



## Contracts for Petroleum Development - Part 1

*In virtually every country around the world, petroleum resources in the ground are considered the property of the state. Whether and how the country's petroleum resources are developed, and how much revenue will flow to the government, depend on the nature of contracts signed between the government and the investor. This briefing note, the first in the series of three, describes basic features of petroleum contracts for exploration and production. The series focuses primarily on production sharing agreements, the type of contracts used in Cambodia, with a focus on fiscal terms.*

In all countries except the United States, the government owns petroleum resources under the surface (ground or sea). These resources can be extracted and converted into financial assets only once and are eventually depleted. An important objective is to maximize the revenue to the government that can be effectively utilized in the long run. Achieving this objective depends on many factors, including the government's ability to attract qualified investors, the timing of production, petroleum price movements, and the government's capacity to spend revenue productively.

Governments have considerable influence over when and how fast to extract petroleum resources. The timing and pace of resource development in turn depends, amongst others, on the legal, fiscal, and contractual framework for the petroleum sector. Petroleum exploration and production carries high risks and is capital-intensive. That said, it can be extremely profitable if a sizable commercial discovery is made. The fiscal and contractual framework determines how risks and profits are shared between the government and the investor.

### Overall Legal Framework

The petroleum sector is typically governed by laws, regulations, and contracts.

- ◆ Petroleum laws, enacted by the legislature, set out basic principles and enable the executive branch of the government to implement them by

way of regulations and individual contracts. A petroleum law would typically state that petroleum resources are the property of the state; establish the regime(s) under which petroleum companies may be granted the right to conduct petroleum operations; designate the state authorities and agencies to administer the law, authorize them to issue regulations, and negotiate and enter into contracts; and set out the basic rights and obligations of petroleum companies, permit investment protection guarantees, and identify the main principles of the fiscal regime to which petroleum companies are subject. More recently, several petroleum laws have required that contracts, petroleum revenues, or both be made public [1] to promote transparency and greater accountability.

- ◆ There are other laws governing various aspects of the petroleum sector. They include general income tax and custom laws; foreign investment laws; environment protection laws; and laws governing the collection, management, use and reporting of state revenues. Providing taxation rules of the petroleum sector in the general income tax law is considered good practice. In this way, tax rules are not proliferated in a number of sector-specific laws, which could potentially lead to inconsistencies. This approach—consolidating all matters related to taxation in the tax law, all matters related to environment in an environmental law, and so on—has many advantages.

- ◆ Petroleum regulations are issued by the government or the ministry in charge of the petroleum sector. They provide implementation details for the petroleum law, such as the organization and roles of the public authorities in the administration of the law and in the conduct of petroleum operations; rules for granting petroleum rights; rules on operational and technical matters; requirements for submission of reports and accounts on petroleum operations; environment, health, and safety standards; and such financial obligations as surface rental fees (which are fees paid annually based on the size of the area covered by the contract), other fees, and fines.
- ◆ Petroleum contracts between the state and the investor—which are the subject of this three-part series—are normally negotiated by the minister in charge of the sector, under the supervision of an inter-ministerial committee, and executed by the minister on behalf of the state.

## Two Types of Contractual Regimes

Contracts can be classified into two regimes, concessionary and production sharing.

### *Concessionary systems*

Under a concessionary (or *tax and royalty*) system, as in Thailand, the petroleum company obtains title to all of the oil and gas at the wellhead and pays royalties, bonuses, and income and other taxes.

### *Production sharing*

The first production sharing agreement was signed in 1966 in Indonesia. The agreement may be with one or more firms; if it is with several firms, one is designated as the operator to conduct the operations. The firms and the operator may change over the life of the project as a result of transfers of interests. Production sharing agreements (PSAs) normally provide for the sharing of production rather than profits. The state, which owns all petroleum, transfers title to a portion of the extracted oil and gas to the contractor at an *agreed delivery point*. Normally, the equipment used in the petroleum operations by the contractor becomes the property of the state once its cost has been recovered, except leased equipment or that provided by service companies. The contractor is respon-

sible for all financing and technology required for petroleum operations and bears the risks.

## *Differences between the Two Systems*

A general consensus among industry analysts is that the choice between concessionary and production-sharing systems is primarily politically motivated. PSAs can be viewed as giving governments greater control over petroleum resources because title to petroleum is not transferred to the investor at the wellhead. However, in both cases, the investor conducts petroleum operations at its sole risk and expense, and if no commercial discovery is made, the investor is not reimbursed by the government for any of the work undertaken. Importantly, the same financial end-result can essentially be achieved for the government in either system in terms of risk and revenue sharing.

