

# Global Energy Industry

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Downstream	Transmission	Biomass
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## Editors' Note

A primary goal of Mayer Brown's *Global Energy Industry Review* has been to publish for our clients and friends, brief (yet insightful) and timely articles about topics affecting the energy industry around the world. This edition of the Review, we believe, achieves that goal and demonstrates our firm's worldwide reach.

Geopolitical, legal and regulatory developments continue to drive trends in the global energy industry today. In that respect, we address in this edition the following recent developments:

- The Mexican government's wide-spanning energy reform initiatives, including a summary of the new law, new contractual frameworks and PEMEX's likely role in energy reform in Mexico;
- Potential impacts on North Sea reserves and production as the oil industry begins to take into account the possibility of Scotland's separation from the United Kingdom and its becoming an independent sovereign nation;
- The potential of Southeast Asia's newest player concerning energy business

opportunities — Myanmar — and the development of the power sector there; and

- Practical aspects of forfeiture mechanisms in contracts and under the Brazilian Civil Code regarding E&P joint operating agreements, and their enforceability under Brazilian law.

We also focus on a recent issue under US federal and state law as to whether the grant of an overriding royalty interest in a financing transaction is a conveyance of real property or an assignment of collateral as security for the financing — the resolution of this issue may well affect financing transactions in the Gulf of Mexico.

Finally, this edition of the *Review* contains an article summarizing recent comprehensive California legislation that will impact hydrocarbon development in shale formations located in that state.

We encourage you to please visit our Energy News and Publications page on our website for a complete list of our articles and energy updates. If you have any questions or comments on any of this edition's articles, please contact us. ♦



## A New Frontier: Mexico's Energy Reform



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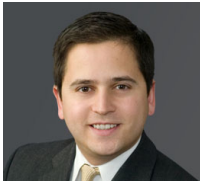
In December 2013, the President of Mexico signed a historic energy reform bill into law, eliminating a restrictive legal framework that has limited private investment and participation in the country's energy industry for more than 75 years. The reform is widely expected to result in a significant influx of private capital, technology and technical expertise into Mexico's upstream, midstream and downstream oil and gas industries and its electric sector.

The reform includes amendments to articles 25, 27 and 28 of the Mexican Constitution and 21 transitional articles (transitorios) or directives that detail how the Congress and the executive branch are to implement the constitutional reform. In short, the reform:

- Gives PEMEX the opportunity to retain acreage that it already has under production or that it is actively exploring in a "Round Zero";
  - Allows private parties to report for accounting and financial purposes oil and gas contracts and the expected benefits arising from those contracts, essentially permitting the "booking of reserves" (subject to applicable securities laws);
  - Opens the oil and gas downstream and midstream sectors to private investment and competition;
  - Creates a fully open and competitive wholesale electric generation market by, among other things, reducing the control of the sector by the state-owned power utility, Comisión Federal de Electricidad (CFE);
  - Introduces corporate governance changes and more budgetary autonomy to PEMEX and CFE; and
  - Creates the Mexican Petroleum Fund, a sovereign natural resources fund, to administer, distribute and invest revenues from the country's hydrocarbon resources.
- Opens the upstream oil and gas sector to private investment and competition by ending the monopoly of the national oil company, Petróleos Mexicanos (PEMEX), and introducing a new contractual framework in which private parties can be awarded risk-sharing contracts (license, production-sharing and profit-sharing contracts) either directly by the government or in association with PEMEX;

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The transitional articles trace, in broad strokes but with specific deadlines, how the reform is to be implemented. Full implementation of the reform will require the Mexican Congress to pass additional so-called “secondary laws” that will detail, among other things, the terms, conditions, royalty structures and tax rates of private participation and investment in the country’s energy industry. Congress must pass the necessary secondary laws within 120 calendar days of the reform law’s enactment (i.e., by April 20, 2014).

### Upstream Oil and Gas Sector

#### BACKGROUND

Prior to the reform, Article 27 of Mexico’s Constitution provided that, in regard to oil and gas resources, “no concessions or contracts shall be granted...and the Nation shall carry out the exploitation of those substances, under the terms set forth in the respective Regulatory Law.”<sup>1</sup> Similarly, prior to the reform, Article

28 of the Constitution provided that hydrocarbons and basic petrochemicals were “strategic areas” reserved exclusively to the state.<sup>2</sup> Accordingly, the Constitution, together with two federal statutes, the PEMEX Law (Ley de Petróleos Mexicanos) and the Regulatory Law of Article 27 of the Constitution (Ley Reglamentaria del Artículo 27 Constitucional en el Ramo del Petróleo), granted PEMEX a monopoly over every step of the petroleum value chain, including exploration, production, distribution, storage, refining and marketing of

petroleum and petroleum products.<sup>3</sup> This legal framework also restricted the consideration payable by PEMEX to private companies under service contracts, prohibiting payments in kind or otherwise sharing in production, and prohibiting any form of sharing or allocation of sales proceeds or profits.<sup>4</sup> A private company, therefore, could not own production, share in the proceeds from the sale thereof, or share in the profits from the project. As a result, there has been no meaningful private investment or participation in Mexico’s oil and gas industry for decades. The reform’s amendment of Article 27 of the Constitution repeals these restrictions and establishes that the State may grant contract rights to the country’s oil and gas resources to private parties.<sup>5</sup>

#### NEW CONTRACT FRAMEWORK

The reform establishes a new contractual framework to govern upstream oil and gas exploration and production. The reform provides that “maximizing the Nation’s revenues” is to be the State’s guiding principle in implementing the new framework and choosing the contractual model for a particular area or project.<sup>6</sup>

The reform expressly provides that the contractual framework shall include:

- Licenses;
- Production-sharing contracts;
- Profit-sharing contracts; and
- Pure service contracts.

