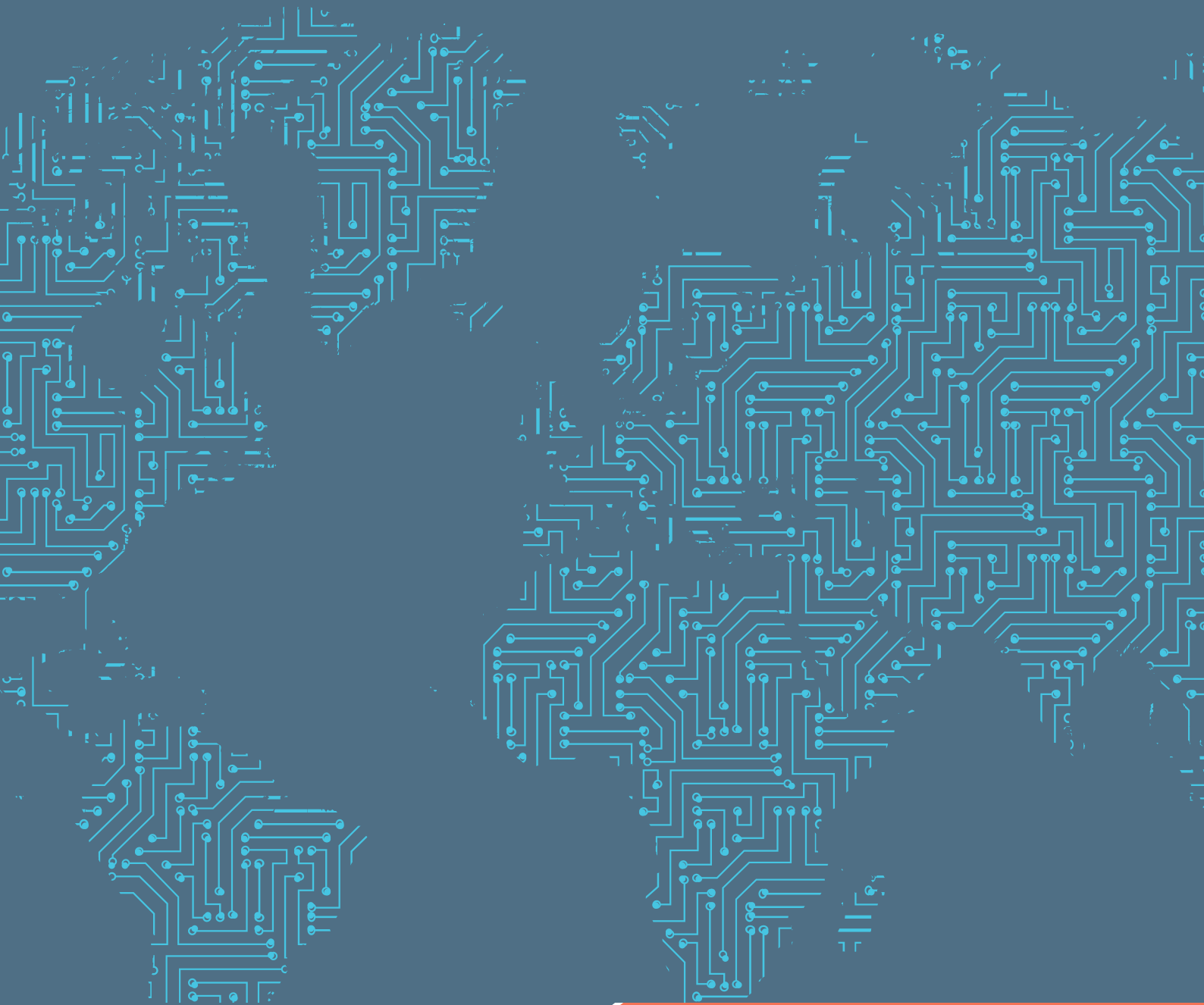


The National Oil Company Database



APRIL 2019

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Key messages

- NRGi’s National Oil Company Database, available at www.nationaloilcompanydata.org, provides the world’s largest set of open data on NOC production, revenues, spending and transfers to government, with more than 70,000 data points from 71 companies worldwide from 2011 to 2017.
- NOCs produce 55 percent of the world’s oil and gas, an estimated 85 million barrels of oil equivalent per day. They dominate the production landscape within some of the world’s most oil-rich countries, including Saudi Arabia, Mexico, Venezuela and Iran, and play a central role in the oil and gas sector in many emerging producers. In 2017, NOCs that published data on their assets reported combined assets of \$3.1 trillion.
- At least 25 countries are “NOC-dependent,” meaning that the NOC collects revenues equivalent to more than 20 percent of all government revenues. The fiscal health of many countries and their governments’ ability to use oil revenues to finance development depends heavily on how well the NOC is run, how much revenue it transfers to the state, and the quality of its spending.
- Many NOCs carry big debts, sometimes 10 percent or more of their countries’ GDP. Several NOCs have required multi-billion dollar government bail-outs in recent years, becoming a costly drain on public finances.
- Almost two-thirds of NOCs exhibit “weak,” “poor” or “failing” performance on public transparency, as measured by the Resource Governance Index. The database research further highlights these deficiencies. Reporting on expenditures, transfers to the government and the breakdown of oil and gas production from different sources remain weak in many countries.

Foreword

We have all seen the headlines. The giant “Car Wash” pay-for-play scandal in Brazil, spilling over to the rest of the continent. Allegations of billions gone missing from oil sales in Nigeria. Oil company debts totaling around a quarter of GDP in conflict-ravaged Venezuela. National oil companies (NOCs) are at the center of governance challenges in many resource-dependent countries. Their success or failure is inextricably linked to the macroeconomic health and development prospects of their countries.

In our work over the years, however, we at the Natural Resource Governance Institute (NRGI) have seen the bright side as well. We have worked with NOC leaders in Ghana, motivated to learn from the successes – and failures – of companies that have been at the oil game much longer than they have. We have brainstormed with officials from the planning ministry in Indonesia, as they wrestle with policy choices to help reinvigorate their country’s flagship NOC. And we have supported – and been inspired by – countless journalists, activists and researchers, committed to understanding whether these companies are contributing to national development, and pushing them to deliver results.

Many of these companies rank among the richest entities in the world. But it has been difficult to truly understand how they are managing public resources and to create strong incentives for performance. One common challenge that permeates these experiences – the positive and the negative – has been a lack of solid, publicly available comparative data on their revenues, spending, balance sheets and transfers to governments. We are one of a number of organizations working to encourage and provide advice on more extensive,

more consistent reporting by these companies. And thanks to strong leadership, indeed several NOCs have taken a number of important steps forward, even though significant gaps remain.

But even where NOCs have started to put more information in the public domain, questions abound. “What do I do with this information?” “How can we analyze whether a company is doing well with the resources it’s been given?” “Why do different NOCs do what they do, and what risks do they bring?”

It is these questions that inspired the creation of NRGI’s National Oil Company Database, presented in this report and the only publicly available resource of its kind. We wanted to take advantage of the growing amount of information in the public domain and help make sense of it, and to fill gaps in knowledge and understanding of these massively influential companies. In the future, we hope that disclosures will continue to expand, illuminating areas that remain dark, and that NOCs – and the governments and citizens in their home countries – will take advantage of an increasingly data-rich environment to improve benchmarking, reduce governance risk and increase their contributions to national development.

Daniel Kaufmann
President and CEO
Natural Resource Governance Institute

Patrick R.P. Heller
Advisor
Natural Resource Governance Institute

Introduction

The National Oil Company Database helps fill a significant gap in knowledge of the global economy. national oil companies (NOCs) produce approximately 55 percent of the world's oil and gas, pumping out an estimated 85 million barrels of oil equivalent per day.¹ The World Bank has estimated that they control up to 90 percent of global oil and gas reserves, thereby serving as gatekeepers for international oil companies' access to hydrocarbons.² Within their home countries, NOCs influence the degree to which billions of people benefit—or suffer—as a result of their countries' hydrocarbon wealth. Many of these companies manage multi-billion-dollar portfolios of public assets, execute complex projects across their territories and at sea, employ citizens in the tens or hundreds of thousands, and perform a range of public services from providing energy to building infrastructure.

Effective NOCs deliver significant value to their state shareholders via fiscal revenue contributions to the treasury, successful exploration efforts, and the development of new skills and technologies. Many NOCs, however, have struggled to generate sustained financial returns and/or have been beset by corruption. Some also struggle with mixed mandates and unclear directions from their political masters.

Despite their importance, NOCs have traditionally been poorly understood partly thanks to weak and uneven reporting, sparse research, and an absence of

publicly available comparative data. Without solid information, governments, oversight bodies and market players struggle to assess NOC performance and develop strategies for how these influential entities can generate greater benefits for citizens.

In order to address these challenges, the Natural Resource Governance Institute (NRGI) has assembled the world's most comprehensive open database on NOCs. The National Oil Company Database is an online, interactive tool that enables a wide range of users—from government officials and NOC executives to journalists and activists—to better understand the roles played by these companies and hold them accountable to generate returns on public investment. This database gathers in one place detailed information derived from public sources and compiled according to a consistent methodology to facilitate benchmarking of companies and cross-cutting analysis of their roles, impacts and reform prospects.

At the time of its launch in early 2019, the database covers 71 NOCs headquartered in 61 countries worldwide. It provides data on 11 indicator groups, including NOC production, revenue generation, fiscal transfers to government and operational and financial performance, covering a seven-year time series (2011 to 2017).³ For the year 2017, the database includes data on NOCs with total revenues of \$1.9 trillion and total assets of \$3.1 trillion.⁴



National Oil Company Database

A project by the Natural Resource Governance Institute

National oil companies (NOCs) play huge roles in their home-country economies and are critical players in global oil and gas markets. This open database compiles information on the production, revenues, operational and financial performance of 71 NOCs. Data has been drawn from official public documents, and assembled using a consistent methodology to facilitate cross-cutting analysis and benchmarking of individual companies.

