operational costs does not include financial costs, thus the figure does not reflect all costs a NOC spends on producing a barrel of oil.</p> <p>The geology of the country's upstream assets also has an impact. Where oil is being produced offshore or in a challenging onshore environment, the opex per barrel will be higher due to the challenges and additional activities associated with operating in those environments.</p> |

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|--|------------------|---|---|---|
| Capex (company-wide) per barrel | LCU/boe, USD/boe | <p>Refers to the amount invested for producing a barrel of oil.</p> <p>Essentially benchmarks the degree to which a company is investing into the future growth of a company.</p> | Capital expenditures in USD/LCU is divided by total annual production in boe. | <p>A lack of detail and a high degree of inconsistency in NOC reporting on expenditures means that it was difficult to achieve complete consistency in various performance measures calculated using capital expenditure data.</p> <p>This metric includes capex on all segments of an NOC's activities. Thus, for NOCs which have much broader mandates than just upstream production, one would expect a higher figure than for companies more narrowly focused on the upstream.</p> <p>Because this figure covers company-wide capex, it differs from capex-per-barrel measurements of industry analyst groups that build their cost measurements from projections about individual oil and gas fields, then aggregate upwards to calculate company-wide ratios. Such measures can provide a finer-grained estimation than ours of specific extraction processes and the costs associated with a company's geological portfolios. Our measurement looks at a company's expenditures as a function of how much oil and gas they produce, and thus provides a blunter (and typically higher) but fairly comprehensive picture of how much the company spent as a function of its upstream petroleum-sector output.</p> <p>The geology of the country's upstream assets also has an impact. Where oil is being produced offshore or in a challenging onshore environment, greater investment per barrel may be necessary in order to develop necessary installations.</p> |
| Opex / total revenue | % | Refers to the relative share of revenue that will be absorbed by operational expenditures. | Operational expenditures divided by total revenues. | <p>A lack of detail and a high degree of inconsistency in NOC reporting on expenditures means that it was difficult to achieve complete consistency in various performance measures calculated using operational expenditure data.</p> <p>This metric includes opex on all segments of an NOC's activities. Thus, for NOCs which have much broader mandates than just upstream production, one would expect a higher figure than for companies more narrowly focused on the upstream</p> |

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|--|----------------|---|---|--|
| Capex / total revenue | % | Refers to the relative share of revenue that will be absorbed by capital expenditures. | Capital expenditures divided by total revenue. | <p>A lack of detail and a high degree of inconsistency in NOC reporting on expenditures means that it was difficult to achieve complete consistency in various performance measures calculated using capital expenditure data.</p> <p>This metric includes capex on all segments of an NOC's activities. Thus, for NOCs which have much broader mandates than just upstream production, one would expect a higher figure than for companies more narrowly focused on the upstream.</p> |
| Non-core activities / total revenue | % | <p>Denotes the share of revenues from non-core activities in total revenue of a NOC. Based on our definition, non-core revenue includes financial income and revenues from activities in other parts of the oil/gas value chain, e.g., refining or non-oil sectors.</p> <p>The lower the ratio, the more concentrated a NOC is on generating income from oil and gas upstream operations.</p> | Calculated as revenue from non-core activities is divided by a NOC's total revenue. | It can sometimes be difficult to differentiate between core and non-core activities. (See descriptions in "Revenues" indicator group). |
| Reserves per employee | boe/ employees | Refers to the amount of oil and gas reserves in boe a NOC holds per employee. A proxy to measure the labor productivity of a NOC. | Total amount of reserves in boe divided by total number of employees. | <p>Reserves do not reflect the actual output of a NOC. In cases where a NOC acts merely as a bookkeeper of reserves, this ratio does not reflect real productivity of the NOC.</p> <p>NOCs with a broader "state supplement" mandate may have a larger base of employees than NOCs with a narrower upstream mandate. This should influence the interpretation of an NOC's data on this indicator.</p> |