The rest of this note focuses on PSAs for exploration and production, which are the type of contracts being signed by the Government of Cambodia.

## Typical Content of Production Sharing Agreements

Petroleum companies signing PSAs are referred to as *contractors*, and the area covered by the agreement the *contract area*. The contract area is not static but diminishes over time as technically-challenging or non-producing portions are relinquished. Production sharing agreements typically contain the following provisions.

- ◆ The agreement states the *duration* of the exploration and production periods. The exploration period is divided in short phases, each having a minimum work program, in part to ensure that the contractor does not tie up a prospective area without doing work for a prolonged period of time. The exploration period is usually 5 to 10 years, and the production period 15 to 20 years for oil and 20 to 30 years for gas, with further extensions permitted under certain circumstances.
- ◆ Successive *relinquishments* of portions of the contract area are commonly required at the end of each phase of the exploration period. For example, the exploration period may consist of three phases of 2 to 4 years each, and the contractor may be required

to relinquish a percentage, often around 25 percent, of the contract area at the end of each phase. Payment of surface rental fees, based on the number of square meters of the contract area, gives an incentive for relinquishment.

- ◆ The *rights* and *obligations* of the contractor are stated. The obligations include minimum exploration commitments (such as the minimal number of exploration wells to be drilled), conducting the operations in accordance with best international practices with due regard to safety and the protection of the environment, annual submission of work programs and budgets to the government for approval, keeping the authorities regularly informed of the results of the operations, recruiting and training local personnel, and giving preference to local goods and services. In return, the contractors are typically given the right to conduct petroleum operations in the contract area on an exclusive basis (meaning that other parties cannot be conducting operations); in case of commercial discovery, produce petroleum and export their share of production over the exploitation period; import goods needed for petroleum operations (often within the limits of local content obligations); retain abroad, and pay foreign subcontractors with, foreign currency, and purchase and sell local currency; and, under specified circumstances, assign or transfer the rights under the agreement to third parties.
- ◆ The agreement stipulates how petroleum is to be *valued*, how the contractor may *recover costs out of their share of the production*, how the *remainder of production is to be shared*, tax obligations of the contractor, and when and for which payment streams *fiscal stability* might be granted. Fiscal stability guarantees the investor that, even if the country's tax and other fiscal systems are changed in the course of the project, the original terms in the PSA will continue to apply. This is an important consideration in the upstream petroleum sector where upfront capital investments can be very large and the duration of projects long.
- ◆ Other provisions include specific clauses for natural gas, dispute resolution, and confidentiality/transparency provisions. The PSA may also provide for state participation in the project. Finally, the PSA may contain a domestic supply obligation whereby

the contractors are required, on a pro rata basis, to supply oil or gas to the state at a mutually accepted price (often the fair market value), if the state's share of production is not sufficient to meet domestic demand.

## Model Contracts

Model contracts give prospective investors a good idea of what to expect. They foster transparency and help ensure equal treatment of potential investors. They can be attached as exhibits to petroleum regulations, or issued in connection with licensing rounds. Timor Leste attaches a model production sharing contract to the Petroleum Act (a draft of which was circulated earlier for public consultation [2]), and Trinidad and Tobago posts a model production sharing contract on the official website of the Ministry of Energy and Energy Industries [3].

Model contracts are, as the name implies, models only and should provide scope for variation. It is good practice to limit the number of negotiable clauses in model contract for transparency and administrative efficiency. In licensing rounds prospective investors are typically asked to bid on the basis of the model contract, subject to one or more open parameters. The greater the number of bidding parameters, the more difficult it is for the host government to compare bids. Algeria issues tenders based on a single bid parameter: (1) the signature bonus, (2) the royalty rate above the minimum specified in the petroleum law, or (3) work commitments. If the bid parameter is the work program, there is a scoring system assigning a number to each work commitment, enabling conversion of each bid into a single number. Bidding policies do and should differ to reflect different technical, economic, and market circumstances. Whatever the policy, transparency and objectivity of the evaluation criteria is important for attracting qualified investors.

## Assessing Revenue Flows

There are two revenue considerations for the government<sup>3/4</sup>the size of the overall revenue and the timing of the revenue collection over the life of any given petroleum contract. The size of the overall revenue depends on the price of petroleum, the amount produced, and the fiscal parameters. In addition to the total government revenue, the timing of revenue collection matters.