EXPLORE



NRGI's National Oil Company Database at a glance, April 2019

Website: www.nationaloilcompanydata.org

Companies included: 71

Home countries represented: 61, across all regions of the world

Time period covered: 2011—2017

Indicators measured: 135

Individual data points: more than 70,000

"Explore by indicator" page (www.nationaloilcompanydata.org/indicator).

This page provides users with the opportunity to examine specific data points across different NOCs.

It is designed to facilitate comparisons among companies and over time.

The screenshot shows the 'Explore by indicator' interface. At the top, there are navigation tabs: 'About', 'Explore by indicator' (active), 'Explore by company', and 'Publications'. Below the navigation, there are three main selection areas: 'INDICATOR GROUP' set to 'Exploration and production', 'INDICATOR' set to 'Oil & gas production', and 'UNITS' set to 'barrels of oil equiv./day'. Below these are several filter dropdowns: 'Timeframe' (2011 to 2017), 'Region' (All), 'Production level' (All), 'Production peer group' (All), and 'Audited' (All). There is also a 'Source documents' dropdown set to 'Show sources' and a green 'Download table data' button. At the bottom, the selected indicator is displayed as 'Oil & gas production - barrels of oil equiv./day' with options for 'Blank cells' and 'Definitions of indicators'.

Callouts include:

- 'Select indicator from 11 indicator groups.' pointing to the 'Exploration and production' dropdown.
- 'Data filters allow users to sort based on company characteristics.' pointing to the 'Audited' dropdown.
- 'Download the results of a data query or the entire dataset.' pointing to the 'Download table data' button.

"Explore by company" page (www.nationaloilcompanydata.org/indicator).

This page allows a user to see all available information for one NOC together in one place.

The screenshot shows the 'Explore by company' interface. At the top, there are navigation tabs: 'About', 'Explore by indicator', 'Explore by company' (active), and 'Publications'. Below the navigation, there are three main selection areas: 'COUNTRY' set to 'Brazil', 'COMPANY NAME' set to 'Petrobras', and 'DATA SOURCE' set to 'Company Reporting'. Below these are 'Timeframe' (2011 to 2017), 'Currency unit' (USD and Local), and 'Source documents' (Show sources) dropdowns. A green 'Download table data' button is also present. At the bottom, the selected indicator is displayed as 'Exploration and production' with a table showing data for years 2011 through 2017.

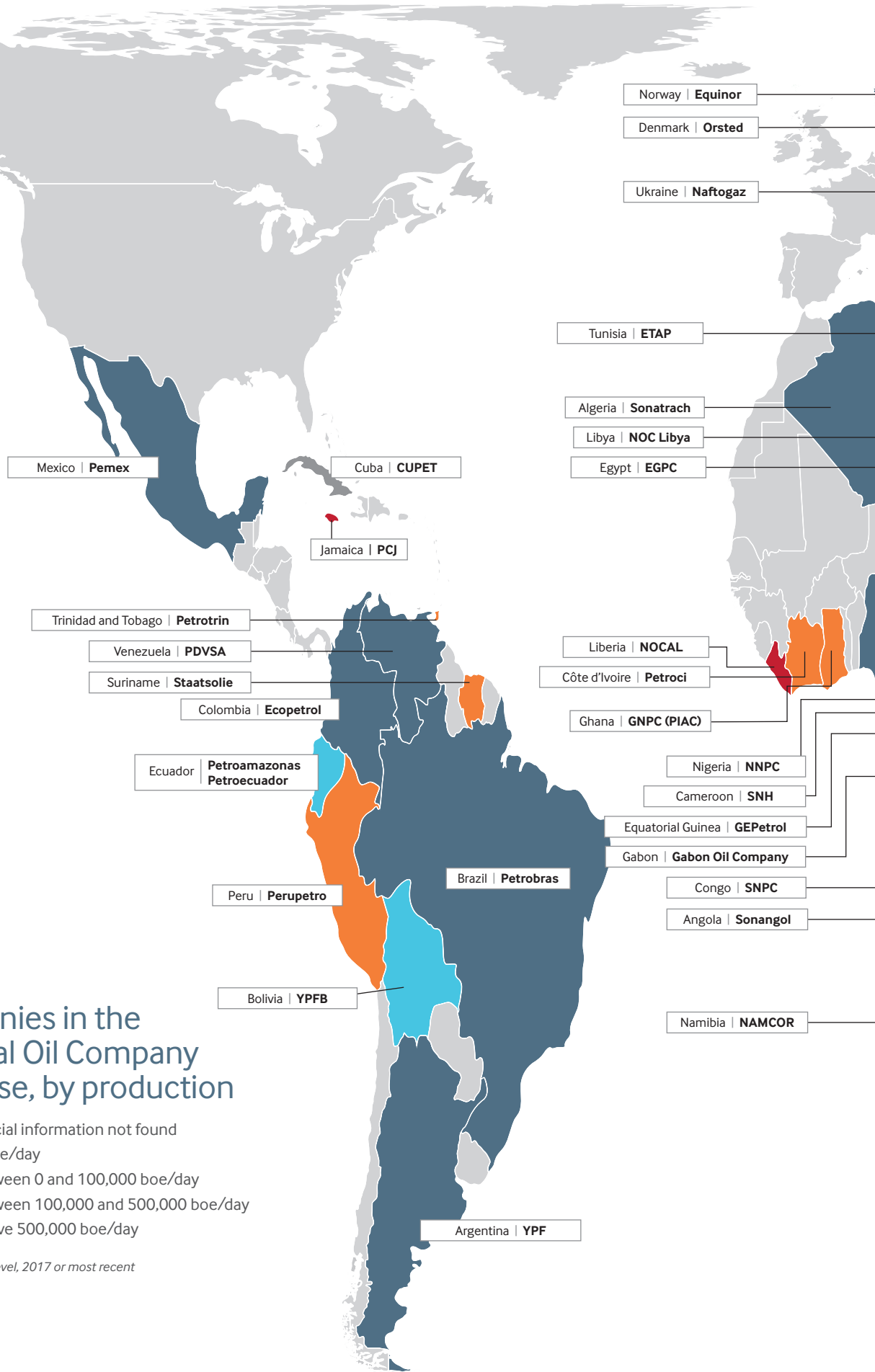
Callouts include:

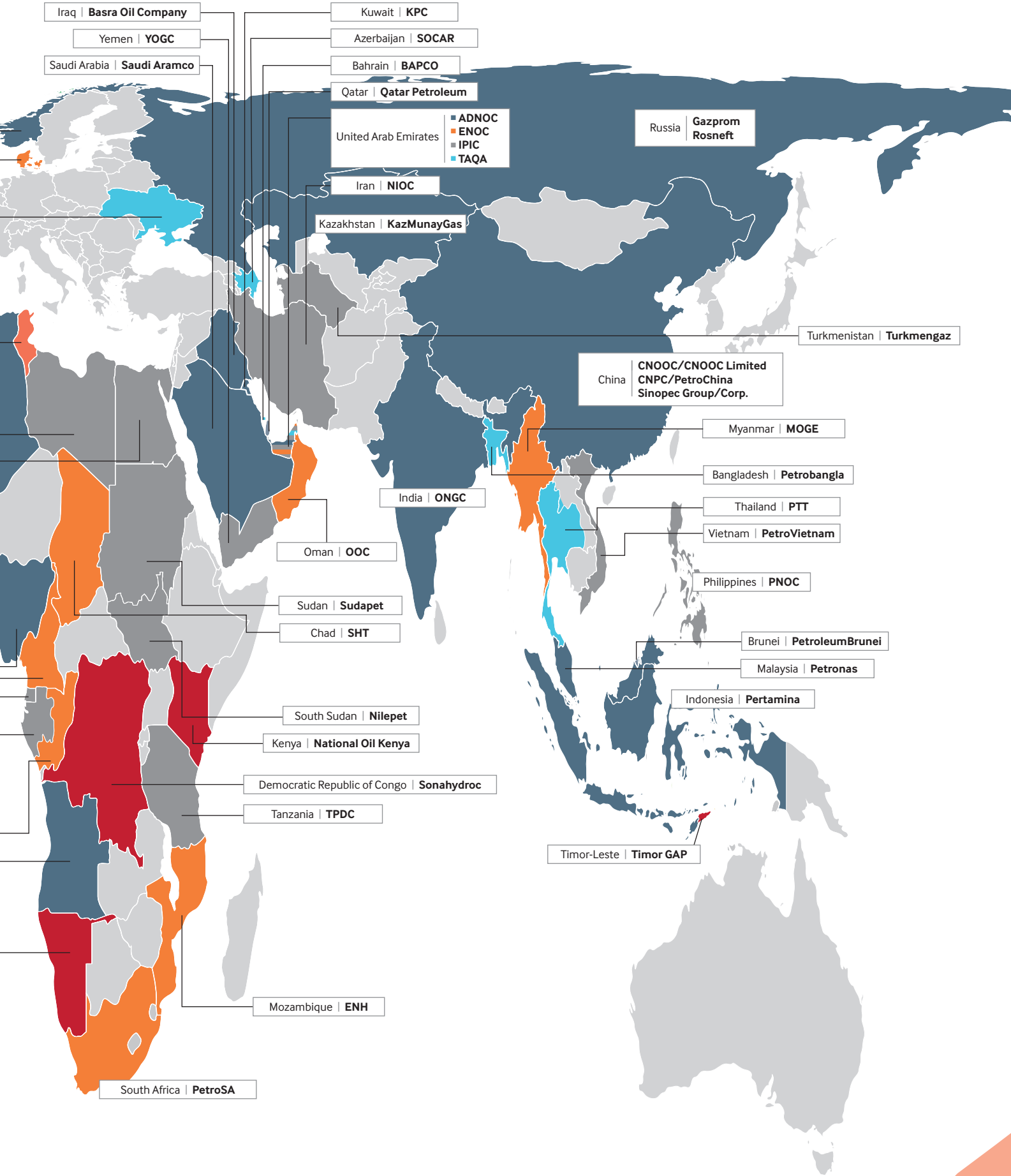
- 'Select based on country or company.' pointing to the 'Brazil' dropdown.
- 'Consult source documents, explore the company's website or examine related data on the Resource Governance Index.' pointing to the 'Show sources' dropdown.

