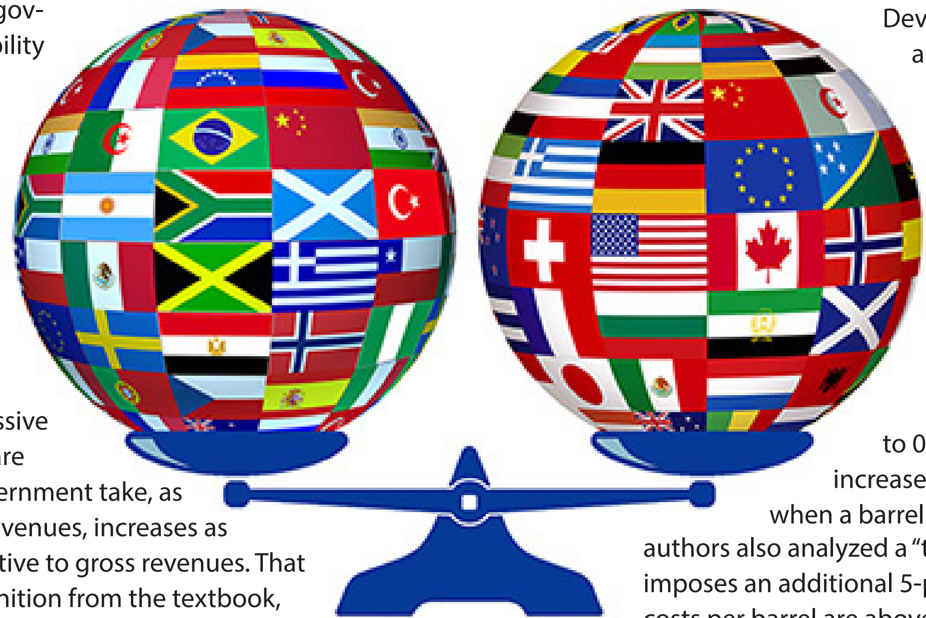
Striking a balance between progressive, regressive fiscal terms

*-- **Andrew Wright**, associate economist*

International oil companies (IOCs) negotiate upstream petroleum contracts based on cost-recovery incentives and profit potential from their shares of gross production under various policy and contract models. They see progressive fiscal systems as opportunities to maximize profits and upside.

At the same time, IOCs are not looking past host countries offering contracts under regressive fiscal systems. Those contractors target consistent cash flows from the exploitation of large, less risky portfolios of reserves with well-developed, profitable oil economies. As countries strike a balance between government take and profitability for IOCs, they are offering exploration-and-development (E&D) tracts under petroleum contracts with both regressive and progressive elements.



Regressive policies, national interests

For some basics, regressive petroleum fiscal regimes are those where the host government take, as a relative percentage of revenues, increases as project costs increase relative to gross revenues. That is a slightly reworded definition from the textbook, "International Petroleum Fiscal Systems and Production Sharing Contracts," by **Daniel Johnston**, PennWell Corp., 1994.

Another way to view regressive elements are as contract terms or laws that could cause a marginally profitable project to have a negative cash flow for the contractor because of government take, as cited in SPE Paper No. 130127-MS, "Designing Efficient Fiscal Systems," by **Mohammad A. Mian**, 2010.

Early in an integrated project's timeline, regressive policies are often in place and applicable to upstream activities. They are unresponsive to material changes in specific project conditions, such as field size, or macroeconomic changes, such as oil price increases or decreases.

Examples of regressive policies are signature bonuses and royalty arrangements. In production-sharing agreements (PSAs), where the contracting oil company has yet to recover all of its costs, cost-recovery caps are regressive.

Governments include regressive policies in their fiscal systems for various reasons to support their national interests. Royalties and cost-recovery caps guarantee the host government a minimum share of oil revenue by establishing an effective royalty rate, even in PSAs, as cited by Johnston.

Regressive policies allow governments to receive payments up front, which is especially important for cash-starved developing economies attempting to diversify away from oil.

The double-edged sword is regressive policies can ding host governments, just as they hurt oil companies. They discourage participation in bidding, licensing rounds and negotiations involving direct assignments. Disincentivizing E&D spending, especially in frontier areas or marginal fields, invariably reduces government revenues.

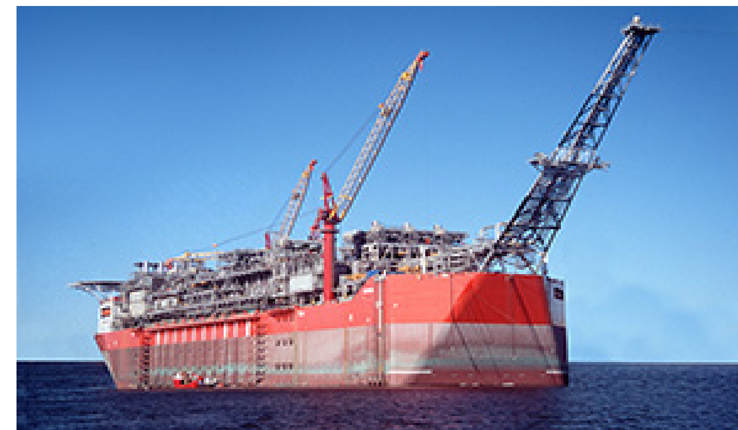
Consider Nigeria and its proposed, regressive National Petroleum Fiscal Policy (NPFP). Recently, staff at Addax Petroleum Development Nigeria Ltd. analyzed elements of the policy and published their findings in SPE Paper No. 193460-MS, "Nigerian National Petroleum Fiscal Policy – Fiscal Levers & Attendant Impact on Value of Oil Projects," **Segun-Oki** et al, 2018.