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|-------------------------------------|------------------------|---|---|--|
| Production per employee | boe/ employee | Refers to the amount of oil and gas in boe a NOC produces per employee. Measures the productivity of a NOC. High productivity can mean a small labor force, or a large production. Factors impacting the size of the labor force for a NOC are outsourcing practices versus in-house staff, national employment objectives, corporate response to oil price shocks etc. Oil and gas production as the core output of an NOC can be domestic or foreign. | The amount of natural gas and oil production in boe/d divided by the total number of employees. | NOCs with a broader “state supplement” mandate may have a larger base of employees than NOCs with a narrower upstream mandate. This should influence the interpretation of an NOC’s data on this indicator. |
| O&G revenue per employee | USD million / employee | Measures how much money each employee generates for a NOC’s core-business (sales from oil and gas). Ideally, a NOC wants the highest <u>revenue</u> per employee possible, because it indicates higher productivity and effective use of the firm’s resources. If a NOC is overstaffed or has too many employees in the overhead (non-production related) parts, this is reflected by the indicator. | Oil, Gas and Product Sales in USD/LCU divided by total number of Employees | The quality of the crude oil or natural gas is an important determinant of this indicator. NOCs with a broader “state supplement” mandate may have a larger base of employees than NOCs with a narrower upstream mandate. This should influence the interpretation of an NOC’s data on this indicator. |
| Total revenue per employee | USD million / employee | Indicates how efficiently a NOC produces revenue. It basically measures the average financial productivity of a NOC. | Total revenues in USD/LCU is divided by total number of Employees | The quality of the crude oil or natural gas is an important determinant of this indicator. NOCs with a broader “state supplement” mandate may have a larger base of employees than NOCs with a narrower upstream mandate. This should influence the interpretation of an NOC’s data on this indicator. |
| Net income per employee | USD Million / employee | Measures how much profit (before taxes) each employee generates for a NOC’s. Theoretically, the higher the net income per employee the better. | Calculated by taking a NOC’s net operating from core revenues divided by the number of employees. | See description of “net income from core revenues,” in “Revenues” indicator group, above, for challenges associated with interpretation of that indicator and others that derive from it. NOCs with a broader “state supplement” mandate may have a larger base of employees than NOCs with a narrower upstream mandate. This should influence the interpretation of an NOC’s data on this indicator. |

H. FINANCIAL PERFORMANCE

Various financial ratios to benchmark NOC's financial performance including return on capital employed, profit margin, and net income after taxes/total assets. These indicators are calculated by formula based on data collected elsewhere in the database. Due to poor disaggregation of NOC data on expenditures and profits, and explicit assumptions we had to make to standardize measurement, several of these indicators are subject to greater inconsistency than indicators in other groups.

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|--|-------|--|--|--|
| Return on capital employed (before transfers to govt.) | % | <p>Measures the degree to which a NOC is able to turn capital employed into profits within a given year. Capital employed is the total amount of capital that a company has utilized in order to generate profits.</p> <p>ROCE is common proxy for profitability for capital-intensive industries such as oil and gas. For NOCs, ROCE measures what an NOC has been able to do with public assets invested in the company.</p> <p>A low figure could mean either low net income (numerator) or large assets (denominator). In other words, the higher the ratio the greater the ability of an NOC to turn its capital employed into profits.</p> | Calculated by taking net income from all revenues in LCU/USD and dividing total capital employed (= (Total Assets - Current liabilities in LCU/USD). | <p>A limitation of ROCE is that it measures return against the book value of assets in the business. As these are depreciated the ROCE will increase even though cash flow has remained the same. Thus, older businesses with depreciated assets will tend to have higher ROCE than newer, possibly better businesses.</p> <p>See description of "net income from all revenues," in "Revenues" indicator group, above, for challenges associated with interpretation of that indicator and others that derive from it.</p> |
| Net income/total revenue (before transfers to govt.) | % | <p>Shows the net profit margin: net income as proportion of total revenues in LCU/USD in a given year.</p> <p>Measures how much profit a company makes per unit (USD) sales, after paying for operational expenses, but before paying interest or tax.</p> | Calculated by dividing net income from core revenues by total revenues. | See description of "net income from core revenues," in "Revenues" indicator group, above, for challenges associated with interpretation of that indicator and others that derive from it. |
| After-tax profit margin (Net income after taxes/revenues) | % | <p>After-tax profit margin denotes the after-tax income as proportion of total revenues in LCU/USD in a given year.</p> <p>An after-tax profit demonstrates how well a NOC controls its costs. A high after-tax profit margin generally indicates that a NOC runs efficiently, providing more value, in the form of profits, to shareholders.</p> | Calculated by taking NIAT (= net income from all revenues - Income Taxes) divided by total revenue | See description of "net income after taxes," in "Revenues" indicator group, above, for challenges associated with interpretation of that indicator and others that derive from it. |

