National Oil Company Database
How-to-Use Guide

Contents

I. Introduction

This document provides guidance to users of the Natural Resource Governance Institute (NRGI) National Oil Company Database. The database can be a powerful tool for national oil company (NOC) leaders, governments, activists, researchers and journalists seeking to understand the role of NOCs in global oil markets and analyze the performance and fiscal contributions of specific NOCs. It provides users with a single repository of detailed information on companies and can provide meaningful inputs for multi-year and/or cross-company comparative analysis on NOC activities and finances.

We divided this guide into two sections. First, it offers instructions on how to navigate the database website, at www.nationaloilcompanydata.org. The document summarizes the major features of the website and provides guidance on their use.

Second, this document offers analytical guidance on strategies that users can employ to make the most out of the database to analyze and benchmark NOCs. Benchmarking carries certain inherent challenges, because of differences among NOCs in terms of their mandates, experience levels and national contexts, as well as differences in the quality and location of the oil and gas they produce. As such, in order to maximize the value of the data for benchmarking and to minimize the risk of misinterpretation, the document offers several strategies and questions for users to consider when developing queries that use the data.

This *How-to-Use Guide* does not provide a comprehensive description of the NRGI National Oil Company Database or the methodology used to develop it. Readers interested in such a discussion are encouraged to consult NRGI's publication *National Oil Company Database: Methodology Guide*.

II. Website navigation

As of the launch of www.nationaloilcompanydata.org in April 2019, the database website has four pages, a "Home/about" page, an "Explore by indicator" page, an "Explore by company" page, and a "Publications" page.

a. Home/about page
The home page of the website provides a synopsis of the goals of the website, information on NRGI's privacy policy, use of cookies and the terms of use of the website.

The home page has an "explore button" that takes users immediately to the "Explore by Indicator" page of the site. (See below for details.)

The footer that appears on the home page and all other pages of the site includes a brief summary of NRGI's data-gathering methodology and an email address for users to submit any data errors or omissions that they encounter when exploring the data.

b. Explore by indicator page
The explore by indicator page provides users with the opportunity to examine specific data points across different NOCs. We designed it to facilitate comparisons among companies and over time. A user can navigate the page via a two-step process. First, a user selects an indicator. Second, the user can apply filters to narrow the list of companies or years to display.

Selecting an indicator
A user selects which indicator to look at by choosing from the drop-down lists in the white indicator bar at the top of the page (immediately beneath the blue menu bar). A user begins by selecting among the eleven indicator groups listed in Box 1. Once the user has selected an indicator group, the dropdown list for "Indicator" will automatically populate with the indicators from that group. When a user selects an indicator, the data for that indicator will populate the data table on the page.

When a user selects an indicator, the appropriate unit corresponding with that indicator (e.g. barrels of oil equivalent, US dollars) will appear in the "units" box. Note that on the explore by indicators page, all currency values are in US dollars, to allow for cross-company comparison.

For a complete list of indicators and the methodology by which we calculated them, see *National Oil Company Database: Definitions of Indicators and Filters*.

Filtering companies and years
Directly below the indicator selection dropdowns are data filters, which appear as white boxes against a grey background. These filters allow the user to identify a sub-group of companies to display. A user may wish to do this if s/he wants to compare data among a group of NOCs that share certain traits. See Section II, below, for a guidance on how to use filters as a part of a data analysis strategy. The filters also allow users to view a subset of the available data years.

We provide full definitions of the filters and the methodology by which we constructed them in *National Oil Company Database: Methodology Guide*. The filters available on the explore by indicator page are:

- *Timeframe.* Allows a user to select which years of data to view
- *Production level.* Divides NOCs based on the size of oil and gas production
- *Production peer group.* Provides further disaggregation of the NOC production profile, based on size of production and whether it is internationalized or overwhelmingly domestic
- *Region.* Enables comparison of an NOC to others headquartered in same geographic region
- *Audit status.* Divides NOCs based on whether the report(s) in the database was subject to independent audit.

When a user selects any filter(s), the data table will automatically narrow its display to the companies captured in the search.

Consulting sources and downloading data

The explore by indicator page allows a user to examine the sources that NRGI used to build the data set, via several links available in the "Source documents" dropdown list located just beneath the data filters:

- The *Resource Governance Index*, which provides data on transparency and reporting practices for 52 NOCs worldwide, all of which we included in the NRGI National Oil Company Database
- The National Oil Company Database library at https://www.resourcedata.org/organization/noc-library, which provides copies of the NOC reports, government reports and other documents that served as the principal sources for the National Oil Company Database
- The full dataset, including annotations on sources

Users wishing to download the data in CSV format may do in two ways from the explore by indicator page:

- The "Download table data" button, located immediately to the right of the "Source documents" dropdown, provides a download of the data displayed on the page at the moment the button is clicked, allowing a user to capture the data according to the indicators and filters selected.
- A user can download the full dataset, including annotation on sources, either by clicking on "Full dataset download" in the "Source documents" dropdown or by clicking the "Download full dataset" button at the bottom of the page.