They focused on a 0.2- to 0.3-percent royalty increase on value that is triggered when a barrel of oil reaches $50. The authors also analyzed a "tax inversion penalty" that imposes an additional 5-percent income tax when costs per barrel are above 30 percent of the price per barrel.

By creating a decline-curve forecast of government oil revenue, the authors demonstrated that while the proposed changes in the NPFP maximized government revenue, they also choked off investment, because of negative net present values for IOCs at project levels.

A lack of flexibility in regressive contract terms also means that the government take decreases as profitability of the project increases. For example, a flat, volume-based royalty of $2 a barrel cannot respond to major oil price increases, such as those during the 1973 oil crisis or the 2008 spike.

In the government's view, large oil-price increases give oil companies windfall profits at the expense of its national interests and citizens. For those reasons, increasingly, governments are transitioning to contracts with progressive terms, and passing laws regulating oil and gas production.



Shell Nigeria E&P Co. Ltd. has operated the Bonga FPSO offshore Nigeria since 1994. The company anticipates that with further development, the Bonga field will produce more than 200,000 BOPD, although at reduced profits because of an increasingly regressive fiscal system. In November, Nigeria passed an amendment imposing additional royalties when the price of crude exceeds $20 a barrel. Shell and other contractors have criticized the move.

Win-win progressive policies

Progressive policies expose both host governments and contracting oil companies to economic fluctuations relating to oil price, capital and operating costs, reserves and production rates, observes Mian.

Think of progressive policies like the U.S. personal income-tax bracketing system. Those who report higher wages pay higher income tax rates. As the profitability of an oil field development increases (growth of taxable income), so too does the host government take based on a higher percentage of revenues (tax rate increase). Some common mechanisms in progressive policies include R factors, sliding-scale royalties and rate-of-return systems.

In theory, progressive fiscal systems reduce government take, especially on a discounted basis, as payments to governments are received further downstream, and therefore, later in project life, states Segun-Oki et al.

In practice, however, progressive policies arguably bring more investment to the host country than regressive ones. An example is in SPE Paper No. MS-185473, "Uruguayan Petroleum Fiscal Regime," **F. Ferro** et al, 2017.

He and the other authors, who included staff members at national oil company Ancap, stated that Uruguay was able to "revive exploration" despite the fact that "there has never been a hydrocarbon discovery in … (the country) and the exploratory areas which the country offers are a classic example of high-risk frontier exploration."

In addition to "excellent upstream market conditions at the time," the paper attributes the success of the second offshore bidding round to the progressiveness of the PSC terms.

The Uruguayan PSC has no royalties, no bonuses, no surface rentals, and Ancap must reimburse the IOC its share of E&D costs to back in. Ancap staff also created a detailed probabilistic technical and economic model that shows that in a wide range of reserves and economic scenarios, government take is consistent.

Profit-based, progressive contract elements, such as profit-oil splits, also encourage the contracting oil company to keep costs low.

Cost containment is measured by calculating the savings index of a project, as cited by Johnston. The index is only affected by profit-based contract terms, so contractors, under progressive fiscal systems, have more incentives to lower costs.

Without any domestic production or feedstock, Uruguay has one refinery, La Teja at Montevideo, which processes imported oil. A $1.5-billion exploration commitment in Round II bidding eight years ago generated no discoveries so far. However, progressive fiscal terms were partly responsible for attracting the participation of 11 IOCs in eight offshore blocks.

Dealer's choice

With the use of progressive and regressive contract terms, host governments can strike a balance "between increasing economic rent and incentivizing investment," states Segun-Oki et al.

However, for contracting oil companies, conclusions are somewhat tougher to draw. They involve soft, strategic considerations — such as geopolitical risk and relationship with government — and bottom-line considerations, for example, for investors who use capital asset pricing models to determine theoretical required rates of returns of assets if added to their portfolios.

While IOCs can overcome even the most onerous regressive contract terms, if the discoveries are big enough and costs low enough to justify them, exploration in frontier environments often only makes economic sense with highly progressive terms.

Investors seeking exposure to E&P activities should consider whether to target progressive fiscal systems to maximize upside access, or to aim for consistent cash flows from the exploitation of large portfolios of reserves under regressive policies.

Editor's Note: The email address of Andrew Wright is andrew_wright@ryderscott.com. All SPE papers cited in this article are available for online purchase at https://onepetro.org.