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|---|-------|---|---|--|
| After-tax return on assets (ROA) | % | Denotes the amount of after-tax income earned by a company from its assets. ROA measures a NOC's ability to turn investments into earnings or in other words how effectively a NOC is using its assets to generate earnings. | Calculated by taking NIAT (= net income from all revenues - Income Taxes) divided by total assets | Usually the metric is based on average assets, and not total assets. See description of "net income after taxes," in "Revenues" indicator group, above, for challenges associated with interpretation of that indicator and others that derive from it. |
| After-tax return on equity (ROE) | % | Denotes the amount of net income after taxes returned as a percentage of shareholders' equity. ROE measures a NOC's profitability by revealing how much profit a company generates (after tax) with the money shareholders have invested. | Calculated by taking NIAT (= net income from all revenues - Income Taxes) divided by equity | See description of "net income after taxes," in "Revenues" indicator group, above, for challenges associated with interpretation of that indicator and others that derive from it. |
| Cash ratio | % | Denotes the ratio of a company's total cash and cash equivalents (CCE) to its current liabilities. Demonstrates a NOC's ability to repay its short-term debt and to cover its liabilities by the amount of cash the NOC is holding onto. A high cash ratio means that the company retains most of its revenues after covering costs and transfers. | Cash and cash equivalents divided by Current liabilities | N/A |

I. NOC DATA IN CONTEXT

Puts various measures of revenues, spending, profits and balance sheet data into context as a share of GDP, government revenues, spending and other measures and NOC value addition to the Nation. These indicators enable us to view NOC-specific information in the larger context of the national economy. These indicators are calculated by formula based on data collected elsewhere in the database.

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|---|-------|---|---|--|
| NOC oil and gas production / national oil and gas production | % | Denotes the share of NOC's production in a country's total production. Basically, demonstrates the market share of the NOC in a country's oil and gas industry. | Total natural gas and oil production in boe/d divided by total production of country. | NOC reports are often inconsistent and group several things into what they deem "production." Production figure does not necessarily mean that the NOC is an operator of the total boe listed, it can also have a non-controlling interest in a producing field, while another company operates the field. |

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|---|-------|--|--|--|
| NOC oil and gas reserves / national oil and gas reserves | % | Denotes the share of NOC's reserves in a country's total production. Basically, demonstrates the market share of the NOC in a country's oil and gas industry. | Total NOC reserves in boe divided by total reserves of the country. | N/A |
| Total NOC revenues / general government revenues | % | Denotes the share of NOC revenues of total government revenue in %. This indicator is a proxy for NOC dependency by the state. It demonstrates how important the NOC is for fiscal state of the country. The higher the ratio, the more dependent the government is on the NOC. | Total NOC revenue in USD/LCU divided by government revenue total in USD/LCU. | NOC revenues are not necessarily transferred to the state/ accessible to the state. The data on general government revenue (denominator) comes from the IMF's World Economic Outlook database, which provides ambiguous guidance about whether to include NOC revenues under general government revenues. It recommends including state owned companies only when they are not run as commercial entities. In practice, the line is a blurry one, and the IMF has been criticized for inconsistent treatment across countries. |
| Total NOC revenues / GDP | % | Denotes the share of NOC's revenue in USD/LCU in a country's GDP. Basically, demonstrates the economic importance of the NOC in a country's economy and can be treated as a proxy for value addition to the economy. | Total NOC revenue in USD/LCU divided by Gross Domestic Product in USD/LCU. | |
| NOC transfers to treasury / total NOC revenues | % | Measures how much of its total income an NOC transfers to the state. Indicator for measuring how much an NOC is able to retain to cover its costs and investment. A high ratio means that an NOC is highly taxed and transfers a large part of its revenues to government and thus retains less for its own investment and costs. | Total NOC transfers to the treasury in USD/LCU divided by total NOC revenue in USD/LCU | The indicator has its limitation in cases, where the NOC receives government transfers in form of subsidies etc. and this is accounted in total NOC revenue. This figure reflects how much an NOC transfers as a percentage of its gross revenues, not profits. As such, it only partially reflects the tax burden on NOCs. |