The law also provides that this list of contract types is not exclusive and that the contract types named in the article are “among others” available for use by the State in developing the country’s oil and gas resources.<sup>7</sup> Essentially, this means that Mexico is not limited to choosing between licenses, production- sharing, profit-sharing and service contracts but has the flexibility to choose among a combination of these contractual frameworks. As noted above, Congress is required to pass secondary legislation detailing this contractual framework as well as the applicable taxation and royalty system within 120 calendar days of the enactment of the secondary laws.

The first oil and gas bid round is expected to occur around June 2015, and is expected to include shallow areas offshore, deepwater, onshore shale formations, mature fields and extra- heavy oil fields, including certain areas currently held by PEMEX.

#### NEW REGULATORY FRAMEWORK FOR UPSTREAM CONTRACTS

The primary responsibility for implementing and regulating Mexico’s new legal framework for upstream contracts is allocated among the following regulatory bodies:

- The Ministry of Energy (Secretaría de Energía) is charged with:
  - » issuing energy policy;
  - » selecting the geographic areas for upstream contracts;
  - » determining the areas that PEMEX will retain in the Round Zero; and
  - » designing upstream contracts and establishing the technical and financial requirements for bidding (with assistance from the National Hydrocarbons Commission).<sup>8</sup>
- The Ministry of Finance (Secretaría del ramo en materia de Hacienda) is charged with developing the fiscal terms and economic conditions applicable to upstream contracts.<sup>9</sup>

- The National Hydrocarbons Commission (Comisión Nacional de Hidrocarburos) is charged with:
  - » conducting bidding processes for exploration and production contracts;
  - » collecting geologic and operational information;
  - » evaluating bids and awarding contracts;
  - » providing technical assistance to the Ministry of Energy on various matters; and
  - » monitoring exploration and production plans to ensure compliance with the contracts and maximize productivity.<sup>10</sup>
- The Energy Regulatory Commission (Comisión Reguladora de Energía) is charged with:
  - » regulating and granting permits for the storage, transportation and distribution of oil, gas, petroleum products and petrochemicals; and
  - » regulating third-party access to transportation pipelines and the storage of hydrocarbons and their derivatives, and firsthand sales of such products.<sup>11</sup>
- The newly established National Agency of Industrial Security and Environmental Protection of the Hydrocarbon Sector (Agencia Nacional de Seguridad Industrial y de Protección al Medio Ambiente del Sector de Hidrocarburos) is charged with regulating and overseeing health, safety and environmental matters relating to oil and gas operations.<sup>12</sup>

#### ROUND ZERO

Before giving private companies the opportunity to bid for contract areas, the reform establishes that there is to be a “Round Zero” (Rondo Cero) during which PEMEX will have the opportunity to request the right to retain areas that it either already has under production or that it is actively exploring.<sup>13</sup> After the Round Zero, in the upcoming rounds

PEMEX is to compete on an equal footing with other companies in obtaining additional contract areas through public bids.

On March 21, 2014, PEMEX submitted its Round Zero request to the Energy Ministry, meeting the 90-day deadline established by the reform bill. The reform required PEMEX, in its application, to:

- specify the area, depth and term of the requested allocation; and
- demonstrate that it possesses the necessary technical, financial and administrative capabilities to carry out exploration and production activities in that area in an efficient and competitive manner.<sup>14</sup>

As reported by the Energy Ministry, PEMEX requested 100% of all producing areas, 83% of Mexico's proven and probable reserves (2P reserves) and 31% of Mexico's prospective hydrocarbon resources. Notably, PEMEX requested deepwater areas.

The reform provides that as long as PEMEX shows it is qualified to operate in a particular field or area, the Ministry of Energy is to grant PEMEX the right (i) to retain "assignments,"<sup>15</sup> or entitlements to certain areas, that were producing as of December 21, 2013 (needs to submit development plan) and (ii) to retain for three years (with a possible two-year extension, subject to a pre-established exploration plan) assignments in areas where PEMEX had made commercial discoveries or exploratory investments as of December 21, 2013.<sup>16</sup> Within 180 days of the filing of PEMEX's requests for assignments (i.e., by September 17, 2014), the Ministry of Energy must issue a resolution regarding PEMEX's area request.

In this resolution, the Ministry of Energy, with technical assistance from the National Hydrocarbons Commission, will assign areas to PEMEX, and also set the surface area, depth and duration of each entitlement granted to PEMEX.<sup>17</sup>

The areas not requested by (or not granted to) PEMEX will be subject to future bid rounds. In areas retained by PEMEX, the reform provides that PEMEX may request the "migration" (or

conversion) of an entitlement into a risk-sharing upstream contract.<sup>18</sup> The reform provides that upon a migration, if PEMEX wishes to enter into contracts with private parties to develop the converted areas, the National Hydrocarbons Commission is to conduct a bidding process to select the private party partner. In addition, the Ministry of Energy is to establish the technical and contractual guidelines and the Ministry of Finance is to establish the fiscal terms and economic conditions of the relationship.<sup>19</sup>

### BOOKING OF RESERVES

The booking of reserves is an important financial reporting practice that allows oil and gas companies to reflect the volume of reserves they have the right to produce and market.