Companies in the National Oil Company Database, by production

- Official information not found
- 0 boe/day
- Between 0 and 100,000 boe/day
- Between 100,000 and 500,000 boe/day
- Above 500,000 boe/day

NOC production level, 2017 or most recent





The database bolsters arguments for more transparent reporting, by highlighting persistent weaknesses, demonstrating the value of consistent reporting, and identifying several prominent NOCs that publish little useful data.

The database bolsters arguments for more transparent reporting by state-owned enterprises, by highlighting persistent weaknesses in reporting on several critical indicators, demonstrating the value of consistent reporting for policymaking and oversight, and identifying several prominent NOCs that publish very little useful data. Table 2 on page 21 below provides details on some of the most important transparency gaps.

The database is an online tool. It allows users to view all available data for one company, or to “explore by indicator” and view comparative data across a range of NOCs. It features data filters that allow a user to compare data across sub-groups of NOCs based on region or production profile.

Users can download the entire dataset including source information in CSV format. The database also provides links to a specially-created document library, www.resourcedata.org/organization/noc-library, which houses the official source documents from which the data were drawn.

This report summarizes the central findings and provides an overview of how the database was developed and how it can be used to bolster efforts to support NOC governance. Another companion paper, *Massive and Misunderstood: Data-Driven Insights into National Oil Companies*, provides in-depth analysis deriving from NRGi experts’ examination of the data.

Database methodology

The database covers companies (a) in which the state has a *majority ownership* stake and/or a “golden share” that gives it effective control over decision-making; (b) that are defined by national legislation and/or national practice as an enterprise; and (c) that are involved in upstream activities related to the exploration, production, processing and/or regulation of oil and gas.⁵

The data on NOCs in the database are derived exclusively from official government and NOC sources. Companies’ annual and financial reports are the principal source of information for most companies in the database. NRGi supplemented these data with information on NOCs from other government reports, including filings by ministries of oil, energy and finance and EITI reports. Data-gathering and the definition of major benchmarks focused on the companies’ upstream roles in exploration, production and revenue-generation. Beyond this NOC-specific data, the database draws contextual indicators on home-country economies and government finances from international institutions such as the International Monetary Fund and World Bank. The database also provides users with links to several resources to support further analysis, including the underlying documents that served as the source data, NRGi’s Resource Governance Index and the websites of the NOCs themselves.

NRGI selected indicators for the database in accordance with several goals:

- Providing information on the scale of NOC activities, including production, revenues, expenditures, assets and liabilities
- Facilitating benchmarking of NOC performance and return on public investment, to enable company and government leaders to set ambitious targets and measure success
- Informing fiscal policy, which dictates the share of revenues that an NOC can spend and the share that must be transferred to government
- Deepening global understanding of NOC reporting practices and priorities for transparency reform

To address these topics, the project team collected data on 135 indicators, grouped into eleven indicator groups, as illustrated in Box 3.

National Oil Company Database: Methodology Guide contains a detailed description the database’s construction. The data collection approach was designed to mitigate the challenges that have traditionally impeded systematic comparative analysis of NOCs. The most important longstanding data challenge has been a failure by many NOCs to report publicly. This problem persists, as is discussed in detail below. But by seeking information across a wide range of official platforms and sources, NRCI was able to capture and present in one place more public information than has been previously assembled.

Even when companies have made information available, it has often been difficult for regulators, legislators and public interest groups to use it, and especially to compare data across NOCs. Not all NOCs report according to International Financial Reporting Standards (IFRS) and even when they do follow core accounting principles, there is significant variation in how they report and categorize data. In order to maximize consistency of data and comparability between NOCs, the database employs a standard definition for each indicator.⁶

Figure 1. Indicator groups in the National Oil Company Database

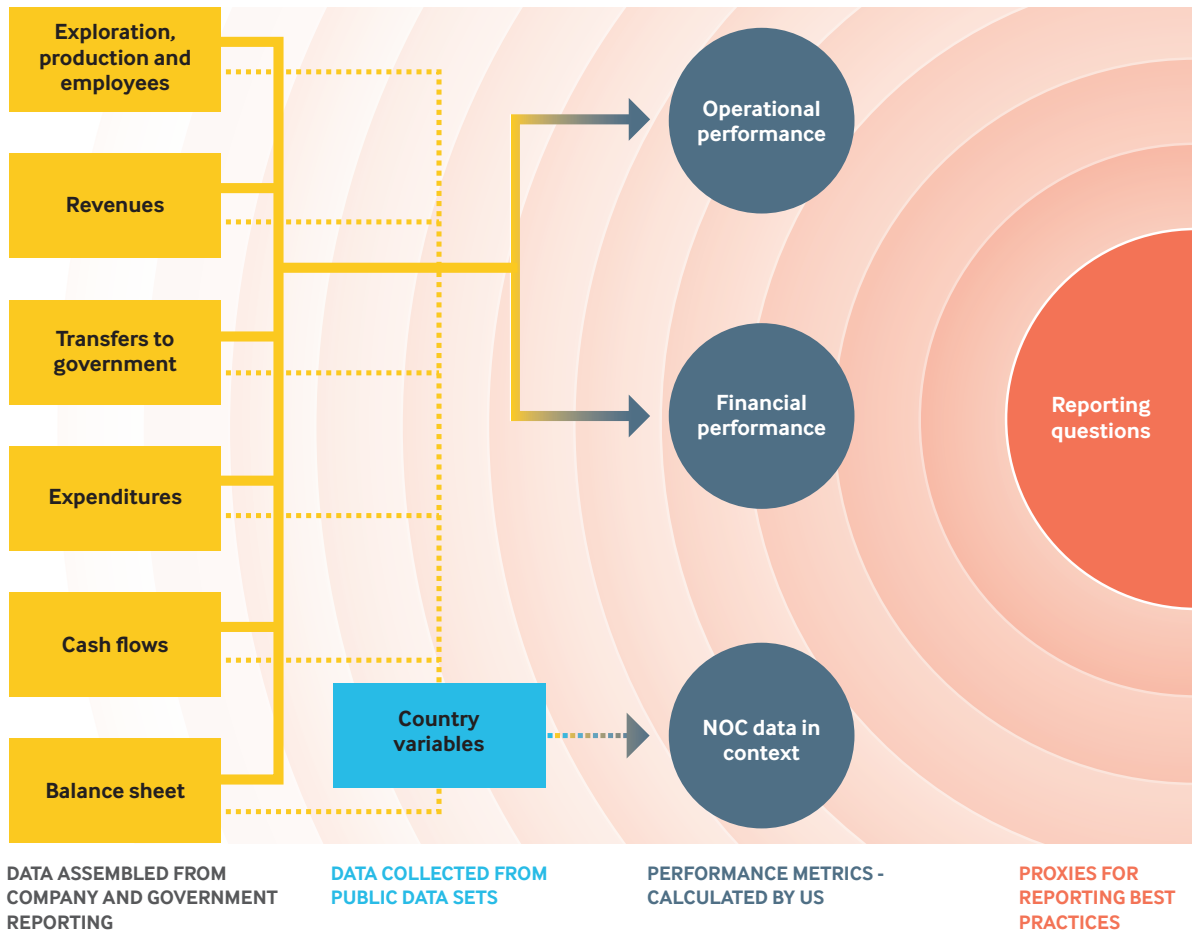


Table 1 summarizes the major challenges associated with assembling the data and how database project staff have approached them:

Although NRGi was not able to eliminate these data challenges completely, the project produced figures of significant statistical value, with more than 70,000 individual data points.⁷ Figures 2 and 3 help illustrate the coverage NRGi was able to achieve in the database. As shown in Figure 2, the database contains production data from 51 NOCs that together produced 69 million barrels of oil equivalent per day for 2013. This is 81 percent of

what Rystad Energy has reported as the total global production by NOCs.⁸

NOCs disclose other data less often than they disclose production data. Figure 3 provides an example. Using the same Rystad Energy figures on total NOC production, it shows the share of production from companies that published sufficient information for NRGi to record their total revenues. Here the database has revenue data capturing 58 percent of NOC production. Some major players are missing, including important Middle East producers.⁹

Table 1. Data challenges and mitigation approaches

Challenge	Description	Mitigation
Availability	Data disclosure is still poor among many NOCs, including such major companies as the National Iranian Oil Company and the Nigerian National Petroleum Corporation. Data on certain indicators – e.g., expenditures and employment – was generally weak across the company sample.	NRGI conducted thorough research of a wide range of official sources in order to capture as much information as possible. The accompanying analysis emphasizes indicators for which a relatively large amount of data is available.
Reliability	Because the data derives exclusively from official government sources, it replicates any false or misleading information in government reports.	The database allows users to filter by whether the report from which data derived was subject to independent audit.
Inconsistent terminology	An inconsistent use of terms creates challenges for cross-company comparisons. NOCs report information to serve different audiences and according to different national traditions and accounting principles. Even where companies are reporting in accordance with international accounting principles, there is significant variation in how they categorize information.	The data-gathering methodology applied consistent approaches to each company, including by examining the detailed notes included in financial reports and other source documents. In some cases, this required NRGi to either aggregate or disaggregate information from the financial reports in order to keep the measurements as consistent as possible.
Data interpretation	The variety among NOCs in terms of goals, geology and national context poses challenges for cross-company comparisons. Unnuanced comparisons between, e.g., a new non-operating NOC such as Timor Leste's Timor GAP and a global giant such as Russia's Gazprom, could result in irresponsible conclusions.	To facilitate coherent cross-company analysis, NRGi created various peer groups to compare similar NOCs to one another as much as possible.