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|--|-------|--|---|--|
| NOC transfers to treasury / general government revenues | % | Denotes the share of NOC transfers to the treasury of total government revenue. This indicator measures the state's fiscal dependency on the NOC and demonstrates how important the NOC is for fiscal state of the country. The higher the ratio, the more dependent the government is on the NOC. | Total NOC transfers to the treasury in USD/LCU divided by total government revenue in USD/LCU | The data on general government revenue (denominator) comes from the IMF's World Economic Outlook database, which provides ambiguous guidance about whether to include NOC revenues under general government revenues. It recommends including state owned companies only when they are not run as commercial entities. In practice, the line is a blurry one, and the IMF has been criticized for inconsistent treatment across countries. |
| NOC transfers to treasury / general government expenditures | % | Denotes the share of NOC transfers to the treasury of total government expenditure. | Total NOC transfers to the treasury in USD/LCU divided by total government expenditure in USD/LCU | N/A |
| NOC net income / general government revenues | % | Denotes the share of NOC's net income from all revenues as percentage of government revenues. | NOC net income from all revenues in USD/LCU divided by total government expenditure in USD/LCU | See description of "net income from all revenues," in "Revenues" indicator group, above, for challenges associated with interpretation of that indicator and others that derive from it. |
| NOC transfers to govt. / NOC net income | % | Denotes the share of NOC's transfers as percentage of its net income. | Total NOC transfers to the treasury in USD/LCU divided by NOC net income from all revenues in USD/LCU | See description of "net income from all revenues," in "Revenues" indicator group, above, for challenges associated with interpretation of that indicator and others that derive from it. |
| Transfers to government per barrel | USD | Measures much money an NOC transfers to the state for each barrel it produces. | Total NOC transfers to the treasury in USD/LCU divided by total NOC natural gas and oil production in boe/d | Transfers per barrel are determined both by the fiscal policies in place in the country (which determine what shares the NOC is required to transfer), the quality/value of oil and gas and the costs of extraction (which determine how much money is available for distribution between the company and the state). |

| Indicator | Units | Description | Calculation | Notes on Interpretation |
|---|-------|--|--|-------------------------|
| NOC total assets / national wealth | % | Denotes the share of NOC's assets in a country's total wealth. | Total NOC assets in USD divided by total wealth of the country in. | N/A |
| NOC debt / national debt | % | Denotes the share of NOC's debt in a country's total debt. | Total NOC assets in USD divided by total wealth of the country in. | N/A |

Background information

The two indicator groups in this category provide information relevant to interpreting the information gathered from NOCs and their governments and understanding the country context in which the NOCs are operating.

J. REPORTING QUESTIONS

This group refers to the accounting standards used in NOC reporting, the presence or absence of an independent audit process as well as potential reservations raised by independent auditors. Indicators are binary variables (YES/NO). These indicators allow us to benchmark the overall transparency of NOCs and provide proxies for the quality, accuracy and reliability of disclosures.

| Indicator | Units | Description | Sources | Notes on Interpretation |
|--|------------------|--|---|--|
| Report presented according to international financial reporting standards (IFRS)? | Binary Yes/No | <p>Whether or not an NOC reports and presents its consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) in a given year. IFRS are standards issued by the IFRS Foundation and the International Accounting Standards Board (IASB) that aim to set internationally recognized accounting specifications and policies.</p> <p>An auditor often provides an opinion on whether the financial statements are presented in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. The NOC may report according to IFRS standards, national accounting standards, other specified standards or no standards.</p> | The auditor's report attached to the consolidated financial statement (usually in the beginning)- if available- makes a reference to conformity to different types of accounting standards. | The statement of an independent external auditor is the most valuable source for confirming that a report is presented in compliance with IFRS. In some cases, however, it is an NOC's internal auditor that states that reporting is in compliance with IFRS. We accept such statements as sufficient to satisfy this indicator. Thus, it should be read in conjunction with the question that follows, on whether the report is accompanied by a statement from an independent external auditor. |