The reform establishes that private parties and PEMEX may "report for accounting and financial purposes, assignments and corresponding contract and expected benefits" as long as the assignments or contracts establish that, until produced, title to all hydrocarbons in the ground resides exclusively with the State.<sup>20</sup>

Based on the foregoing, private parties would not be prevented from "booking reserves" subject to applicable securities laws. Under international practice, subject to the rules of the pertinent reporting jurisdiction, international oil companies can show volumes of reserves in their public financial statements even if they do not have legal title to the hydrocarbons in place.

Indeed, under most contracts around the world, oil and gas companies do not "own" the reserves in place but are nonetheless permitted to book them.

### THE MEXICAN PETROLEUM FUND

The reform creates a new entity, the Mexican Petroleum Fund (Fondo Mexicano del Petróleo para la Estabilización y el Desarrollo), a public trust to be established by the Ministry of Finance and administered by Mexico's central bank (Banco de México), as trustee.<sup>21</sup> The Mexican Petroleum Fund



will be entrusted with receiving, administering and distributing all government oil revenues, with the exception of taxes paid by oil companies.<sup>22</sup> Modeled after Norway's sovereign natural resources fund, the Mexican Petroleum Fund will invest part of the revenue from petroleum exploration and production into long-term savings vehicles and pension funds.<sup>23</sup> It will be controlled by a technical committee comprised of three representatives from the government and two independent members appointed by the President and approved by two-thirds of the Senate.<sup>24</sup> The Mexican Oil Fund is set to become operational starting in 2015.

#### SEISMIC DATA AND PERMITS

In addition to its other duties, the National Hydrocarbons Commission is charged with establishing and administering the National Hydrocarbons Information Center (Centro Nacional de Información de Hidrocarburos), which will serve as a repository for geologic and seismic information.<sup>25</sup> The National Hydrocarbons Commission is reportedly planning to make seismic data available that has been collected by PEMEX over the course of the past few decades. In addition, the National Hydrocarbons Commission has stated it intends to grant "seismic permits" as early as June 2014 to allow commercial seismic companies to gather and sell proprietary data for a specified number of years, after which the data would be made publicly available.

#### Midstream and Downstream Sectors

The reform ends PEMEX's monopoly and opens the midstream and downstream sectors to private investment and competition. Under the new framework, the Energy Regulatory Commission (Comisión Reguladora de Energía) will be in charge of granting permits for the storage, transportation and distribution of hydrocarbons, and regulating firsthand sales of fuels.<sup>26</sup> The Ministry of Energy will be in charge of regulating firsthand sales and granting permits to private companies for the storage, transportation and distribution of hydrocarbons.<sup>27</sup>

The reform also provides that, within 12 months of the effective date of the new Regulatory Law of Article 27, the executive branch must establish by decree the National Center of Natural Gas Control (Centro Nacional de Control del Gas Natural) to oversee the operation of the national pipeline network.<sup>28</sup>

#### Electric Power Sector

The reform will also open the electric generation sector to full private participation and investment. The amendment to Article 28 of the Constitution removes the classification of power generation as a public service activity that is reserved exclusively to the state, thus permitting private investment and competition in power generation.<sup>29</sup> This change represents a fundamental departure from the previous regime under which private parties could only participate in limited power generation activities.

The Energy Regulatory Commission is charged with granting permits for generation, and regulating the tariffs to be paid by CFE for transmission and distribution services.<sup>30</sup>

Electricity transmission and distribution, as well as the planning and control of the national electric grid, will remain public service activities reserved exclusively to the state.<sup>31</sup> The reform does, however, permit state entities to enter into agreements with private parties to perform those services.<sup>32</sup>

In addition, the reform provides that, within 12 months of the enactment of secondary legislation governing the electric power sector, the executive branch must create the National Center of Energy Control (Centro Nacional de Control de la Energía), which will operate the national electricity network, administer the wholesale electricity market, and ensure open access to the transmission grid and distribution systems.<sup>33</sup>

#### Changes to PEMEX and CFE

The reform calls for the conversion of PEMEX and CFE into so-called "productive state enterprises"

(empresas productivas del Estado), which would continue to be State-owned companies.<sup>34</sup>

As productive state enterprises, PEMEX's and CFE's main objectives going forward will be "creating economic value and increasing the Nation's revenue, following the principles of equity, and social and environmental responsibility."<sup>35</sup> As productive state enterprises, PEMEX and CFE will have increased budgetary autonomy and are permitted to set their own operating budgets subject to two conditions: (i) PEMEX and CFE operate with a balanced budget and (ii) PEMEX and CFE comply with the ceiling on personal services to be proposed by the Ministry of Finance and approved by the Congress.<sup>36</sup> As part of the conversion process, PEMEX and CFE are to adopt industry best practices in terms of their organization, administration and corporate structures.<sup>37</sup> Each company will also have a new board of directors appointed by the President, composed of five independent members and five members of the federal government, with the Secretary of Energy presiding over both boards.<sup>38</sup> Among other things, the reform removes the representatives of the petroleum workers' union from the board.<sup>39</sup>

## Conclusion

The reform comes at a pivotal time for Mexico. The country currently faces a production crisis. Over the past decade, crude oil production has declined rapidly, dropping from a peak of 3.4 million barrels per day (bpd) in 2004 to 2.5 million bpd in 2012 (even as capital investment has increased to \$26 billion in 2013 from \$4.8 billion in 2001). Mexico has become a net importer of refined petroleum products and natural gas, and is on its way to becoming a net importer of crude oil by the end of the decade without significant and comprehensive reform.