Figure 2. Coverage of total global NOC production in the National Oil Company Database, 2013

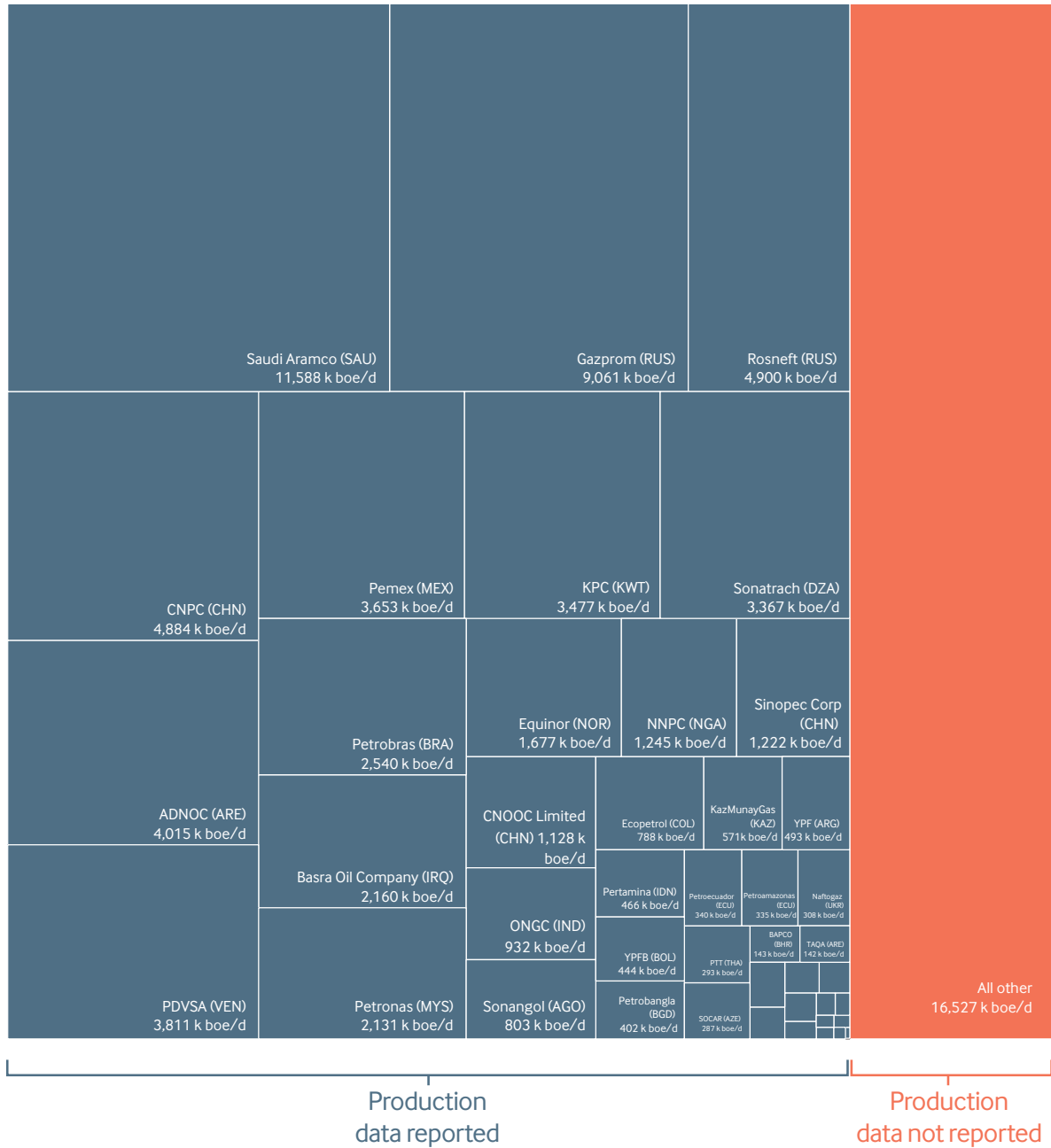
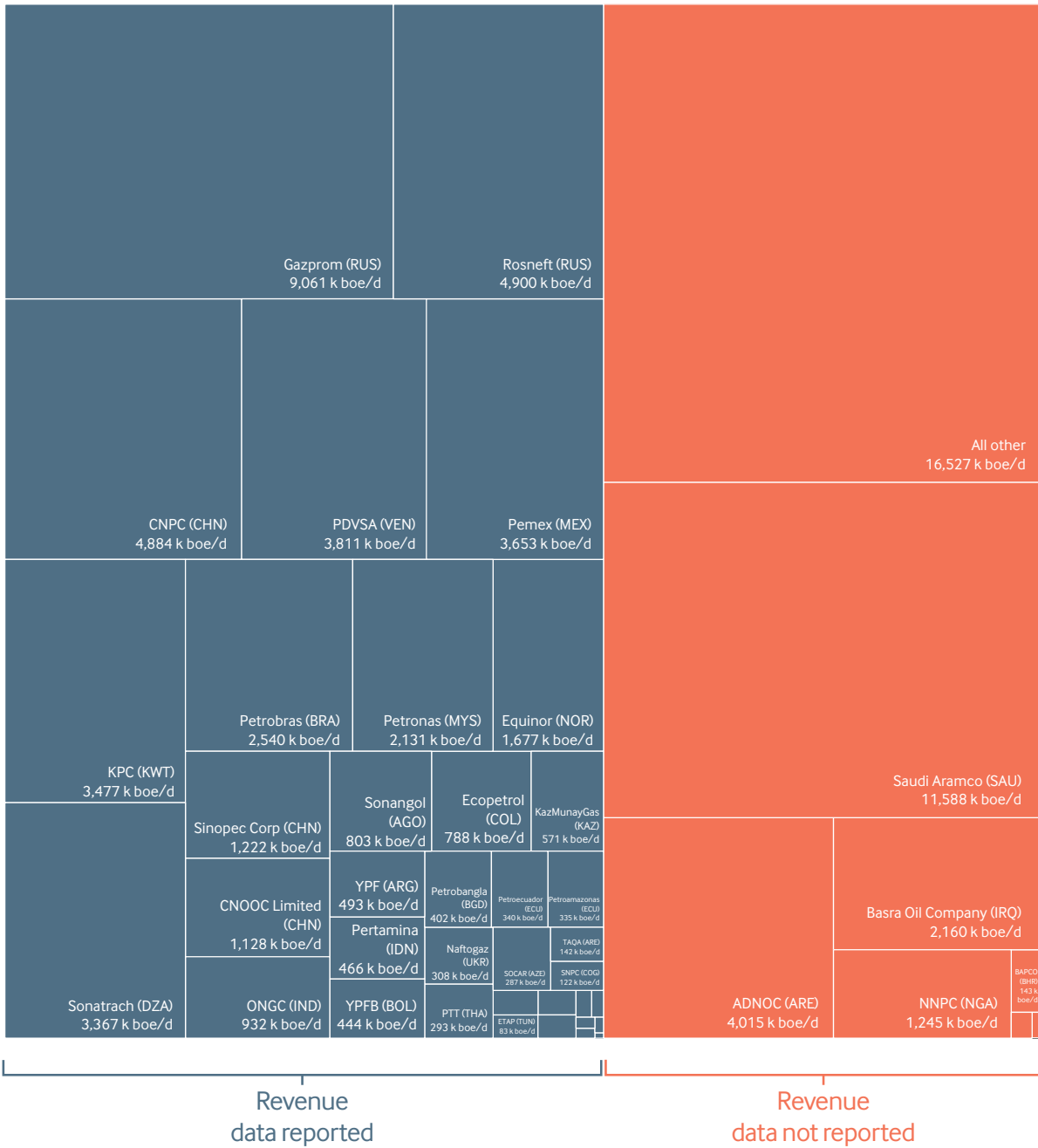


Figure 3. NOC production by companies reporting revenues and those not reporting revenues, 2013



Key findings

Analysis of the database draws out several significant findings about NOC influence, performance and strategy. For a detailed discussion of these findings, see *Massive and Misunderstood: Data-Driven Insights into National Oil Companies*. The data illustrate that NOCs are larger, more influential and riskier than has previously been evident, and point to steps that government and NOC leadership can take in order to increase their rate of success.

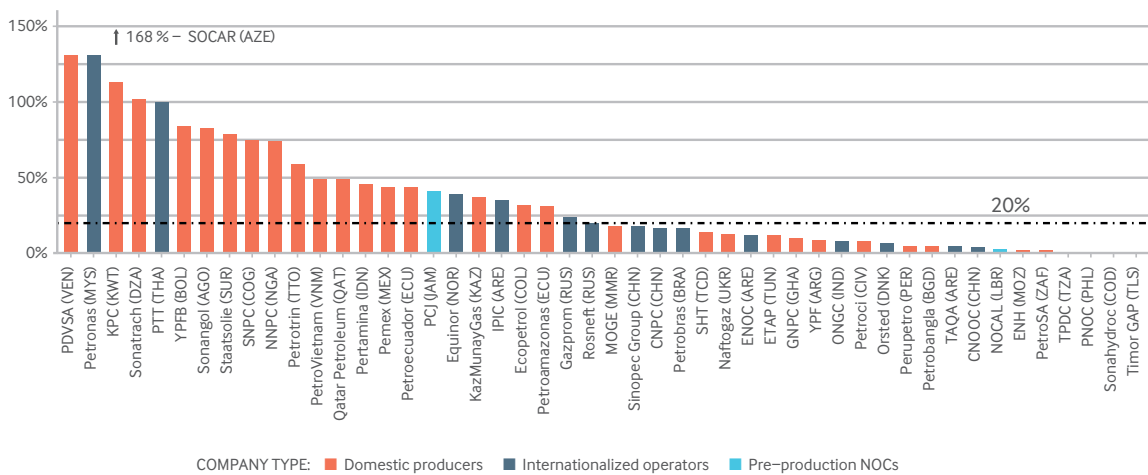
Scale and influence: NOCs are giants, managing larger portfolios and collecting more public revenue than was previously understood.

NOCs are massive. This basic fact has been known by oil-watchers for some time, but a historical lack of consistent and comparative data has made it difficult to fully understand their impact on their home economies. The database paints a more thorough picture of the scale and impact of NOCs.