| Indicator | Units | Description | Sources | Notes on Interpretation |
|--|------------------|--|---|--|
| Report audited by independent external auditor? | Binary Yes/No | Whether or not the independent, external auditor has issued an unqualified opinion that the NOC's financial statements are presented fairly, in all material respects for the given period as part of the auditor's report. A NOC's published consolidated financial statements are audited by an external auditor as an independent entity outside of the government in a given year. Some NOCs only publish reports of internal auditors. We used the presence of a report of an Independent Registered Public Accounting Firm (that is an independent, non-governmental auditor) as evidence. | Availability/ attachment of an independent, external auditor's report | "Independence" means different things in different contexts, and the total independence of an external auditor is not always given. |
| Auditor opinion issued with qualification? | Binary Yes/No | Whether or not the independent, external auditor has issued a qualified opinion, adverse opinion or a disclaimer with the NOC's financial statement in the auditor's report in that year. The auditor's report is only an opinion on whether the information presented is correct and free from material misstatements. A qualified opinion means that the financial statements are presented fairly in all material respects, except for specific and defined cases and/or that the financial statements conform to the stated standards, except for specific and defined areas. An adverse opinion means that the financial statements are not presented fairly and/or are not in compliance with the stated standards. A disclaimer of opinion means that the auditor does not render an opinion, generally due to a limit in scope (access to financial information) or a violation of accounting principles. | Independent, external auditor's report. | The existence of a reservation is based on our interpretation of any included auditor statements. Sometimes auditor's reports are difficult to interpret. |
| Country released EITI report for this year? | Binary Yes/No | Whether or not NOC's home country has published an Extractive Industries Transparency Initiative (EITI) report for this year. The Extractive Industries Transparency Initiative (EITI) is a global standard initiative promoting clear reporting and good governance of oil, gas and mineral resources. In order to publish an EITI report, the country must be a member of EITI. | EITI country website | N/A |
| Any shares publicly traded? | Binary Yes/No | This indicator refers to the ownership structure of the NOC, thus whether or not any shares of the NOC are publicly traded on a stock exchange in that year. An NOC may be 100% owned by the government or only partially. | Company's website or annual report regarding corporate ownership and control. | Some NOCs have subsidiaries that may be listed. We explicitly do not report on subsidiaries, except in the cases of three Chinese NOCs – CNOOC Limited, PetroChina, and Sinopec Group – where we record data on a listed subsidiary in addition to the parent company. |

K. COUNTRY VARIABLES

This indicator group contains information on the national economy, derived largely from public international databases. The data in this group helps situate NOCs into the context of their home countries' economies and public sectors. Further, this data was needed to quantify the weight of the NOCs' revenues and expenses as a proportion of the economy and public sector. (See NOC Data in Context indicator group).

| Indicator | Units | Description and Interpretation | Sources |
|--|---|---|---|
| Exchange rate | USD/ Local Currency Units (LCU) | Official exchange rate (LCU per US\$, period average) | <i>World Development Indicators</i> , World Bank, downloaded April 2018 |
| Gross Domestic Product (GDP) | USD million | Gross domestic product (GDP) is a monetary <u>measure</u> of the economic strength performance of a country. | <i>World Economic Indicators</i> , International Monetary Fund, downloaded April 2018 Presented in national currency, we convert to USD using exchange rate. |
| General government revenue | USD million | Revenue consists of taxes, social contributions, grants receivable, and other revenue. Revenue increases government's net worth, which is the difference between its assets and liabilities. | <i>World Economic Indicators</i> , International Monetary Fund, downloaded April 2018 Presented in national currency, we convert to USD using exchange rate |
| General government expenditure | USD million | Total expenditure consists of total expense and the net acquisition of nonfinancial assets. | <i>World Economic Indicators</i> , International Monetary Fund, downloaded April 2018 Presented in national currency, we convert to USD using exchange rate |
| Oil production of home country | Barrels of oil / day (boe/day) | The total volume of crude oil produced in a given period of time. | <i>BP Energy Outlook 2018</i> and <i>Rystad Energy UCube</i> (proprietary upstream database) |
| Gas production of home country | Barrels of oil equivalent / day (boe/day) | The total volume of natural gas produces in a given period of time, converted to a boe (barrel of oil equivalent). | <i>BP Energy Outlook 2018</i> and <i>Rystad Energy UCube</i> (proprietary upstream database) |
| Oil and gas production of home country | Barrels of oil equivalent / day (boe/day) | The total volume of crude oil and natural gas produced in a given period of time. The gas volume is converted to a boe (barrel oil equivalent) and added to the crude oil produced (barrels of oil) | <i>BP Energy Outlook 2018</i> and <i>Rystad Energy UCube</i> (proprietary upstream database) |

