

SELLING THE CITIZENS' OIL

How Governments Sell Their Oil

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Summary

Most oil producers receive a large portion of their revenue from selling the state or the national oil company's share of production. At the center of these transactions is the national oil company (NOC), which often receives a share of the oil produced, also referred to as "in-kind" revenue. The NOC can receive a share of production due to its own activities as an oil company, or it can receive the state's share on behalf of the government. The NOC must then sell this oil, either to domestic or export markets.

To understand these complex transactions, which directly affect the level of public benefit derived from oil wealth, the Revenue Watch Institute commissioned case studies of how 11 governments sell their share of production. The countries examined were Angola, Azerbaijan, Brazil, Congo-Brazzaville, Iraq, Kazakhstan, Mexico, Nigeria, Norway, Russia and Saudi Arabia.

This policy brief introduces the key decisions that an NOC must make when selling its share of crude oil. The fact that NOCs receive and sell a large share of production directly connects with their growing influence in the global oil market, as well as within individual countries. The case studies detail how NOCs vary in form and function, from the exclusive operator Saudi Aramco to Nigeria's NNPC, which produces hardly any oil at all. They also vary in how they sell their oil, and these variations represent important components of oil sector governance that require careful understanding and oversight with the public interest in mind.

Five key features constitute the system by which an NOC sells state oil. New producers will have to decide how to handle each of these. For existing producers, the execution of each function by the NOC should advance long-term national interest. The five processes, as depicted below, are:

1. Production share receipts (i.e. in-kind revenue)
2. The type of sale
3. The sale price
4. The buyers
5. Where the proceeds go

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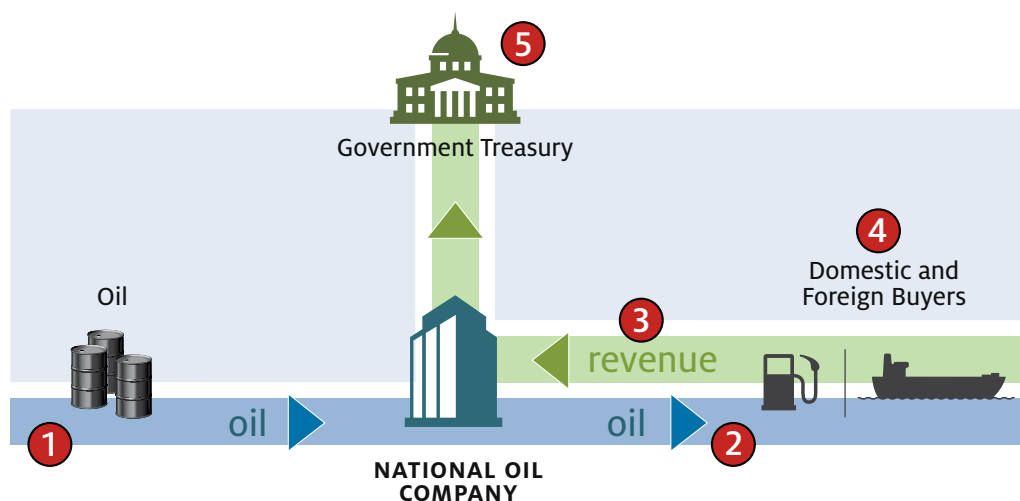
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ABOUT THIS SERIES

Revenue Watch researched how eleven countries sell their shares of oil production. The results are detailed in four briefs that recommend transparency, identify good sale practices, and explain how oil sales and global oil prices work. The Oil Sales briefs are: *The Case for Transparency in National Oil Company Crude Sales*; *The Governance of Oil Sales: Early Lessons on Good Practice*; *How Governments Sell their Oil*; and *When the Price is Right*. They can be found at www.revenuewatch.org/oilsales.

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1. The receipt of a production share

Countries use various types of contracts to attract investors to tap oil reserves. Most result in the allocation of a share of production to the national oil company, the government or both. Each of these systems affects whether the state will end up with a share of production. This in-kind revenue take several forms.