Navigating the data table shown on the screen

The data table that displays on this page shows the name of the company and its home country along the first two columns on the left. The third column shows whether the principal source of information for the data collection was company reporting (which also includes reporting by government ministries and agencies) or reports filed by the EITI or, in the case of Ghana's GNPC, the Public Interest and Accountability Committee (PIAC). For a discussion of the implications of data coming from these various sources, see *National Oil Company Database: Methodology Guide.*

A user may sort data in the table by clicking on the label at the top of any column. As such, s/he can sort the data alphabetically by company or country names, by the type of reporting that served as the primary source, or by the data values for any year.

Some cells in our data set are blank. A blank cell indicates that NRGI was not able to find sufficient information in public reporting to include the data point in a manner consistent with our project methodology.

c. Explore by company page

The "Explore by company page" allows a user to see all available information for one NOC in a single place. The data displayed for a company on the Explore by company page matches data that would display for the same company in a query executed on the Explore by indicator page. It is important to note that this data reflects NRGI's consistent methodology for defining each indicator, and in some cases this approach requires aggregating or disaggregating the data from various lines of a company or government report. As such, where our definition or methodology for an indicator does not match the definition or methodology used by the reporting for an NOC, our data may show a different value than an official report using similar terminology.

Selecting a company

A user selects which company to look at by choosing from the drop-down lists in the white company bar at the top of the page (immediately beneath the blue menu bar). The user first selects the home country via the "Country" dropdown menu. Once s/he has selected a country, the "Company Name" dropdown will automatically populate with the NOC(s) based in the selected country. In many cases there is only one NOC for the country. But several countries have more than one NOC, and in these cases, the user can choose which NOC s/he wishes to view by choosing from among the options in the "Company Name" dropdown.

The "Data Source" dropdown will automatically populate with the type of data source(s) that served as the principal source of information for the data collection: "Company Reporting" (which also includes reporting by government ministries and agencies), or reports filed by the EITI or, in the case of Ghana's GNPC, the Public Interest and Accountability Committee (PIAC). For most NOCs, there is only one principal data source available. For a small number of NOCs, however, there are separate data tables for "Company Reporting" and EITI/PIAC reporting.[1] For a discussion of the implications of data coming from these various sources, see *National Oil Company Database: Methodology Guide.*

Organizing data display. Timeframe and currency units

Immediately below the white company bar are several buttons that enable users to determine which data will display for the selected company. The "timeframe" buttons allow a user to select which years of data to view.

The "Currency unit" toggle allows a user to display financial data either in US dollars or in the local currency of the company's home country. If a user selects "Local," a "Local currency unit" box appears that shows the name of the country's currency.

Consulting sources and downloading data

The explore by company page allows a user to examine the sources that NRGI used to build the data set, via several links available in the "Source documents" dropdown list:
- The NOC's website, where available

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[1] Upon the launch of the database in 2019, there were five companies with separate data tables for "Company Reporting" and EITI/PIAC reporting: Cameroon's Société Nationale des Hydrocarbures (SNH), Cote d'Ivoire's Petroci, Ghana's Ghana National Petroleum Corporation (GNPC), Liberia's NOCAL, and Mozambique's Empresa Nacional de Hidrocarbonetos (ENH). See *National Oil Company Database: Methodology Guide* for a more detailed discussion.

- The *Resource Governance Index*, which provides data on transparency and reporting practices for 52 NOCs worldwide, all of which we included in the NRGI National Oil Company Database
- The National Oil Company Database library at www.resourcedata.org/noc-library, which provides copies of the NOC reports, government reports and other documents that served as the principal sources for the National Oil Company Database
- The full dataset, including annotations on sources

Users wishing to download the data in CSV format may do so in two ways from the explore by company page:
- The "Download table data" button, located immediately to the right of the "Source documents" dropdown, provides a download of the data displayed on the page at the moment the button is clicked, allowing a user to capture the data according to the company selected and the data displayed.
- A user can download the full dataset, including annotation on sources, either by clicking on "Full dataset download" in the "Source documents" dropdown or by clicking the "Download full dataset" button at the bottom of the page.

Navigating the data table

Data displays for the selected company by indicator group. For a list and basic description of the indicator groups, see Box 1, above. For a complete list of indicators and the methodology by which we calculated them, see *National Oil Company Database: Definitions of Indicators and Filters*.

When a user first selects a company, by default the indicators in the "Exploration and production" indicator group expand and are fully visible, and the other indicator groups collapse. To expand or collapse an indicator group, a user can click on the arrow on the right side of the bar bearing the indicator group's name.