With the reform, Mexico is well positioned to reverse this trend. The reform bill's transitional articles establish a clear and precise roadmap of the steps ahead, including the content of secondary legislation and creation of key regulatory agencies. Nonetheless, many questions remain to be

answered in secondary legislation. The Mexican Congress will need to strike the right balance in the secondary laws in order to attract the private capital, technology and expertise needed to develop the country's abundant energy resources. ♦

## Endnotes

- 1 Constitución Política de los Estados Unidos Mexicanos, as amended, Art. 27 (pre-reform), Diario Oficial de la Federación [DO], 5 de Febrero de 1917 (Mex.).
- 2 Constitución Política de los Estados Unidos Mexicanos, as amended, Art. 28 (pre-reform), Diario Oficial de la Federación [DO], 5 de Febrero de 1917 (Mex.).
- 3 Ley Reglamentaria del Artículo 27 Constitucional en el Ramo del Petróleo [Petroleum Law of 1958], as amended, Diario Oficial de la Federación [DO], 29 de Noviembre de 1958 (Mex.); Ley de Petróleos Mexicanos [Pemex Law], Diario Oficial de la Federación [DO], 28 de Noviembre de 2008 (Mex.).
- 4 Petroleum Law of 1958, art. 6 (Mex.).
- 5 Constitución Política de los Estados Unidos Mexicanos, as amended, Art. 27 (post-reform), Diario Oficial de la Federación [DO], 5 de Febrero de 1917 (Mex.).
- 6 Decreto por el que se reforman y adicionan diversas disposiciones de la Constitución Política de los Estados Unidos Mexicanos, en Materia de Energía, Diario Oficial de la Federación [DO], 20 de Diciembre de 2013 (Mex.) (hereafter "Energy Reform Bill"), Transitional Article Four.
- 7 Energy Reform Bill, Transitional Article Four.
- 8 Energy Reform Bill, Transitional Article Ten(a).
- 9 Energy Reform Bill, Transitional Article Ten(b).
- 10 Energy Reform Bill, Transitional Article Ten(d).
- 11 Energy Reform Bill, Transitional Article Ten(c).
- 12 Energy Reform Bill, Transitional Article Nineteen.
- 13 Energy Reform Bill, Transitional Article Six.
- 14 Energy Reform Bill, Transitional Article Six.
- 15 The term "asignación," which does not have a precise English translation, refers to the administrative act by which the Mexican state essentially grants PEMEX an entitlement to develop the oil and gas resources in a particular area.
- 16 Energy Reform Bill, Transitional Article Six.
- 17 Id.
- 18 Id.
- 19 Energy Reform Bill, Transitional Article Six.
- 20 Energy Reform Bill, Transitional Article Five.
- 21 Energy Reform Bill, Transitional Article Fourteen.
- 22 Id.

- 23 Id.
- 24 Id.
- 25 Energy Reform Bill, Transitional Article Twelve(c).
- 26 Energy Reform Bill, Transitional Article Ten(c).
- 27 Energy Reform Bill, Transitional Article Sixteen(a).
- 28 Id.
- 29 Constitución Política de los Estados Unidos Mexicanos, as amended, Art. 28 (post-reform), Diario Oficial de la Federación [DO], 5 de Febrero de 1917 Mex.).
- 30 Energy Reform Bill, Transitional Article Ten(c).
- 31 Constitución Política de los Estados Unidos Mexicanos, as amended, Art. 28 (post-reform), Diario Oficial de la Federación [DO], 5 de Febrero de 1917 (Mex.).
- 32 Id.
- 33 Energy Reform Bill, Transitional Article Sixteen(b).
- 34 Energy Reform Bill, Transitional Article Twenty.
- 35 Energy Reform Bill, Transitional Article Twenty (I).
- 36 Energy Reform Bill, Transitional Article Twenty (II).
- 37 Energy Reform Bill, Transitional Article Twenty (III).
- 38 Energy Reform Bill, Transitional Article Twenty (IV).
- 39 Previously, the Petroleum Workers' Union held 5 of 15 seats on the PEMEX Board of Directors.

# Scottish Independence: What's Next?

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On September 18, 2014, residents of Scotland will vote on the question: “Should Scotland be an independent country?” The broad ranging implications of a “yes” vote cannot be understated, particularly for oil & gas companies operating in the UK North Sea. Many key players have publicly aired their views on independence, including BP’s chief executive, Bob Dudley, who has warned of the “big uncertainties” that would face the North Sea industry in the event of a “yes” vote.