NOCs particularly dominate production within their borders. “Domestic NOCs”—which produce oil and gas largely in their home countries—were responsible for 76 percent of their countries’ total production over the course of the data period. Major producers such as Saudi Arabia, Kuwait and Mexico—with long histories of oil production and strongly nationalist approaches to the sector—drive this trend. NOCs in these countries were responsible for almost 100 percent of national production. Some “internationalized NOCs”—such as Malaysia’s Petronas and several large Chinese NOCs—have taken their show on the road, and are supplementing oil and gas production at home with ambitious exploration and production activities abroad.

NOCs collect huge flows of public revenues, making them critical players in the public financial management of their home countries. The

Figure 4. NOC total revenues as a percentage of general government revenue, 2013¹⁰

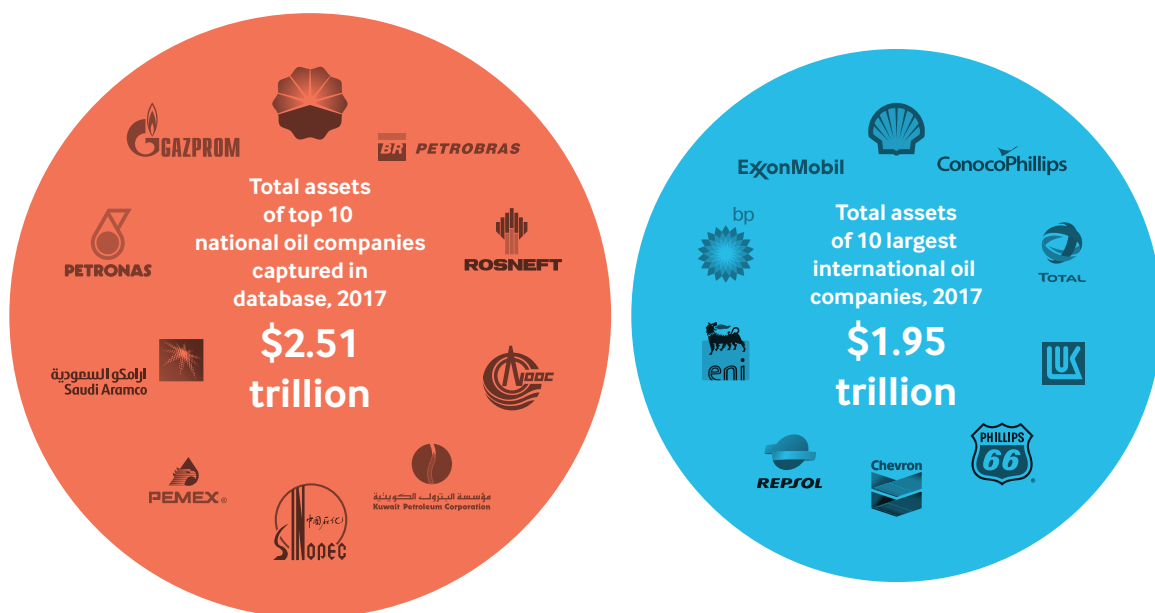


International Monetary Fund defines a country as *oil-dependent* if more than 20 percent of all government revenues come from the sector. Adapting this definition, NRG1’s data reveal that worldwide there were at least 25 *NOC-dependent countries*—where an NOC, by itself, collected funds equivalent to 20 percent or more of all government revenues—in the high-price year of 2013.¹¹ In many cases, flows to NOCs dwarf the revenue that governments collect from foreign aid or domestic instruments such as income tax. The Nigerian National Petroleum Corporation, for example, collected oil and gas sales revenue equivalent to a range of 45 percent to 74 percent of general government revenue across the years for which data was available. Given the number of NOCs that still do not report on their revenues, the

total number of *NOC-dependent* countries likely exceeds the 25 that are directly captured here. Of the 42 countries for which there is sufficient constituent data for 2013, 55 percent were NOC-dependent.

NOCs amass large assets. Nineteen NOCs in the sample reported assets in excess of \$50 billion. In 2017, the collective assets of the top ten NOCs in the database that reported on this figure—which excludes several large companies that did not report their assets—exceeded those of the world’s ten largest international oil companies, as illustrated in Figure 5.¹² The sheer amount of national wealth concentrated in these companies can sometimes contribute to a sense that they are “too big to fail,” with consequences for governance and performance incentives.

Figure 5. National oil company assets in context



The median NOC in the sample transferred 23 percent of its revenues to the government in the high-price year of 2013. By 2015, this figure dropped to 17 percent.

Not all NOCs produce large amounts of oil and gas or generate giant revenues in absolute terms. But even NOCs operating at relatively small scales—such as Suriname’s Staatsolie or the Ghana National Petroleum Corporation—have a major influence on their countries’ oil sectors and broader economies.

Risks: NOCs spend a lot of the money they collect, and many take on large debts.

Many NOCs have delivered strong value to their citizens, including by increasing revenue flows to government, promoting the growth of the oil and gas sector, developing a cadre of skilled staff and delivering a range of non-fiscal benefits such as infrastructure construction. But the reverse is also true, with some NOCs struggling to deliver value, saddled with contradictory roles and susceptible to rent-seeking and political manipulation.

The data create a clearer picture of just how large the reverberations across the economy can be if an NOC does not succeed. The huge shares of public revenues that NOCs collect are one factor. When a NOC’s revenues are equivalent to 20 percent—or even 5 percent—of public revenues there is a strong risk of the company becoming a state-within-a-state and executing a sort of shadow fiscal policy. NOCs can end up being the largest spenders in the public sector, but often do not go through the typical public sector budgeting or oversight process. This underscores the need for well-targeted rules setting the level at which the NOC must transfer revenues to the treasury, and strong oversight of NOC spending.

Most NOCs transfer less than 25 percent of their gross revenues to their governments. The median NOC in the sample transferred 23 percent of its revenues to the government in the high-price year of 2013. By 2015, when prices had plummeted, this figure dropped to 17 percent. NOCs spend most of the rest on company operations and investments. This is fitting in some cases, for NOCs participating in complex commercial projects in pursuit of long-term benefits, or for NOCs tasked with direct delivery of public services such as energy provision or infrastructure construction. But it comes at an opportunity cost, as every dollar spent by an NOC is unavailable in the immediate term for spending by the government on health, education or other development needs.

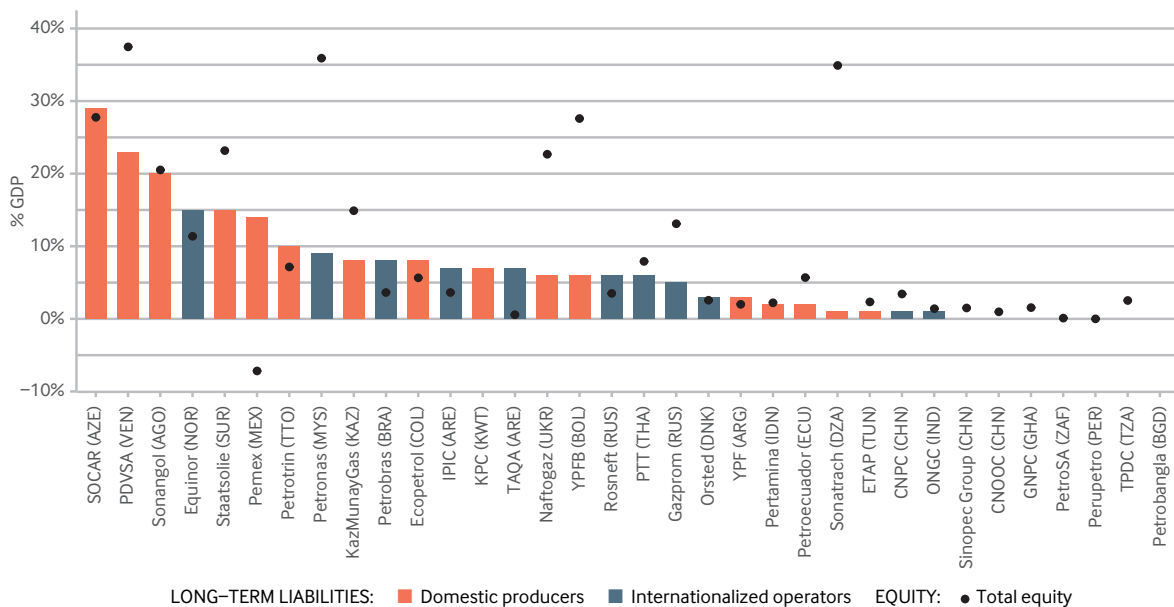
There is significant variation among NOCs in the sample in terms of how much they transfer to the state, ranging from less than 5 percent (e.g., Thailand’s PTT) to more than 90 percent (e.g., Chad’s Société des Hydrocarbures du Tchad).

NOCs also vary widely in how they structure such transfers. In 2013, amid a sustained period of record high prices, fewer than half of the NOCs in the sample reported paying a dividend to government shareholders. Twelve of the 13 NOCs in the sample that traded some shares on a public stock exchange paid a dividend. Less than one-third of the non-listed NOCs did so, even during the recent boom years when oil prices topped \$100 per barrel.

Setting policy on requirements for NOC transfers requires a careful balance and alignment with clear goals. If a state taxes a commercially oriented NOC too heavily, it impedes the company’s ability to invest in long-term growth and efficiency. Conversely, if an NOC consistently transfers only small amounts to the state, the potential fiscal benefits from oil and gas can go unrealized. Some NOC officials describe their companies as profit-seekers—and use that rhetoric to justify heavy spending—but consistently fail to pay dividends to the state.

Many NOCs are significantly indebted. The database identifies 18 companies with long-term liabilities equal to more than 5 percent of the total GDP of their home country, as illustrated in Figure 6. In extreme cases such as Venezuela’s PDVSA or Angola’s Sonangol, NOC debt has risen above 20 percent of GDP. When extremely high NOC debt combines with other performance challenges, the company can become a risk to broader economic sustainability. This is particularly true in countries where dominant NOCs are essentially “too big to fail.”