| Indicator | Units | Description and Interpretation | Sources |
|--|------------------|--|---|
| Government resource revenue | USD million | The ICTD GRD systematically distinguishes between resource and non-resource tax revenue, thus providing a clear and consistent picture of non-resource tax collection across countries – while providing detailed data on resource revenue wherever possible. This is achieved primarily, though not exclusively, by relying on more disaggregated data from IMF Article IV reports. | <i>GRD - Government Revenue Dataset</i> , ICTD and UNU Wider, September 2018 https://www.wider.unu.edu/project/government-revenue-dataset |
| Resource revenue share of general government revenue | Percentage share | This is a calculation of a governments total resource revenue (from ICTD UNU Wider) divided by a governments' general government revenue (from IMF). | <i>GRD - Government Revenue Dataset, ICTD and UNU Wider</i> , September 2018 <i>World Economic Indicators</i> , International Monetary Fund, downloaded April 2018 |
| Total wealth | USD million | Total wealth is calculated by summing up each component of wealth. Total wealth = Natural capital + Produced capital + Human capital + Net foreign asset For more details please reference: Building the World Bank's Wealth Accounts: Methods and Data | Wealth Accounting, World Bank, <i>The Changing Wealth of Nations</i> , 30 January 2018, www.worldbank.org/en/news/infographic/2018/01/30/the-changing-wealth-of-nations . |
| Natural capital, subsoil assets: oil and gas | USD million | The value of a nation's stock of petroleum and natural gas is calculated as the present value of expected rents that could be obtained over the lifetime of the resource. Calculating the present value of future rents requires data for annual production, prices, production costs, and reserves. From existing reserves and current rates of production, the time to exhaustion of the resource is assumed. For more details please reference: Building the World Bank's Wealth Accounts: Methods and Data | Wealth Accounting, World Bank, <i>The Changing Wealth of Nations</i> , 30 January 2018, www.worldbank.org/en/news/infographic/2018/01/30/the-changing-wealth-of-nations . |

| Indicator | Units | Description and Interpretation | Sources |
|-----------------------|---------------------------------|---|--|
| Government gross debt | USD million | Gross debt consists of all liabilities that require payment or payments of interested and/or principal by the debtor to the creditor at a date or dates in the future. This includes debt liabilities in the form of SDRs, currency and deposits, debt securities, loans, insurance, pensions and standardized guarantee schemes, and other accounts payable. | <i>World Economic Outlook</i> , International Monetary Fund, downloaded April 2018 |
| Oil reserves | Barrels of oil equivalent (boe) | Quantities of oil anticipated to be commercially recoverable under defined conditions. Reserves must satisfy four criteria: they must be discovered, recoverable, commercial and remaining as of the evaluation date based on the development project applied. | <i>BP Energy Outlook 2018</i> |
| Gas reserves | Barrels of oil equivalent (boe) | Quantities of gas anticipated to be commercially recoverable under defined conditions. Reserves must satisfy four criteria: they must be discovered, recoverable, commercial and remaining as of the evaluation date based on the development project applied. | <i>BP Energy Outlook 2018</i> |
| Oil and gas reserves | Barrels of oil equivalent (boe) | Quantities of oil and gas which has been converted to oil equivalent based on the calorific value of the gas produced. | <i>BP Energy Outlook 2018</i> |

III. Definitions of filters

Users can employ four filters on www.nationaloilcompanydata.org to create peer groups for comparison. These filters can be used on the “Explore by Indicator” page and are constructed as followed:

Region. Divides NOCs based on the region of the company’s headquarters country: Asia-Pacific, Eurasia, Latin America/Caribbean, Middle East/North Africa, Sub-Saharan Africa and Western Europe.