A user may sort data within an indicator group in the table by clicking on the label at the top of any column. As such, the user can sort data alphabetically by indicator or unit, or by the data values for any year.

Some cells in our data set are blank. A blank cell indicates that NRGI was not able to find sufficient information in public reporting to include the data point in a manner consistent with our project methodology.

d. Publications

The site's Publications page contains reports and other documents that present the database, discuss key findings derived from the data, and provide a broader sample of the work of NRGI and its partners on state-owned enterprise governance. The page divides documents into three categories:
- "How to use" publications provide users with guidance on the database and its construction.
- "Key publications" include the core products on major findings from the database and what it contains.
- "Associated publications" include other resources on NOCs and state-owned enterprises, from NRGI and its partners.

III. Guidance on using the database for benchmarking and analysis

As we describe in *National Oil Company Database: Methodology Guide*, we designed the database to facilitate detailed, long-term analysis on NOC activities and finances. We also designed it to help NOC leaders, government officials, civil society activists, researchers and others benchmark the performance of specific NOCs, to inform policy choices and management processes associated with NOCs, including on corporate governance, fiscal transfers between NOCs and their governments and the definition of company strategy.

One of the main objectives behind the creation of the database was to allow analysts to go beyond usual case-by-case analysis. By amassing extensive data across companies and years in one place, we sought to help users see how one NOC's operational and economic data over time compares against peer companies.

It is important to note that the database is not, on its own, a substitute for in-depth analysis of an individual NOC. In implementing a methodology that sought to measure indicators consistently across a large variety of companies with different mandates, capabilities and reporting practices, the database necessarily does not cover all the specific features and challenges of individual companies. As such, our data alone will rarely suffice for policy-makers or analysts to use on their own to diagnose or implement key policies.

The data can be valuable, however, as an input into in-depth country analyses, by grounding data on one NOC in a broader perspective related to the choices made by, and the performance of, other similarly-situated companies. In the past, NOCs have often struggled to contextualize their performance, and governments have struggled to create and maintain clear, fair benchmarks against which to assess success. By providing extensive data for dozens of NOCs according to a consistent methodology, the database can bolster benchmarking efforts.

Comparative data analysis carries inherent risks, however, and this section provides some guidance for users of the database to consider when organizing their analysis. Most significantly, perhaps, the database contains information on a wide range of companies. All are called "national oil companies," but they vary significantly in terms of goals, geology and national context. Blanket comparisons between, e.g., a new non-operating NOC and global giants with operations all over the world risk generating ineffective or irresponsible conclusions.

In *Massive and Misunderstood: Data-Driven Insights into National Oil Companies*, NRGI offers substantial discussion of how researchers should tailor their analysis of government-NOC fiscal policy and NOC performance to match the principal goals for a company and its government. An NOC tasked with maximizing the near-term revenue that it delivers to the national treasury should have a different set of drivers than an NOC tasked with maximizing operational efficiency and long-term profits. Similarly, an NOC that prioritizes the delivery of public goods directly to citizens (via, for example, subsidized fuel) should be assessed differently vis-à-vis its fiscal contributions or profits than other companies with more traditionally commercial mandates. *Massive and Misunderstood: Data-Driven Insights into National Oil Companies* offers several examples of tailored cross-company analysis that differentiates based on the company's level of production, its domestic versus international nature, whether or not it is a listed on a public stock exchange and the most important priorities that it is called upon to achieve.

The mixed mandates of many companies mean that it is impossible to conclusively sort all NOCs into a rigid role-based typology but considering where an NOC is situated on a spectrum among the following archetypes can help generate more meaningful interpretation:

- *Cash cow.* An NOC in this category prioritizes delivering revenues to the treasury. It exists primarily to help the state monetize its oil resources, ensure that the sector runs well and transfers as large a share of oil revenues as possible to the state. Cash cows tend to be more focused on capturing and transferring today's rents than engaging in risk-taking investment that could either consume those rents without return (if the investments fail) or generate long-term company growth (if the investments succeed).
- *Profit seeker*. An NOC in this category prioritizes commercial success, in the form of profit and the development of commercial skills and efficiency. If successful, a profit seeker NOC will deliver long-term financial returns to the state (and its other shareholders, if present) in the form of dividends and income taxes, but its short-term incentives may include a desire to minimize payments to the state in the pursuit of a growth strategy. A profit seeker will likely be interested in increasing its reserves over time. Companies that list some shares on public stock exchanges are more likely to have profit seeker tendencies, since they must appeal to the bottom lines of their non-state investors. Internationalized NOCs may also be more likely to be profit seekers, since their orientation is fundamentally growth-oriented, and they usually need to compete for access to projects outside their home jurisdiction. Listings and international operations can, therefore, serve as rough proxies for this category.
- *State supplement*. An NOC in this category prioritizes delivering public services rather than commercial ones, performing roles similar to those typically played by traditional government ministries. This category includes companies that provide services to citizens in the energy/petroleum sectors – including fuel subsidies, domestic importing and refining and energy. It also includes companies charged with providing other social services, building infrastructure, employing large numbers of citizens and promoting the local private sector. In contrast to cash cows, state supplement NOCs do not prioritize the maximization of fiscal transfers, instead focusing on delivering value to citizens through more direct means.