Types of in-kind revenue

Production Sharing Agreement (PSA) production share and profit oil

In a PSA, the state awards licenses to operators or a consortium, which take responsibility for operating the block. The operating group bears the risk and costs associated with exploration and production. It retains a share of production to cover its costs, and the remaining “profit oil” is divided between the operating group and the state in proportions determined in the contract.

Under a PSA, government can receive two types of production shares. The first occurs when the NOC participates in the operating group that receives the license. In a simplified example, if an NOC held a 30 percent stake in the entity that operated a specific license, the NOC would in most cases pay 30 percent of the operating costs, including taxes and royalties, to the state. The NOC would then receive 30 percent of the cost oil and the group’s share of profit oil. In a real-world example, Gazprom claimed a 50 percent share in Sakhalin-2 in Russia’s Far East after Royal Dutch Shell and its Japanese partners saw the project through its initial stages of development. Sometimes the NOC has a “free” or “carried interest” in the license, meaning that it may not pay some or all of its cost obligations. In a carried interest arrangement, some or all of the NOC’s share of costs would be deducted from its future earnings. In a free interest arrangement, the costs are waived.

The second is the state’s share of profit oil. Sometimes, governments choose to receive these payments in money, but frequently they choose in-kind revenue instead. Angola, Azerbaijan, Congo-Brazzaville, Kazakhstan, Nigeria and Russia receive and sell the state’s profit oil.

NOC concessions and joint venture oil

In the case of a concessionary system, governments award licenses to companies that then retain the produced oil. The government earns its revenue through taxes, royalties and fees. Oil companies bear all risks and costs. If a concession is granted exclusively to a NOC, it then controls all of the oil produced. For instance, the NOC Petrobras operates several concessions in Brazil. Alternatively, a concession can go to a joint venture in which the NOC is one partner. It then

receives the share of production commensurate with its ownership share, subject to the terms of the joint venture agreement (which may lessen this share by the amount of costs incurred by the operator). Nigeria's NOC holds 55 to 60 percent shares in six large concessions that are operated by its international oil company joint venture partners. The NOC receives the majority of the production from the fields.

State oil, operated by service contractors

Governments award service contracts if they want to retain all of the oil produced. In essence, they pay a company to extract the oil in exchange for a per barrel fee. Unless the fee is taken in-kind, the state retains all of the oil produced.

Mexico's NOC Pemex started using a type of service contract in the Tabasco region to circumvent the constitutional requirement against the participation of foreign upstream companies. Companies receive a performance-based, per barrel fee. As with many service contract situations, these are mature fields with limited production risks.

In order to meet its ambitious production targets, Iraq has awarded a number of service contracts through its recent licensing rounds. The state oil marketing organization, SOMO, sells all the oil received from these fields, minus that paid to the operators in compensation.

In-kind royalty and tax payments

Finally, companies sometimes pay their obligations to the state in-kind, rather than through financial payments. NOCs can receive royalty and other payments in oil. Ghana's NOC, for instance, receives most of the royalties due to government in oil as well as an "additional oil entitlement" in the event that profits exceed a predetermined level. This oil must then be sold by the NOC before any earnings accrue to the treasury.

2. The type of sale

Oil companies have several options for how to structure their export sales, and their decisions are based on their marketing abilities and their market position. Finding the right price is a marketing skill, as is finding the right buyer, thinking up the sales' conditions, directing the paperwork, arranging the payment and organizing transportation. Different ways to sell oil include:

- Term sales: A national oil company negotiates a contract with a buyer for a longer period, typically a year, and the agreement stipulates how the price will be determined against a specified spot benchmark.
- Spot sales: This is the quick and dirty way where buyer and sellers of individual cargoes find each other and transact a deal, creating the spot market where prices for specific grades of crude are "discovered."
- Hybrid sales: Some producers sell half of their production on term contracts and half in the spot market, or they allow term contract holders to sell the oil in the spot market.
- Oil tenders: Tenders can take many shapes but typically involve a seller (or buyer) that invites counterparties to bid for a defined volume and quality of oil.
- Retroactive pricing: Some Middle East and Asian clients use a method where a seller determines what a buyer needs to pay after all product prices are known.
- Delivery agreements: Producers can use a stake in a refinery to create a secure outlet for their crude and alter the price depending on the refining margins.
- Outsource the sales. Some producers prefer to hire international trading firms or their oil company partners to sell their oil as they lack the skills or the commitment to invest in skills.