Figure 6. Long-term NOC liabilities and equity as a percentage of GDP, 2015

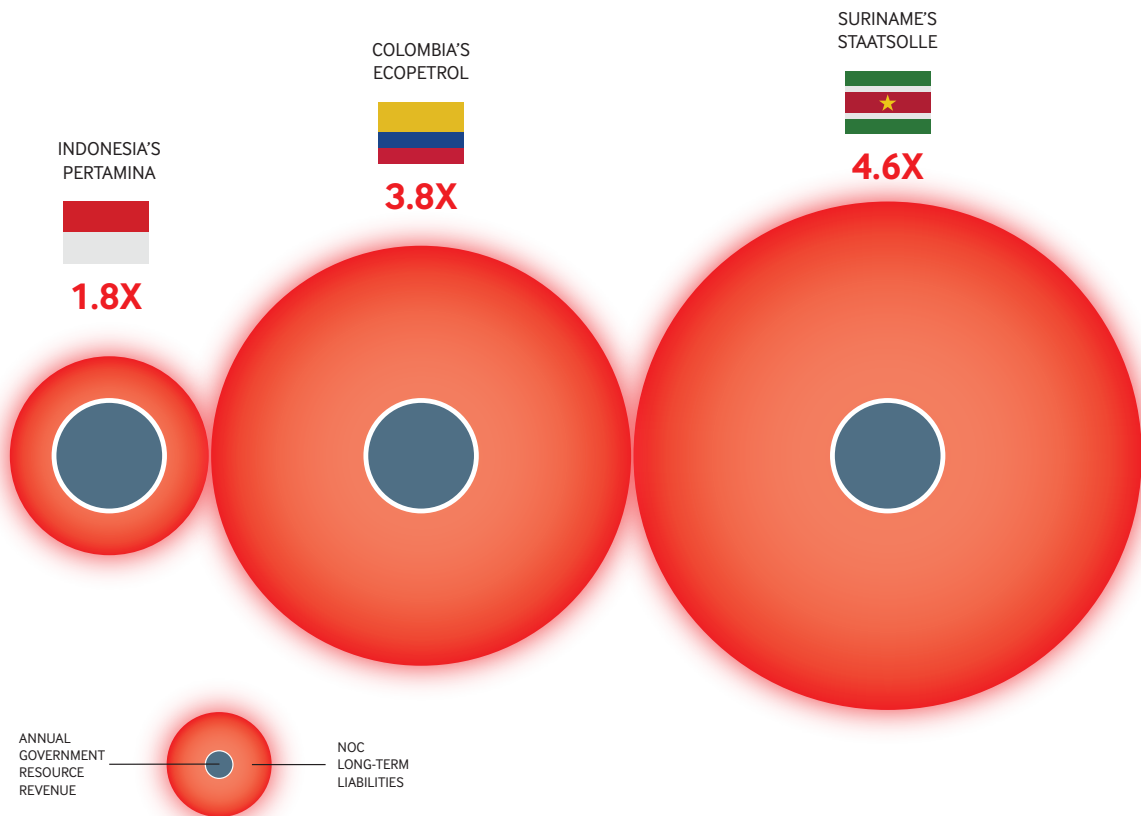


In such cases, the NOC can require costly bailouts from the state, meaning that instead of being a boon to the state coffers, it becomes a drain. Several governments—ranging from those of major oil producers such as Mexico and Kazakhstan to Namibia, which doesn't even produce oil yet—have spent hundreds of millions, even billions of dollars bailing out NOCs in recent years. As of early 2019,

a committee of creditors had declared Venezuela's PDVSA to be in default on its debts.

Several NOCs have long-term liabilities that are multiple times that of annual government revenues from natural resources, including Colombia's Ecopetrol (3.8 times), Indonesia's Pertamina (1.8 times) and Suriname's Staatsolie (4.6 times).

Figure 7. Illustrative national oil company long-term liabilities as multiples of government natural resource revenues



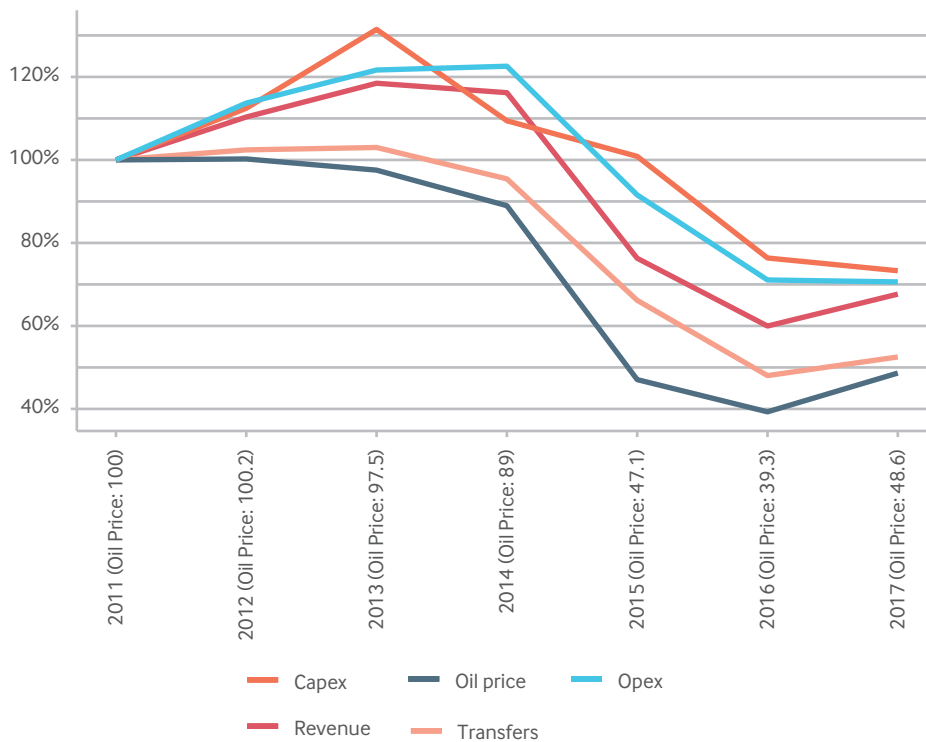
During the recent oil boom, many NOCs spent most of the revenue windfall they received, rather than passing it to the treasury.

The database shows that when NOC revenues rose during the boom period of 2011—2014, their transfers to governments remained relatively flat. Instead, the average NOC appears to have directed large shares of boom-time windfalls to the company’s own expenditures: both capital and operating expenditures rose significantly.

These trends mirror broader trends in the industry among IOCs, which also increased spending

during the boom. In the case of NOCs, the trends are likely the result of a range of factors, including high average costs across the industry, government policy that incentivized NOC spending and investment during the boom, and increases in IOC tax payments that financed fiscal priorities.¹³ In some cases, NOC spending is also closely linked to inefficiency and weak management incentives in times of plenty. Spending also rises in some cases because of political pressure and corruption, as illustrated by the high-profile scandals around NOCs such as Brazil’s Petrobras.¹⁴

Figure 8. Median annual changes over time, oil price and various NOC indicators (2011 = 100)



When prices crashed, NOC transfers to governments dropped more sharply than revenues. This is further illustrated by Figure 9, which highlights the asymmetry between the boom and bust periods. When NOC revenues rose, their transfers to the state tended to rise less than proportionally (illustrated by the blue line being less steep than 45 degrees). When revenues fell, transfers tended to drop more than proportionately

(the red line is slightly steeper than 45 degrees). This suggests that many NOCs spent a large share of the boom period's upside but then passed along the downside impact to their governments. For NOCs that can convert that boom-time spending into long-term growth, this trade-off may have been worthwhile. But for some countries the fiscal revenue sacrificed by NOC spending during the boom may not have generated a meaningful return.

Figure 9. Relationship between change in NOC revenues and change in NOC transfers to government, 2012 to 2017

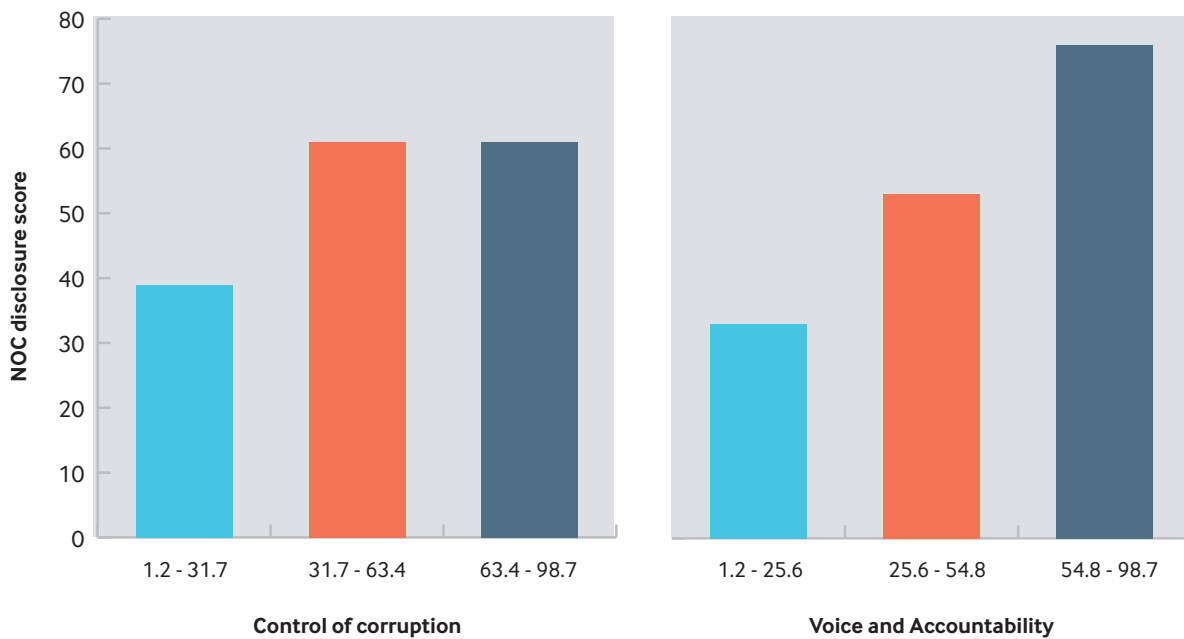


Transparency: Many NOCs still do not report consistently on key data that are essential for oversight.