Users of the database can hone their analysis of a specific indicator or company by asking a series of questions as they develop their query and interpret the results. The following table provides some guidance on these questions.

Table 1. Guidance on selecting companies and interpreting results

a. Level of analysis

Overarching question	Are you principally interested in (a) tracking changes in an NOC over time, or (b) in comparing the NOC against others?
Implications of (a)	If you are principally interested in tracking changes in an NOC over time, you should begin with the "Explore by Company" page of the website. This will enable you to view all information on the company together, across a series of years, which can facilitate easy assessment of trends over time and the company's responsiveness to government priorities.
Implications of (b)	If you are principally interested in comparing the NOC against other companies, you should begin with the "Explore by Indicator" page of the website. This will enable you to compare various NOCs in terms of that indicator. If following this

	path, the questions below about constructing peer groups and interpreting the data are particularly important.

b. Principal focus of your analysis

Overarching question	What aspects of the NOC's activities or performance are you principally interested in analyzing?
Implications of your answer	The "indicator group" categories on the website provide a strong basis for targeting the indicators most likely to respond to your needs.

c. Selecting peer companies for comparison

Overarching question	How do you decide what other companies make good comparators against the NOC you are analyzing?
Importance of the question	In deciding the best peer companies against which to compare the NOC you are analyzing, it is valuable to try to find similarly-situated companies, to ensure that the comparison has meaning.
Options for selecting peers – within the dataset	The database has built-in filters that can help you compare companies that resemble yours along several lines. For a full definition of the peer groups and a list of companies by peer group, see *National Oil Company Database: Methodology Guide*. The filters are as follows: • *Region*. Looking at other companies from the same region as the one you are examining can provide a basis for comparison among companies with similar histories, legal systems, or geopolitical roles. • *Production-based peer groups.* We have divided the dataset into five groups based on the profile of the company's upstream production. They are internationalized operators, large domestic producers, medium domestic producers, small domestic producers and zero-production NOCs. Using this peer group as a basis of comparison enables you to look at your company's performance or fiscal contributions against either other internationalized companies or against those who are producing in their home markets at a similar rate. • *Production level*. The database also allows you to filter based on a more straightforward division of the available companies based on their total production in barrel of oil equivalent terms. • *Audit status*. Divides NOCs based on whether the report(s) that provided the basis for population of the database was subject to independent audit. In addition to the filters, it is possible to use the downloaded data itself to sort companies according to various other factors, including, but not limited to: • Whether the NOC is an operator • Whether its production is predominantly oil, predominantly gas, or other • The dependence of the economy on oil and gas revenues
Options for selecting peers – ad hoc	In addition to sorting mechanisms that are directly available within our database, it may also be useful in some cases to base peer group selection on

	qualitative criteria or on figures that are not present within the database itself, including:
	- Company role and mandate – is it principally a cash cow, state supplement or profit seeker? Does the company play a significant role in the downstream? - Age of the company – it may be valuable in some cases to compare relatively new NOCs against each other, or relatively old NOCs against each other. - Quality or cost of oil in the country – our database did not attempt to capture data on the value of different varieties of oil/gas, or of production costs necessary in order to bring that oil/gas to market. But such factors often have an important influence on the revenues and profits of NOCs. As such, researchers who are principally interested in commercial efficiency may consider accessing other data sources to complement our database by enabling the creation of peer groups of companies whose oil extraction has similar core traits.

d. Interpreting results

Overarching question	Once you have selected a peer group and assembled the data for your chosen indicator, how do you interpret it?
Key factors regarding interpretation	It is important to remember that just because you have assembled a peer group and looked at the data for that group does not necessarily mean that a company with a higher score on the indicator is "doing better" than other companies in the peer group. The data can be an important component of a comparative analysis, but simply gathering the data should not represent the end of such analysis. Instead, it can be valuable to scrutinize the data and consider other possible explanations for the divergence in performance, including: - Differences in goals – one NOC may prioritize non-commercial goals more than another company does, for example, which might hurt its statistics on traditional performance metrics but does not necessarily denote failure. - Differences in quality or cost of oil in the country. (See question (c), above.) That question focuses on using these factors as a tool for constructing peer groups, but researchers can also use them to examine and seek to explain differences within peer groups.