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The two most common and basic sales models are **term** or **spot contracts**, which we discuss further below. For a NOC trading desk, the key task is to discover the difference between the price of the crude it is selling and an international benchmark price, and then decide how to maximize that difference in their favor.¹ There is a longstanding belief that term contracts are best for buyers and that spot deals are best for sellers, yet term contracts have become more flexible and can be seen as a string of spot deals.² Whether a sale is done through spot deals or term contracts, producers selling their exports can receive prices that are full value and likely very close to equal value. Producers mostly sell their crude the way buyers prefer. Roughly two-thirds of all traded oil is sold on a term basis, with the balance sold on a pure spot basis, the price for an individual oil cargo.

As described further in the next section on pricing, all sales—whether term, auctions, tenders or exotic retroactive pricing—are ultimately priced against spot crude benchmarks. The spot market tells the world what different types of oil are worth that day—in fact, at any particular second. Key oil prices are “discovered” in the physical market and on electronic exchanges such as the New York Mercantile Exchange (Nymex) in New York and Intercontinental Exchange (ICE) Futures in London. Though their trading volumes are much higher than the physical oil market and speculation can influence prices, electronic prices on such exchanges still largely reflect the underlying physical spot market.

Physical trades are monitored by pricing companies, such as Platts or Argus. They talk to traders and then sell their data mostly to oil companies. Market outsiders have little information about spot prices for various grades. Despite the constant flow of data from exchanges and pricing companies, the actual price of deals is seldom disclosed. And even if it is known, it might change due to contractual terms, such as if the delivered quality is different from the standard. However, a country's average selling price for a specific grade over a period of time should come very close to the differential published for that period.

Term contracts alleviate uncertainty

Term contracts, which account for about two thirds of all exported oil, or 30 million barrels per day, provide relative simplicity and certainty. They provide security of supply to refineries and of demand to producers. They also allow for operational predictability, because refineries can predict the quality, volume and delivery date, and producers know how much of which crude stream to produce. Term contracts typically deliver the so-called base load for a refinery, which is a good chunk of all oil needed with the balance bought in the spot market. All large refineries depend on term contracts to simplify planning and optimize the quality of their crude slate. Major Middle East producers, including Saudi Arabia and Iraq, prefer to sell through term contracts. Mexico and Nigeria also sell all volumes on contract.

The term contract explains how the oil will be sold. It establishes the formula price, which is typically composed of a price differential at which cargoes will be loaded some time in the future (or a system for determining that differential) and is linked to an established international benchmark (this is discussed further in the next section). The contract specifies how the price will be set and how much the buyer plans to buy, as well as where the oil is delivered or to be picked up, when the price is triggered and how to resolve disputes. When the loading date approaches, the producer decides about the volumes. The price, which closely follows the day's spot market, is the last factor to be determined.

1 <http://www.oxfordenergy.org/wpcms/wp-content/uploads/2011/03/WPM40-AnAnatomyoftheCrudeOilPricingSystem-BassamFattouh-2011.pdf>

2 International Crude Oil Handbook, Energy Intelligence Group.

Over the past decade, term contracts have grown closer to the spot market. Apart from the price link, term volumes have become more flexible as well.

Large producers using term contracts have teams that analyze markets and buy the best available analysis. For example, Saudi Arabia, the master of the term contract, uses market information from clients, its refinery models and prices of comparable crudes to determine the price differentials for its grades of crude.