## Why Does the UK North Sea Form a Focal Point for Debate?

The oil & gas industry is the United Kingdom’s largest industrial investor; it supplies almost half of the UK’s primary energy needs and employs hundreds of thousands of people. Current estimates are that the North Sea’s remaining commercial reserves could be up to 24 billion barrels of oil equivalent, worth approximately £1.5 trillion at today’s prices.

It comes as no surprise, then, that North Sea oil & gas forms one of the central talking points in the independence debate, with both sides keen to retain the advantages that come with the oil & gas industry, most notably the tax revenues.

This debate has intensified recently with the February 24, 2014 publication of a report by Sir Ian Wood, who is

referred to by some as one of the founding fathers of the North Sea oil industry, on the recovery and regulation of UK offshore oil & gas. The Wood Report includes recommendations for a new regulator and a fiscal regime that promotes increased investment. It has been endorsed by both sides of the independence debate, acknowledging that the UK North Sea needs a new focus to maximise what is left of its economic potential.

## Scottish Oil vs. UK Oil—Where Is the Line Drawn?

The line between Scottish and the (rest of the) UK waters must be established to see which resources (and, therefore, tax revenues) are located within which jurisdiction. It has been suggested by Professor Kemp, a leading expert on Scotland’s oil & gas industry, that if Scotland were to become independent, the UK Continental Shelf (UKCS) should be divided on a geographical basis using a “median line.” He describes this as the “obvious” choice, noting that this was used in 1999 to determine the boundary between Scotland and the (rest of the) UK for fishing rights. The median line is also what would be assumed using the United Nations Convention on the Law of the Sea. If Scotland were to obtain a geographical share based on the median line, it would control 90 percent of the United Kingdom’s oil & gas resources.

Other methods of determination include drawing a line from the Scottish land border straight across the North Sea. It was this method that was used to create the separation between the applicability of English and Scottish laws. Professor Kemp notes that “Although lawyers could have a long debate about which method to use, in terms of economics, it does not make all that much difference.”

To add confusion to the debate, the Shetland and Orkney Islands, whose waters contain up to 67 percent of Scotland’s oil & gas reserves, are petitioning the Scottish Parliament to hold separate referendums on the islands, where they argue that they should be allowed to vote to remain part of the UK, join an independent Scotland or seek independence of their own.

### A New Regulator?

A number of administrative organisations have jurisdiction over North Sea operations, most notably the Department of Energy and Climate Change (DECC) and the Health and Safety Executive. In the event of a “yes” vote, Scotland would need to rapidly establish equivalent organisations, which would likely prove to be a complex process involving the transfer of large volumes of information and heavy recruitment of staff in what is already a competitive industry.

Irrespective of the discussions on Scottish independence, the Wood Report has recommended that a new North Sea regulator (a beefed up DECC) be established with enhanced powers to encourage operators to share infrastructure and technology in order to maximise production from the North Sea.

### A New Legal and Fiscal Regime?

In the event of a “yes” vote, the assumption is that the UK Petroleum Act 1998 (currently administered by DECC) and the licences already in issue will continue to apply to Scottish fields unless the Scottish Government elects to change the status quo. Therefore, any current production licences will be “grandfathered” (meaning they’ll continue, in spite of any new

regulation). The future is less certain for exploration licences, and the possibility remains that they could be re-tendered in a new oil & gas licensing round.

It has been further suggested that any Scottish oil & gas licences would need to be held by a Scottish company or, at the least, a Scottish branch of a foreign company. If this proves true, it will require considerable restructuring of North Sea oil & gas groups.

Another issue is the treatment of “cross-border” fields—i.e., fields that straddle the line between Scotland and the (rest of the) United Kingdom. Cross-border fields will require treaties governing how these fields should be divided and governed, fiscally and otherwise. In particular, the treaties would need to consider whether losses incurred in one territory could be offset against profits in the other.

The expectation is that existing UK tax legislation would remain applicable throughout the territories until the Scottish government decided to implement independent legislation.

The recently published 19th oil & gas survey asked a wide range of operators, contractors and service companies which policy areas they needed more information on regarding the referendum. The most common responses were around issues of business taxation and fiscal policies. Scottish Ministers have stated that no changes in the fiscal regime would be made without consultation. However, in order to meet the increased investment recommended by the Wood Report, it seems likely that the Scottish Parliament will have to increase the obligations of its operators either through its licences or taxation.

### Decommissioning—Who Bears the Cost?

Tax relief is available to North Sea operators to offset the cost of decommissioning offshore facilities at the point of decommissioning. This provides certainty as well as an incentive for investors. The UK government has questioned whether an independent Scotland could afford such tax breaks and incentives without the (rest of the) UK’s resources.

A focal point of the decommissioning discussion will be whether the (rest of the) UK should contribute to the decommissioning costs of old oil & gas fields in Scotland or whether Scotland should assume the whole of this burden.

Given that the North Sea is now classified as a “mature asset,” meaning that the best and most easily accessible reserves have already been extracted (some 40 billion barrels of oil or equivalent having been extracted since 1975), decommissioning costs are set to rise.

The impact of the reliefs to fund decommissioning will materially impact future revenues for an independent Scotland, unless some of that burden is shared by Westminster.

## Final Thoughts

It is an interesting time for the North Sea oil & gas industry. With the lack of certainty surrounding the Scottish referendum, North Sea oil & gas companies are finding it increasingly hard to plan. There are concerns that this may hinder investment in the UK North Sea, particularly in respect of older fields, until the issue is resolved.