Production level. Divides NOCs based on the average daily production level of oil and gas (in boe equivalent) for the most recent year for which data was available. For companies that reported production data publicly, the group is determined by the production data as captured in the NRCI National Oil Company Database. Where we were not able to find official published data for a company in any year from 2011 to 2017, we categorized companies according to the estimated production as noted in Rystad Energy’s UCube (proprietary Upstream database).⁴

The categories for this filter are:

- 0 boe per day (company is not producing oil)
- Between 0 and 100,000 boe per day
- Between 100,000 and 500,000 boe per day
- More than 500,000 boe per day

Production peer group. This filter further breaks down the database according to the companies’ upstream production profile, through a two-level designation. It begins by distinguishing between “internationalized operators” and “domestic producers.” An “internationalized operator” is a company that is an operator producing a significant share of oil and gas outside its home country. To “operate” an oil and gas project means that a company is either solely responsible for managing the technical and financial operations for the project or is the lead decision-maker responsible for executing technical and financial operations for the project among a consortium of oil companies.

We based the decision on whether a company is an “internationalized operator” on a review of company reports wherever they were available. Many companies do not provide a systematic breakdown of their operated versus non-operated production or the location of production, so in some cases we needed to interpret narrative statements in order to categorize a company. The simple fact that a company owns equity in oil or gas projects or companies outside its country was not sufficient to categorize a company as an internationalized operator; rather, the operator’s role abroad was a necessary determinant. The designation focuses on oil and gas assets that are in production. Some NOCs are the operators of projects in the exploration phase, but where they are not operating any producing assets abroad, we did not categorize them as internationalized operators. The definition of what constitutes a “significant share” of a company’s production does not require that a majority of a company’s assets come from abroad. Rather, it requires that a more than *de minimis* amount of production is abroad.

⁴ These companies are: EGPC (Egypt), Gabon Oil Company (Gabon), GEPetrol (Equatorial Guinea), NIOC (Iran), NOC Libya (Libya), Nilepet (South Sudan), Petroleum Brunei (Brunei), PetroVietnam (Vietnam), PNOC (Philippines), Qatar Petroleum (Qatar), Sudapet (Sudan), Turkmengaz (Turkmenistan) and YOGC (Yemen).

Domestic producers, by contrast, produce all or the overwhelming majority of their oil and gas within their home jurisdictions.

The distinction between “internationalized operators” and “domestic producers” is important because NOCs that are engaged in complex technical activities outside their home jurisdictions may have different business drivers and face different conditions than NOCs working exclusively or overwhelmingly at home. Internationalized NOCs are more likely to compete for access to acreage abroad against other oil and gas companies, which may increase incentives for commercial efficiency. In addition, indicators that express NOC production, revenues or transfers to government as a share of their home-country totals should be read differently for internationalized companies – which are operating from a reserve base that extends beyond their borders – than for domestic NOCs, which are exclusively converting their national public assets into production and revenues.

Among domestic operators this filter breaks companies down by their daily production level. This component follows the same rules as those described above for the “production level” filter. It divides domestic NOCs based on the average daily production level of oil and gas (in barrels of oil equivalent) for the most recent year for which data was available. For companies that reported production data publicly, the group is determined by the production data as captured in the NRCI National Oil Company Database. Where we were not able to find officially published data for a company in any year from 2011 to 2017, we categorized companies according to production as noted in Rystad Energy’s UCube (proprietary upstream database).⁵

The filter also includes a grouping of “Pre-production NOCs,” which are not yet producing oil or gas. This group contains NOCs that are involved in upstream exploration or preparing for production but are not yet producing oil.

To summarize, the five groupings contained in this filter are:

- Internationalized operators
- Large domestic producers
- Medium domestic producers
- Small domestic producers
- Pre-production NOCs

Audited. This filter allows users to sort companies based on whether the report that served as the principle source for the most recent year for which data was available was audited by an independent external auditor, as determined by the methodology described above for the question “Report audited by an independent external auditor?” It allows users to filter data if they are interested only in examining companies whose data was subject to this quality check.

⁵ These companies are: CNOOC (China), EGPC (Egypt), Gabon Oil Company (Gabon), GEPetrol (Equatorial Guinea), IPIC (United Arab Emirates), NIOC (Iran), NOC Libya (Libya), Nilepet (South Sudan), Petroleum Brunei (Brunei), PetroVietnam (Vietnam), PNOOC (Philippines), Qatar Petroleum (Qatar), Sinopec Group (China), Sudapet (Sudan), Turkmengaz (Turkmenistan) and YOGC (Yemen).