The spot market calls the shots

Sales of about a third of all physically exported oil, or around 15 million barrels per day, occur on the spot market, yet these traders essentially set the price of oil. Most other trade mechanisms, including term contracts, take their lead from the spot price and become variations of it. A limited number of producers, including Norway and Congo-Brazzaville, sell all their oil in the spot market. Russia traditionally sells some of its production on the spot market.³

Spot cargoes are typically loaded a month or more after the date of the deal because of the time it takes to book space on pipelines, secure a vessel and sail it to the port for its cargo. Because of the complicated logistics, spot cargoes for immediate delivery are rare.⁴ Since the group of spot sellers and buyers for specific grades is usually relatively small, NOCs can choose to use standard contracts, such as Royal Dutch Shell's Brent contract, to facilitate negotiations.

NOCs selling spot need a sophisticated trading desk that knows what's going on in the market at all times and can exploit the slightest supply disruption and avoid demand weakness. A producer rarely sells all its oil this way because it risks being left with cargoes that cannot be sold for good value. Such cargoes would have to be sold at a discount or go into storage until prices rise, a practice Norway often utilizes with its facilities in Singapore.⁵

3. The sale price

(For more on how oil is priced, see *When the Price Is Right*.)

Once in possession of oil, national oil companies need to decide at what price to sell it. The price for a specific grade of crude has two main inputs: the benchmark and the price differential.

NOCs, like other crude sellers, link their spot trades and term contracts to prices of international benchmarks, which are seen as solid representations of the fair and full value of specific grades of crude. Sellers use different benchmarks depending on the region where they are selling, because refineries will do the same. The most common benchmark for global trade is dated Brent in the North Sea. In the Americas, crude is mostly priced off West Texas Intermediate. In Asia, most deals are priced off the average of Oman and Dubai. Recently, due to benchmark volatility, some sellers are using composite prices, such as the Brent-based B-Wave in Europe and the Argus Sour Crude Index (ASCI).

Term contracts explicitly link their prices to benchmarks through formula pricing. Simple formula pricing involves a differential that is updated each month and applied to an established benchmark. Saudi Arabia sets adjustment factors for its formula prices in the first week of every month and communicates them to clients, which is seen as standard procedure. Based on price and their market expectations, clients ask for a volume that falls either 5 percent above or below

3 Nefte Compass, February 10, 2011.

4 <http://www.oxfordenergy.org/wpcms/wp-content/uploads/2011/03/WPM40-AnAnatomyoftheCrudeOilPricingSystem-BassamFattouh-2011.pdf>

5 Interview with North Sea market contact.

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contractual volumes. In the second week of the month, the NOC informs clients of their share. Mexico has more complicated formula prices that draw their benchmark from a combination of fuel oil and three crude benchmark prices.

Term contracts have a clause specifying where the buyers will pick up the oil. The free-on-board (FOB) price is set for the designated port. Buyer and seller can also make arrangements so the cargo gets delivered by the seller, which then results in a delivered price that includes cost insurance freight (CIF). Term contracts also have clauses that determine when the price of crude gets triggered, such as when the cargo is loaded and the ship sets sail, sometime at sea, or when the cargo arrives at the port of destination.

Spot sellers do not have formula prices. Where the quality of oil is better than the benchmark, it will trade at a premium; when it's worse, it will trade at a discount. The pricing differentials can be small, just 10 to 20 cents per barrel, or much larger, such as the \$10 per barrel discounts for very heavy crude that is hard to refine.

All of these factors make it difficult to establish a fair and full price of specific oil streams. Experienced traders, however, can get a good idea of what to ask and bid for by keeping their eyes on the relative value of the oil versus the benchmark. Traders can test what buyers are willing to pay. Making matters easier, crude with a consistent quality will establish a relatively consistent average compared with a benchmark. At times, a price can be fair and full, even when the relative price is very different from that average. The brief *When the Price Is Right* explains further how market factors can lead to price swings that disregard quality differences among grades.