It should be noted that even if Scotland votes “no,” changes in the UKCS regime are inevitable due to the continued devolution of power to Scotland and the findings and recommendations of the Wood Report. ♦

# Myanmar — Power is the Key

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Myanmar's emergence in the last 24 months as South-East Asia's most exciting business opportunity has rarely been out of the press. It has a large, youthful population, a strategically advantageous geographical location within the ASEAN community and, most importantly following decades of authoritarian rule, a renewed desire to undertake the political and economic reforms necessary to position itself as a key economy in the region.

Like any developing economy, one of the most important building blocks for Myanmar's economic development will be access to electricity. Without power, Myanmar's industry will not reach its full potential. In this article we outline some of the reasons why Myanmar's power sector has attracted the interest of the international project finance community and provide an overview of the key challenges that the power sector is facing.

## Opportunities

### STRONG DEMAND AND POTENTIAL GROWTH

Presently, only 30% of Myanmar's population have access to electricity (with that percentage decreasing to around 6% in rural areas) and there were demonstrations last year in Yangon against rolling power cuts. Power cuts and brown-outs are an

unfortunate feature of daily life, as anyone who has visited the city this year will be aware. The power sector is therefore a top priority for the government, and the latest announced goal is to increase capacity to 20,000MW by the year 2030 – a monumental plan given the current installed capacity of only 4,000MW.

The government also plans to revise the existing electricity law (dating from 1984, it was enacted during the years of isolation), and is working with the Asian Development Bank to understand the scope of this challenging task. The government is also in the process of drafting a new energy policy, through the National Energy Management Committee.

In terms of fuel sources, gas-fired power projects have seen the most initial activity. The 120MW Ahlone power project, being developed by Toyo Thai, is one of the most progressed power projects involving international sponsors, with 80MW already being dispatched. Other significant projects under development include a 500MW gas-fired power project in Thakayta province, being developed by a South Korean consortium, and three locally developed power projects of 50MW each.

Myanmar also has significant hydro-power potential of about 100,000MW,

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with around 40,000MW of hydropower having so far been identified for possible development. Hydropower projects have their own challenges, however, due to seasonality of power supply and significant resettlement issues. The distance of the hydropower resource from the main demand centre of Yangon is also an issue, with significant upgrading of the transmission network required to avoid substantial transmission losses. As such, there is a recognition by the government that hydropower (which currently accounts for the bulk of the country's base-load) may be better suited to peak load supply, with thermal power capacity being stepped up to provide base-load.

Other renewables could also play a significant role, particularly micro power projects for smaller off-grid systems in rural areas. Suitable sites for solar and biomass power projects have been identified throughout the country. However, a successful renewables sector typically requires a solid underlying regulatory framework, which Myanmar does not yet have – a feed-in tariff for example.

#### GOVERNMENT FUNDS LIMITED

Like many emerging markets, and indeed some more developed markets, government funds are currently over-stretched. There is simply not the cash available in the public purse to make the substantial investments required to upgrade Myanmar's power infrastructure in order to keep pace with its economic development. While government-to-government lending is filling the short-term gap, the private sector is going to have a significant role to play in injecting the necessary capital, and that will be by means of both private company investment as well as international bank funding. The most likely form of funding for the power sector is project finance, backed by multilaterals or export credit agencies. The question remains however, how great is the commercial lender appetite to provide project finance to Myanmar?

#### KEEN INTEREST FROM INTERNATIONAL BANKING SECTOR

In spite of the challenges, there is relatively strong interest from the international lending community in Myanmar; the challenge is to convert this interest into debt funding for suitable projects.

Myanmar presents a new frontier market in the South-East Asia region for the international banks, especially as markets such as Thailand and the Philippines are increasingly dominated by strong local banks. The international banks know that the lender that takes a leading role in the first major power project financing in Myanmar will have a greater profile when the sector expands. Many of the key regional and international project finance banks have established representative offices in Yangon and a number of them now have a clear mandate to lend – provided it is to the right project.

#### PROFILE FOR EARLY MOVERS

The same early mover advantage is being pursued even more aggressively by international sponsors seeking to gain recognition with the various governmental and local players in the market, which is going to be key in getting deals done in Myanmar. Some companies are more cautious than others. Some will wait for opportunities to invest by acquiring shares in projects that the more bullish early movers have developed.

Chinese, Japanese, South Korean, Thai and Singaporean companies are looking at this market. China has dominated investment in Myanmar in recent years, particularly for cross-border hydropower schemes. Although Myanmar appears to want to loosen its reliance on its powerful neighbor, Chinese investment and influence is likely to remain significant. Through institutions such as Japan International Cooperation Agency (JICA), the world's largest bilateral aid agency, Japan has been a key provider of development finance and capacity building assistance to Myanmar over the last 12 months, leaving the Japanese well-positioned with the government.



The South Koreans have also been key investors in the ASEAN region in recent years and are similarly intent on gaining a foothold in Myanmar. The Korean Development Bank is showing early interest, as have a number of South Korean power developers. However, at a government-to-government level, we are not seeing the same level of investment as that offered by the Japanese.