This research confirms and builds upon the findings of the 2017 Resource Governance Index (RGI), which showed that public reporting by many NOCs remains insufficient. Of the 52 NOCs studied in the index, 62 percent exhibited “weak,” “poor” or “failing” performance on public transparency.

Data indicate that NOC transparency is closely linked to the overall governance environment in a country, as is illustrated by Figure 10. The figure shows the RGI scores on NOC disclosure broken down by the country’s performance on the Worldwide Governance Indicators’ control of corruption and voice and accountability measures.¹⁵ This graph shows that NOCs tend to report the least data in the countries with the biggest shortcomings in corruption and freedoms of association, assembly and participation.

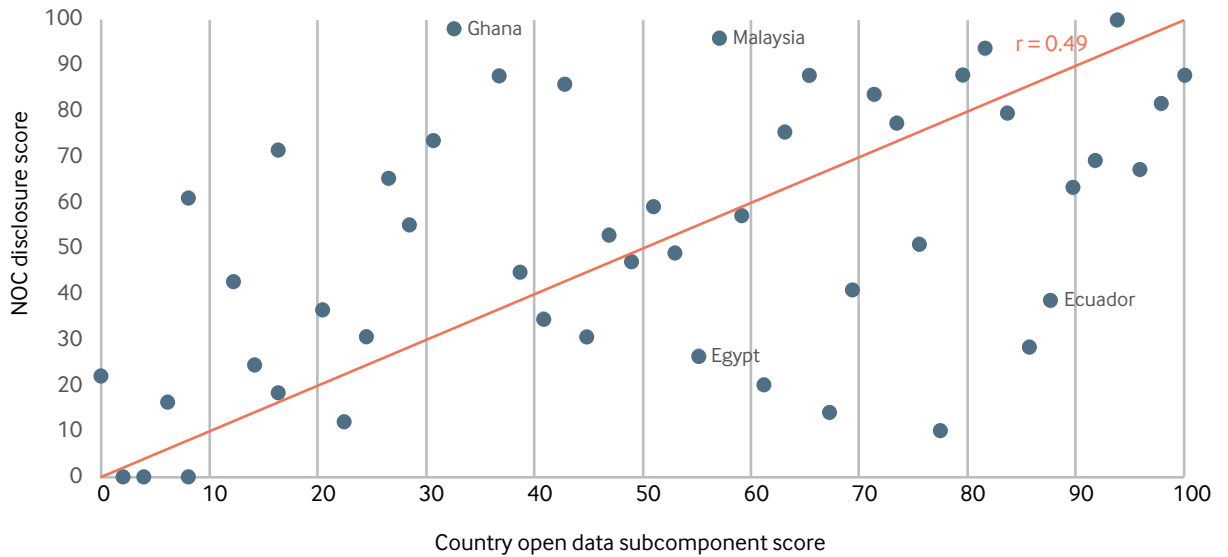
Figure 10. Resource Governance Index national oil company disclosure score per Worldwide Governance Indicator terciles¹⁶



In spite of these broad trends, the national context is not always so determinative, and some NOCs report extensively even in countries with considerable governance shortcomings. Figure 11 illustrates the RGI scores for NOC disclosure in relation to countries' scores on the "open data" subcomponent of the index, which measures a country's overall practices in making data accessible to the public. Some NOCs—such as the Ghana National Petroleum Corporation and Malaysia's Petronas—disclose more than overall national trends in data availability would

suggest, as is illustrated by their position above the 45-degree line in the figure. This illustrates that strong leadership by company or government officials can result in disclosure even in challenging environments. By the same token, some NOCs—such as Petroecuador and the Egyptian General Petroleum Corporation—are more opaque than would be predicted by their countries' overall open data score, suggesting there may be reform opportunities in countries with positive experience at data dissemination.

Figure 11. Resource Governance Index NOC disclosure score relative to RGI open data subcomponent score



The National Oil Company Database adds further nuance to the RGI findings. Within the larger database sample of 71 NOCs, some companies reported in almost all of the fields on production, revenues, transfers and performance. As a result the database provides a rich basis on which to analyze trends and specific companies in a much more evidence-rich way than has previously been possible. While this is helpful for analysts, shortcomings remain. Some companies—including major industry players such as the National Iranian Oil Company—report almost none of the necessary information. Overall, only 20 of the 71 companies in the sample produced information sufficient to populate the ten key indicators summarized in Table 2.

Companies in the Middle East and North Africa—home to many of the world’s largest

NOCs—produced the least information on average.¹⁷ The release in April 2019 by Saudi Aramco of significant financial data as part of a prospectus developed for potential investors represents a positive step forward that runs counter to that company’s history of opacity and the broader trends in the region. When aggregated, sub-Saharan Africa’s NOCs—including established companies such as Nigeria’s NNPC and Angola’s Sonangol as well as NOCs in up-and-coming oil producers such as Tanzania—finished second from the bottom, despite more extensive disclosure in countries such as Ghana. Overall, company disclosure is weakest in the areas of employment and spending. This opacity has potentially serious consequences for the public’s ability to scrutinize NOC priorities, efficiency and company contributions to public employment.

Table 2. NOC reporting on key indicators, by region, 2015

Indicator	All	Asia-Pacific	Eurasia	Latin America/Caribbean	Middle East/North Africa	Sub-Saharan Africa	Western Europe
Number of companies in sample	71	16	6	13	17	17	2
Total oil and gas production	75%	69%	83%	92%	59%	76%	100%
Revenues from oil, gas, product sales	63%	69%	83%	85%	29%	65%	100%
Total NOC revenues	66%	88%	83%	85%	35%	53%	100%
Net income from core revenues	51%	69%	67%	77%	24%	29%	100%
Total transfers to the treasury	65%	88%	83%	77%	24%	65%	100%
Capital expenditures	48%	63%	83%	69%	24%	24%	100%
Operational expenditures	56%	81%	83%	85%	24%	29%	100%
Cash flows from operations	51%	63%	83%	77%	24%	29%	100%
Total assets	59%	81%	83%	85%	35%	29%	100%
Employees	45%	50%	67%	46%	29%	41%	100%

Conclusions and policy implications

In light of the market and governance challenges they face, how could NOCs and their governments maximize their chances of success? Creating clear and transparent performance benchmarks is one step. Some NOCs—including Colombia’s Ecopetrol and Malaysia’s Petronas—take a strong approach to rigorous benchmarking. But many governments have struggled to define what NOC “success” looks like, or to create a performance-based culture in which an NOC’s leadership is accountable for achieving clear targets.

Benchmarking efforts are necessarily complex, especially because the catch-all term “national oil company” encompasses a wide range of entities with varying roles, resources and experience. Some governments prioritize the maximization of fiscal revenues delivered to the country’s treasury. Others prioritize the NOC’s commercial effectiveness or a growth strategy designed to extend the company’s portfolio or capacity. Still others call upon the NOC to deliver value to citizens through public services rather than commercial success, such as by providing public employment, infrastructure or energy, or by promoting the local private sector.

These neat descriptions belie the complexity of many real-world NOCs, which are called upon to play various roles simultaneously. Developing strong benchmarks requires a clear and honest assessment by government and NOC leaders of which goals are most important, especially as few NOCs have enough resources to accomplish everything simultaneously.

Continued improvements in public reporting are critical for the enhancement of benchmarking and other elements of NOC governance. For NOC leaders and governments, access to clear and consistent data can support strategic planning and performance-oriented management. For researchers, journalists and activists, greater transparency can facilitate more effective public oversight and constructive contributions to debates about what roles NOCs should play. But these advances require purposeful action.

In the process of building the database NRGi came across several indicators that are essential for strong citizen oversight of NOCs and where there remain major gaps in the detail and consistency of company reporting. Some of these items have to date attracted scant attention in global transparency initiatives. They include:

- *Company expenditures.* Although NOCs spend large amount of public revenue, there remain huge deficiencies in mechanisms for reporting on the nature and purpose of these expenditures. These represent some of the most important choices in national public financial management, but expenditures proved to be the most difficult category of information to capture in the database. Many companies report almost no information on spending (as Table 2 illustrates). Even among companies that do report, there is little consistency and it is difficult for analysts to use most companies’ reports to thoroughly and accurately assess spending choices.

- *The distribution of transfers to government across fiscal vehicles and jurisdictions.* Many NOCs fail to report on disaggregated transfers to government. Reports from internationalized NOCs are often missing detailed lists of how much the companies have paid in the different jurisdictions in which they operate. Many reports also lack a clear explanation of the basis upon which various NOC transfers to the state (including income taxes, royalties, dividends and the transfer of sales proceeds) are determined, making it difficult to assess whether a company is “paying what it should” to the state.
- *The composition of an NOC’s production, including how much it produces from fields that it “operates.”* NOCs “produce” oil and gas via a range of mechanisms—from extracting it from the ground themselves as operators, to receiving it in kind from a larger partner in a venture, or as an *in lieu* tax payment. Knowing an NOC’s true “operated production” is important in order to truly understand the scope of its role and to analyze its costs, efficiency and contributions to the state. Yet this granular information is scant; NRG1 was only able to compile clear figures on operated production for 23 percent (16 of 71) of companies for 2015.

Long-term improvements in the thoroughness and consistency of NOC disclosures are necessary to enhance the abilities of NOCs and their governments to benchmark performance effectively, and of citizens to scrutinize how well these companies are managing public resources. Several international initiatives—including the Extractive Industries Transparency Initiative and the OECD’s Working Party on State Ownership and Privatisation Practices—have taken important steps to advance international standards on NOC transparency. Such initiatives should prioritize filling some of these outstanding gaps in publicly available information, and create forums for sharing of experiences on reporting among NOCs.

For governments and NOCs, a deeper investment in transparency requires both technical and political commitments. From a technical standpoint, the National Oil Company Database, its associated publications and many international initiatives provide a starting point to identify and fill gaps. Politically, some NOCs have shown the ability to “lead” and institute strong reporting systems even amidst broader governance challenges. Yet in some countries, NOC executives and government officials view robust and consistent reporting as a burden. In fact, transparent reporting is among the most important tools for building public trust and the development of a performance culture that will ultimately benefit citizens.