Different prices and formulas for different regions

One way to optimize the value of crude is to find the market where it will yield the best value. For many producers, that region has been Asia in recent years. In the past decade, one of the dramatic changes in the crude market has been the switch from the Atlantic Ocean to the Pacific Ocean—mirroring the rise of Asian economies, led by China and India, and their oil demand. Angola was at the forefront of moving crude to Asia, and in particular China. Saudi Arabia and Iraq followed suit. Producers claim that shifting volumes to the Asian market has resulted in better prices for their crudes compared with U.S. or Europe markets, where demand is falling.⁶

As above, the target market will affect which benchmark is used. For example, Iraq and Saudi Arabia price their crude against Brent and the B-Wave benchmark when marketing to Europe and ASCI when marketing to the United States.

When domestic fuel prices are subsidized

Due to subsidies on petroleum products, the price that NOCs charge for oil domestically is often far lower than what is asked for abroad. From the countries profiled in this study, Mexico, Iraq and Saudi Arabia sell refined fuels to domestic markets at well below U.S. prices, while Angola, Kazakhstan and Azerbaijan sell closer to American prices.⁷ The comparison with U.S. prices acts as a yardstick to determine whether countries subsidize their domestic fuels, such as gasoline or diesel.

⁶ Author interviews, Saudi Aramco, Iraqi SOMO.

⁷ <http://www.gtz.de/de/dokumente/giz2011-international-fuel-prices-2010-2011-data-preview.pdf>

Table 1
Sample of 2010 Domestic Fuel
Subsidy Costs
Source: International Energy Agency

	\$ m	% of government revenue
Angola	940	3%
Iraq	8,870	14%
Kazakhstan	2,030	6%
Mexico	9,340	4%
Saudi Arabia	30,570	14%

According to the International Energy Agency, oil-producing countries that subsidize petroleum products forgo to the opportunity cost of what these commodities could have brought on the international market. In other words, if the crude was sold at the global oil price, rather than refined and sold to consumers at subsidized prices, government income would be larger.⁸ However, as long as refined products are sold over the cost of production, their sale still represents a net gain. For example, Saudi Arabia exported crude at an average price of \$77 in 2011, but the average per barrel domestic sales price was around \$46.43⁹—still well over the estimated \$2.50 in per barrel production costs.¹⁰

4. The buyers

Producers have several choices of buyers. The broad categories are described below, as well as special measures taken by some producers to cultivate secure buyers.

Selling to end users

Producers' preferred and most common customers are refineries, which process the crude into refined products. Refineries, which should pay the best price since they make their money from processing oil and selling refined products, rather than re-selling oil to other entities. They prefer signing term contracts for the base load and buying spot cargoes to create the optimal blend of feedstock for their units.

The vast majority of major oil-exporting NOCs sell to end users. This practice enables them to fully track and to an extent control who buys their specific grades of crude.

Selling to oil traders

Some NOCs opt to sell to traders, either in combination with end users, such as in Angola and Russia, or, in rare cases exclusively, as in Nigeria. Traders can offer financing and flexibility that end users sometimes lack, and are accustomed to operating in logistically or politically difficult environments.

Selling to traders can pose challenges. The traders capture a margin that theoretically could have been captured by the NOC if it marketed the crude itself. Moreover, traders are secretive companies that typically operate out of jurisdictions that impose limited regulation or taxation burdens. Their business model favors aggressive negotiation of sale terms, which can generate pressure on NOCs to grant favorable treatment. NOCs that sell to a mix of traders and end users can end up competing with traders as both attempt to market the same crude to end users—a dynamic that could lower the eventual sale price received.

When traders do the marketing

Small oil exporters, especially those whose NOCs lack a trading arm, can choose to hire a trading company to market their oil on their behalf. The traders have the experience to find customers

⁸ http://www.worldenergyoutlook.org/methodology_sub.asp

⁹ PIW Scorecard, quarterly calculation of term prices.

¹⁰ Saudi officials.

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for the specific crude produced and are experts in dealing with the cumbersome logistics. For example, Ghana has hired Vitol to serve this role, paying the company 8 cents per barrel of oil sold.