Thailand has a long history with Myanmar and, although geographically close, the relationship between the countries is also tinged with a healthy rivalry. Thailand's power sector is, however, one of the success stories of South-East Asia over the last 20 years. With Thai project finance banks eager to follow Thailand's increasingly internationally focused sponsors into the Myanmar market, the opportunities are there for Myanmar to benefit and learn from the Thai experience. Singapore, as South-East Asia's financial centre, is home to some ambitious developers and is also likely to play a key role, not least due to its favorable tax treaty with Myanmar.

#### MULTILATERAL/DEVELOPMENT FUNDING ASSISTANCE

Given the risks involved and Myanmar's early stage of development, multilateral and ECA development funding assistance is key. If there was ever a market that should attract development funding, Myanmar is that market. Institutions such as the World Bank, the IFC, and the Asian Development Bank all want to find opportunities to provide development assistance to the country. Various high-ranking delegations from these institutions have visited the country over the last 12 months to pledge support, which will be essential in ensuring the transition of the power sector to a model that is bankable.

#### Challenges

While Myanmar has many of the raw ingredients for a burgeoning project finance market to supply it with the power it needs, there remain a number of issues that could act as a significant drag on such investment in the near-term.

#### UNDERDEVELOPED DOCUMENTATION

The Myanmar power sector lacks a clear regulatory structure and supporting documentation. This is in contrast to the oil and gas sector, where the Ministry of Energy recently announced that 10 foreign companies have won exploration rights to 16 onshore oil and gas blocks. Importantly, the terms of the production-sharing contracts with the Myanmar Oil & Gas Enterprise are well known to the market.

However, with no historic track record of power purchase agreements, and no standard BOT contract, investors in the power sector and their lenders are negotiating projects on an ad hoc, bilateral basis. Each project has to discover and negotiate the government's position on key bankability points. The government recently tendered a gas-fired power project (with bids originally due by November 30 2013, but extended into December 2013), but it was notable that no power purchase agreement was issued as part of that tender process. Further, a number of the power purchase agreements contain two unusual features that are worth highlighting:

- i. A free power requirement, whereby a proportion of power (which may be up to 15%) is supplied to the offtaker, Myanmar Electric Power Enterprise (MEPE), for free; and
- ii. A free shares requirement, whereby equity (up to 15%) is gifted by developers to MEPE as a quasi royalty payment.

The application of these features varies from project to project, and given that these can have a significant impact on the internal rate of return for a project, it makes the comparison of tariffs across projects (or indeed between bid proposals) more difficult. On the positive side, it does appear that the government is at least willing to grant PPAs with terms long enough to allow project finance debt with typical tenors.

However, for the market to develop and inspire confidence in investors, there is a need for the government to begin to formulate standard and consistent

positions and develop and implement a more developed tender process, which would include the release of a “standard” (and well balanced) power purchase agreement and BOT contract to the market. The successful tendering of the telecommunications licences in Myanmar earlier this year was a good example of the international interest and confidence that can be generated by a well-run tender; a lesson then for the power sector.

### SECURITY OF OFFTAKE

Another key concern is the security of the offtake of the power by MEPE, which is the counterparty to the PPA. MEPE does not yet have a lengthy track-record of offtake payments that investors or their lenders can take comfort from, unlike for example, the Electricity Authority of Thailand (EGAT). It is well known by the project finance community that during the Asian financial crisis at the end of the 1990s, EGAT was careful to ensure that it complied with all of its payment obligations.

Importantly, MEPE is having to pay more for generation of power than the price at which it sells that power to customers – the tariff to end-consumers is in fact one of the lowest in South-East Asia. Therefore, a government subsidy to MEPE is essential. Such subsidy arrangement is far from unique in Asia, but structuring power projects to provide comfort to lenders on MEPE credit risk through extended political risk insurance will be a key requirement for commercial lender participation in the power sector. We believe that this is where multilateral agencies such as the IFC and the ADB or export credit agencies such as NEXI and K-sure will be essential for successful financings.

### GAS SUPPLY

The practical key challenge facing the power sector in Myanmar is a lack of gas. While Myanmar enjoys significant reserves of gas, a large proportion of that gas is already contractually committed to Thailand and China. These arrangements were made at a time when Myanmar did not have the need for such gas

domestically. The shortage of gas will remain an issue for gas-fired projects until new gas fields come on stream, with the timing for that new gas recently being revised by the government from 2016 to 2018 at the earliest. The quantities that may come on stream remain uncertain however.

There is talk of an LNG receiving terminal for gas imports, but the likelihood of such an ambitious plan materializing any time soon appears remote. Coal will be seen as the cheapest alternative source of fuel to plug the gap created by the lack of gas, but reliance on domestic coal supplies may not be viable in the short term, with the main reserves in remote areas, and as much of the coal is sub-bituminous or lignite, it is less suitable for power generation.

The government has indicated that it is prepared to allow coal imports, but this decision will be accompanied by public environmental concerns; the government has shown a willingness in the past to cancel large-scale coal plants for public policy reasons. However, with the efficiency of coal-fired generation having increased in recent years, coal is likely to have an important part to play in the sector, especially as it would displace significant diesel generation.

Myanmar also has significant hydropower potential, and observers are comparing Myanmar with the position of Laos a decade or so ago, with many of the factors that led to Laos’ success as an exporter of hydropower to neighboring countries also present in Myanmar. However, export of power on a large scale will again depend on convincing the public that such export is in Myanmar’s best interests, when the need for power at home is so great, and so pressing.