Companies in the National Oil Company Database

Company (short name)	Company (full name)	Home country
ADNOC	Abu Dhabi National Oil Company	United Arab Emirates
BAPCO	Bahrain Petroleum Company	Bahrain
Basra Oil Company	Basra Oil Company	Iraq
CNOOC	China National Offshore Oil Corporation	China
CNOOC Limited	China National Offshore Oil Corporation Limited	China
CNPC	China National Petroleum Corporation	China
CUPET	Cuba Petróleo Union	Cuba
Ecopetrol	Ecopetrol	Colombia
EGPC	Egyptian General Petroleum Corporation	Egypt
ENH	Empresa Nacional de Hidrocarbonetos	Mozambique
ENOC	Emirates National Oil Company	United Arab Emirates
Equinor	Equinor	Norway
ETAP	Entreprise Tunisienne d'Activités Pétrolières	Tunisia
Gabon Oil Company	Gabon Oil Company	Gabon
Gazprom	Gazprom	Russia
GEPetrol	GEPetrol	Equatorial Guinea
GNPC	Ghana National Petroleum Corporation	Ghana
IPIC	International Petroleum Investment Company	United Arab Emirates
KazMunayGas	KazMunayGas	Kazakhstan
KPC	Kuwait Petroleum Corporation	Kuwait
MOGE	Myanma Oil and Gas Enterprise	Myanmar
Naftogaz	Naftogaz	Ukraine
NAMCOR	National Petroleum Corporation of Namibia	Namibia
National Oil Kenya	National Oil Corporation of Kenya	Kenya
Nilepet	Nile Petroleum Corporation	South Sudan
NIOC	National Iranian Oil Company	Iran
NNPC	Nigerian National Petroleum Corporation	Nigeria
NOC Libya	National Oil Corporation of Libya	Libya
NOCAL	National Oil Company of Liberia	Liberia
ONGC	Oil and Natural Gas Corporation	India
OOC	Oman Oil Company	Oman
Orsted	Orsted	Denmark
PCJ	Petroleum Corporation of Jamaica	Jamaica
PDVSA	Petróleos de Venezuela, S.A.	Venezuela
Pemex	Petróleos Mexicanos	Mexico
Pertamina	PT Pertamina (Persero)	Indonesia

Company (short name)	Company (full name)	Home country
Perupetro	Perupetro	Peru
Petroamazonas	Petroamazonas	Ecuador
Petrobangla	Petrobangla	Bangladesh
Petrobras	Petróleo Brasileiro	Brazil
PetroChina	PetroChina	China
Petroci	Société Nationale d'Opérations Pétrolières de la Côte d'Ivoire	Côte d'Ivoire
Petroecuador	Petroecuador	Ecuador
PetroleumBrunei	PetroleumBrunei	Brunei
Petronas	Petroleum Nasional Berhad	Malaysia
PetroSA	PetroSA	South Africa
Petrotrin	Petroleum Company of Trinidad and Tobago	Trinidad and Tobago
PetroVietnam	PetroVietnam	Vietnam
PNOC	Philippine National Oil Company	Philippines
PTT	PTT Public Company Limited	Thailand
Qatar Petroleum	Qatar Petroleum	Qatar
Rosneft	Rosneft	Russia
Saudi Aramco	Saudi Aramco	Saudi Arabia
SHT	Société des Hydrocarbures du Tchad	Chad
Sinopec Corp	China Petroleum and Chemical Corporation	China
Sinopec Group	China Petroleum and Chemical Corporation—Group	China
SNH	Société Nationale des Hydrocarbures	Cameroon
SNPC	Société Nationale des Pétroles du Congo	Congo (Rep.)
SOCAR	State Oil Company of Azerbaijan Republic	Azerbaijan
Sonahydroc	Société Nationale des Hydrocarbures	Dem. Rep. of Congo
Sonangol	Sonangol Group	Angola
Sonatrach	Sonatrach	Algeria
Staatsolie	Staatsolie	Suriname
Sudapet	Sudan National Petroleum Corporation	Sudan
TAQA	Abu Dhabi National Energy Company	United Arab Emirates
Timor GAP	Timor GAP	Timor-Leste
TPDC	Tanzania Petroleum Development Corporation	Tanzania
Turkmengaz	Turkmengaz	Turkmenistan
YOGC	Yemen Oil and Gas Corporation	Yemen
YPF	Yacimientos Petrolíferos Fiscales	Argentina
YPFB	Yacimientos Petrolíferos Fiscales Bolivianos	Bolivia

Endnotes

- 1 Rystad Energy, UCube Database reported average for the 2011 to 2017 period. According to Rystad, NOC production represented 55 percent of total oil and gas production worldwide over this period. Estimates from the World Bank earlier this decade put NOCs' share of global oil production at 75 percent, and their share of global reserves at 90 percent. Silvana Tordo, Brandon S. Tracy and Noora Arfaa. National Oil Companies and Value Creation (World Bank, 2011).
- 2 Silvana Tordo, Brandon S. Tracy and Noora Arfaa. National Oil Companies and Value Creation (World Bank, 2011).
- 3 The figures and statistics in this report reflects data in the NRGi National Oil Company database as of February 28, 2019. These data draw on reports that were published by NOCs and their governments through the end of the data collection period, September 30, 2018, with one exception. On April 1, 2019, Saudi Aramco released an investor prospectus including consolidated financial statements covering the years 2016, 2017 and 2018. Because of the size and influence of Saudi Aramco, and the complete absence of any financial data from the company before the release of the prospectus, we opted to include figures derived from it in the database.
- 4 Some NOCs had not yet reported on key indicators for 2016 and 2017 during the data collection period. As more companies report, we expect these figures for 2017 will rise in future updates to the database.
- 5 The project's definition of scope means that the database does not include companies that are exclusively active in downstream operations or joint ventures in which a state entity may own a minority share.
- 6 Data collection involved examining the detailed notes in financial reports and other source documents in order to enter data consistently with the project methodology. In some cases, this approach means that the database's stated value for a data point differs from the stated value for a similarly-titled figure within the source report.
- 7 Reporting on company expenditures and profits remain the areas of greatest inconsistency among NOCs. As such, NRGi's confidence in the consistency of the data is highest for indicators on production, revenues, transfers, cash flows and balance sheets.
- 8 Rystad Energy, UCube Database. Rystad Energy estimates that total production by NOCs in 2013 averaged 85 million barrels of oil equivalent per day.
- 9 On April 1, 2019, just before the publication of this report, Saudi Aramco released an investor prospectus including consolidated financial statements detailing the company's revenues for 2016, 2017 and 2018. The company's revenues for 2013 remain unavailable.
- 10 The data for all of the NOCs in Figure 4 are calculated as NOC total gross revenues as a percentage of general government revenues, with one exception. The Nigerian National Petroleum Corporation did not publish data sufficient for us to include a figure on the company's total gross revenues (including its revenues from oil and gas sales plus revenues from other lines of business). But through Nigeria's EITI reports, we were able to assemble data on the revenues that NNPC collected from sales of oil and gas, which represents the overwhelming share of its total. As such, and because this sales revenues is equivalent to such a sizable amount of the total revenues of the Nigerian government, we opted to include it here. Thus for NNPC the percentage shown in Figure 4 is revenues from oil, gas and product sales divided by general government revenues.
- 11 These 25 countries include the 23 countries with NOCs shown in Figure 4 to be above the 20 percent threshold—with data derived from the National Oil Company Database, plus Saudi Arabia and Iran, which did not officially disclose revenues for 2013 but which play a dominant role in their oil-dependent economies. The financial prospectus and consolidated financial statements released by Saudi Aramco on April 1, 2019 included figures on the company's revenues for 2016, 2017 and 2018, which showed that it was well above the 20 percent threshold for NOC dependency for those years.
- 12 The top ten NOCs were China National Petroleum Corporation (headquartered in China), Sinopec Group (China), Gazprom (Russia), Saudi Aramco (Saudi Arabia), Rosneft (Russia), Petrobras (Brazil), China National Offshore Oil Corporation (China), Petronas (Malaysia), Kuwait Petroleum Corporation (Kuwait) and Pemex (Mexico). Top ten international oil companies by total assets taken from Fortune, 2017 Global 500, www.fortune.com/global500/2017/list/filtered?sortBy=assets. These companies were: Royal Dutch Shell, ExxonMobil, BP, Chevron, Total, ENI, ConocoPhillips, Lukoil, Repsol and Phillips 66.

- 13 The trends associated with NOC revenues and spending as oil prices evolve largely match broader trends within the industry and among IOCs. See Gerhard Toews and Alexander Naumov, "The Relationship Between Oil Price and Costs in the Oil and Gas Industry" (Oxford Centre for the Analysis of Resource Rich Economies, 2015), www.economics.ox.ac.uk/materials/papers/13819/paper152.pdf.
- 14 For a thorough description of the nature and impact of the Petrobras scandal, see U.S. Department of Justice, "Petróleo Brasileiro S.A.—Petrobras Agrees to Pay More than \$850 Million for FCPA Violations," 27 September 2008, www.justice.gov/opa/pr/petr-leo-brasileiro-sa-petrobras-agrees-pay-more-850-million-fcpa-violations.
- 15 World Bank, Worldwide Governance Indicators, <http://info.worldbank.org/governance/wgi/#home>.
- 16 The "NOC disclosure" measure featured on this figure is calculated by averaging the scores for 5 NOC disclosure-specific indicators that are included in the State-owned Enterprises subcomponent of the 2017 RGI. The questions that served as the basis for this measure can be accessed at www.resourcegovernanceindex.org.
- 17 Exceptions to the general lack of reporting within the region were the UAE-based TAQA (which provided sufficient information for us to complete the data on all 10 of the key indicators in 2015), the Kuwait Petroleum Corporation (nine indicators), Tunisia's Entreprise Tunisienne d'Activités Pétrolières (eight indicators) and the UAE's International Petroleum Investment Company (eight indicators).

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