Traders' fees lower the price that producers will get for their crude. However, the greater potential cost could come if the contracts are poorly negotiated or monitored by the NOC. In such exclusive marketing arrangements, the trader may have a limited incentive to maximize the value received by the NOC. Given the number of new oil producers, many of which have weak institutions and limited industry knowledge, this is an area that requires further research.

Creating a secure outlet

Some NOCs maximize the value of their crude by creating secure downstream outlets. There are two examples of this practice in the countries profiled.

Saudi Aramco has joint ventures with refineries around the globe that are configured to optimize the output of refined products from the specific quality of Saudi crudes. These joint ventures serve as firsthand knowledge centers about local downstream markets, and this knowledge helps the Saudi NOC to identify the optimal price to charge other buyers.¹¹ The joint venture refineries, such as those in the United States, South Korea and China,¹² have long-term supply contracts with the Saudi NOC and will not lose supplies if supplies are tightened under Organization of the Petroleum Exporting Countries (OPEC) policies.¹³

To improve the market for its low-value, heavy "Maya" crude, Mexican NOC Pemex entered into deals in the late 1990s that encouraged refineries to build expensive cokers that turn heavy crude into valuable products. These moves tied up a solid and beneficial market for Maya as Pemex could command a higher price for the crude.¹⁴ In addition, it tightened up the sour crude market in the Gulf of Mexico, narrowing the sour discount to sweet grades.

5. Where the proceeds go

Once the NOC sells its share of production, a portion of the sale proceeds is transferred to the state. The financial relationship between the NOC and the treasury is often complex, on paper and even more so in practice. At the start of this brief, the distinction was made between the NOC's share of production and the government's share that the NOC sells on its behalf. The revenue flows from these two types of transactions are usually distinct.

Proceeds from the sale of **the NOC's own production or equity oil** usually remain within the NOC, assuming the NOC is a commercialized entity. The NOC pays taxes and royalties like any other oil company, and it pays dividends to its shareholders. Government owns some or all of the shares, so it usually receives most or all of the dividend payments. Pemex retained all its export sale earnings but in 2010 paid \$52 billion in taxes to the state—\$4 billion more than its earnings that year.¹⁵

For the **government's share of production**, some or all of the proceeds are directly transferred to the treasury. Some NOCs charge a fee for this service, leading them to retain a small portion of the revenue. In 2010, Sonangol transferred \$12.5 billion in profit oil proceeds to the Angolan treasury. In the same year, Iraq's oil marketing entity transferred \$48 billion to the treasury after selling the country's oil, which was produced mostly under service contracts.

¹¹ Author interviews with current and former Aramco officials.

¹² <http://www.saudiaramco.com/en/home.html#our-operations%257C%252Fen%252Fhome%252Four-operations%252Frefining---chemicals.baseajax.html>

¹³ Author interviews with current and former Aramco officials.

¹⁴ Petroleum Intelligence Weekly, May 21, 2001.

¹⁵ http://www.ri.pemex.com/files/content/PEMEX_2010_Form_20-F_as_filed_June_30_20111.pdf

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Some NOCs, such as Norway's Statoil, serve both functions. They sell government's oil and transfer the proceeds to the treasury. They sell their own oil and pay the state profit dividends commensurate with its shareholdings.

In all cases, the financial flows are much more complex than these two categories suggest. Some NOCs, such as Azerbaijan's SOCAR, collect other revenue on behalf of the state, such as bonuses, taxes and fees. Others have extensive downstream operations, and so sell the oil to themselves—such as sales between Petrobras Exploration and Production and Petrobras Refining, Transportation and Marketing in Brazil.¹⁶ Nigeria's NOC is charged with paying the cost of the country's large subsidy on imported petroleum products, partially from its crude export sale revenue.

¹⁶ <http://google.brand.edgar-online.com/displayfilinginfo.aspx?FilingID=7959924-1442-1370376&type=sect&TabIndex=2&companyid=95325&ppu=%252fdefault.aspx%253fcompanyid%253d95325%2526amp%253bformtypeid%253d53>



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