Consider an oil field with total economically recoverable reserves of 100 million barrels. The oil field may contain a total of 350 million barrels, but some of the remaining 250 million barrels may not be either technically or economically recoverable at the current standards of the oil industry.<sup>1</sup> Suppose the price of extractable oil averages US\$45 a barrel over the life of the field. One hundred million barrels will fetch US\$4.5 billion. Some of this money will be used to recover the costs of exploration and production, some will be retained by the investor as profits, and the rest will flow to the state.

The fiscal system determines both how much of the US\$4.5 billion the government will capture and the timing of the revenue flow. Focusing on the latter, some fiscal terms are designed to provide early revenue to the government, in some cases as early as at the time of contract effectiveness. At the opposite end of the spectrum are those fiscal terms designed to give incentives to investors to explore and produce oil in times of both high and low world oil prices, and in both low-cost, highly prospective fields and high-cost, marginal fields. These terms may not provide as much early revenue. Fiscal terms that provide increasing rates of revenue to the government with increasing net-of-cost income are called *progressive*; those in which the rates become lower are called *regressive*.

The timing of revenue collection matters for several reasons. One is the time value of money. Simply put, a dollar in hands today is worth more than a dollar five years from now. This is because the dollar in hands can be deposited in an interest-bearing bank account or invested elsewhere to earn a return. In addition, inflation erodes the value of that dollar over time. For this reason, discounted cash flow analysis is commonly conducted, whereby all future cash flows are estimated and *discounted*. The *discount rate* is generally the appropriate cost of capital plus a risk factor, and calls for judgments of the uncertainty (degree of risk) of the future cash flows. Location-specific uncertainties include those regarding the size of economically recoverable reserves; stability, clarity, and transparency of regulatory and fiscal frameworks; administrative efficiency of regulatory implementation and enforcement; and the government's commitment to the sanctity of contracts. The higher the perceived level of risk, the higher the discount rate applied and the lower the amounts contractors would be willing to pay to the government.

Another reason the timing matters is that, to the extent possible, it would be in the interest of the government to smooth petroleum revenues over time because smooth revenue flows make government budget planning and expenditure easier. In practice, annual petroleum revenues fluctuate because of oil price volatility, changes in annual oil production which rises rapidly as production begins and then levels off as the field goes into decline, and, to a limited degree the way the fiscal system is set up. A government does not have much control over world oil prices (with the exception of very large oil producers and cartels) or the field's production profile, but it has some control over the fiscal system.

All other things being equal, regressive fiscal systems tend to smooth revenues more than progressive ones. That said, regressive fiscal terms deter investment, discourage development of marginal fields, and could lead to early abandonment of producing fields. Setting high tax and other rates have a similar effect. Governments need to weigh these trade-offs in setting fiscal and contractual terms.

Briefing note no. 8 will review the terms used in production sharing agreements that define what contractors must pay. Briefing note no. 9 will provide the results of simulations of different fiscal regimes to assess how different terms affect government revenue flow.

## References

- [1] World Bank. 2007. "Country Experience with EITI – Part 1." Petroleum Sector Briefing Note No. 5, July.
- [2] Timor Leste Ministry of Natural Resources, Minerals & Energy Policy. "Model production sharing contract under the Petroleum Act." [www.timor-leste.gov.tl/emrd/PSC%20model%20270805.pdf](http://www.timor-leste.gov.tl/emrd/PSC%20model%20270805.pdf).
- [3] Trinidad and Tobago Ministry of Energy & Energy Industries. 2000. "Model production sharing contract, 2<sup>nd</sup> version." [www.energy.gov.tt/applicationloader.asp?app=doc\\_lib\\_details&id=135](http://www.energy.gov.tt/applicationloader.asp?app=doc_lib_details&id=135).

**For more information contact:**

**Mr. Bun Veasna**

**Infrastructure Officer**

**Email: [vbun@worldbank.org](mailto:vbun@worldbank.org) or**

**Masami Kojima**

**Lead Energy Specialist**

**Email: [mkojima@worldbank.org](mailto:mkojima@worldbank.org)**

<sup>1</sup> Oil is not technically recoverable if, given today's technology, it is very difficult or virtually impossible to get the oil out of the ground; oil is not economically recoverable if it is too expensive to extract, although the technology to do so may exist.