### LENDER SECURITY

The extent of the collateral available to lenders is also a key concern in Myanmar. Although existing law provides that a range of security interests are available, there are limited examples of these being used in practice. Importantly, Myanmar law does

not allow foreign lenders to take security over immovable property, and this is where experienced international and local counsel can combine to advise on a robust security structure to satisfy international lenders.

#### FINANCIAL SYSTEM

Myanmar's financial system is under-developed. The granting of independence to the Myanmar Central Bank in July this year was an important step, with the accepted view being that this should lead to greater international openness and transparency, and therefore, increased investor confidence. The new law allows the central bank to provide loans to the government, but only with parliamentary approval. Previously, the central bank was effectively obliged to finance the government by lending money to it, with corresponding inflation the predictable result. However, the new law does not contain regulations on the formation of joint ventures between foreign banks and local banks (contrary to what a number of observers had expected). Until such joint ventures are facilitated, Myanmar's local banking sector is going to lag behind those of its neighbors.

#### LEGAL SYSTEM

A gradual upgrading of Myanmar's legal system will also be necessary to attract significant project

finance. Myanmar's legal framework is based on a combination of laws from different periods of its history, which exist alongside a common-law style judicial system. The laws are in many cases outdated or untested, and confidence in the judicial system is coming from a low base.

#### Conclusion – Cautious Optimism

The Myanmar power sector represents a significant investment opportunity. There has been considerable hype and exuberance that did not take adequate account of the numerous difficulties to be overcome, but the extent of the potential upside for those that "get it right" is considerable.

The government is keen to build its internal capacity, and has the opportunity to learn from the experiences of its neighboring countries in developing its power sector. In addition, the appetite is there in a project finance lending community that has seen fewer opportunities come to market in South-East Asia in 2013 than might have been hoped for.

Given the challenges outlined above, and the Myanmar elections in 2015, we do not expect to see any sudden proliferation of major power project financings in Myanmar in the short-term. But for those willing to stay the course, the hope is that Myanmar's power sector will live up to its potential and provide the energy necessary for Myanmar to thrive. ♦

# Concerns and Considerations in Overriding Royalty Interest Transactions

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Overriding royalty interests, commonly referred to as ORRIs, have been used for decades by oil and gas exploration and production companies as mechanisms for obtaining funding, particularly in situations where more traditional methods, such as bank loans, are not available on attractive terms. An ORRI is an interest that is carved out of the lessee's leasehold working interest and transferred to a third party in exchange for assets—typically cash—specified in the transfer documents.

ORRIs come in two forms (though there are many variations of each): “term” ORRIs, and “perpetual” ORRIs. Term ORRIs are limited in duration, either by a period of time or until the project produces a specified quantity of hydrocarbons or proceeds from the sale of those hydrocarbons. So-called dollar-denominated, or volumetric production, payments generally provide for the reversion to the grantor of the interest conveyed, upon receipt by the purchaser of an amount equal to the specified sum advanced by the purchaser along with, typically, an additional amount such that the total amount received produces a targeted internal rate of return, or “IRR,” for the purchaser.

In contrast, perpetual ORRIs generally provide no right of reversion; instead, in exchange for the specified consideration,

the third party retains a “perpetual” right to a percentage of the hydrocarbons or the sale proceeds attributable to the carved-out interest for as long as that property continues to produce.

Parties have frequently used the ORRI structure with an understanding that the interest being transferred is an absolute conveyance of a real property interest, to be held for the term of the ORRI by the entity “purchasing” the right to the production payment. And indeed, the local laws of many states support that understanding.

The characterization of the interest being transferred as an absolute conveyance of a real property interest, rather than as merely collateral securing a financing transaction, becomes particularly important in bankruptcy, where characterization of the transfer as absolute results in the exclusion of the interest from the debtor's bankruptcy estate, while treatment as a collateral interest to secure a financing transaction means that the interest will remain part of the estate of the debtor and subject to the jurisdiction of the bankruptcy court. The likely characterization of an ORRI interest is thus an important consideration for a capital provider considering the risks and benefits of an ORRI transaction compared to a traditional debt or equity investment, because it may

determine whether a transferee will have to stand in line with the rest of the creditors in the context of a bankruptcy case. However, several recent court opinions question this interest application.

In *In re: ATP Oil & Gas Corporation*, the Houston Division of the Southern District of Texas, applying Louisiana law, recently affirmed decisions of the bankruptcy court denying motions for summary judgment made by holders of ORRIs and net profits interests (“NPIs”) on the ground that the proper characterization of the transactions involved depended upon the true commercial nature of the transaction, notwithstanding the explicit language of the transaction documents. The decisions made clear that, in most cases, the legal characterization of a term ORRI, at least for bankruptcy purposes on properties located in federal waters adjacent to Louisiana, is highly fact-specific. Prior to its bankruptcy, ATP had entered into a number of production payment transactions involving properties located in federal waters on the Outer Continental Shelf adjacent to Louisiana. In its bankruptcy proceeding, several of the holders of these interests brought adversary proceedings contending that their interests constituted real property, and, as such, the transfers were complete at the time of closing, excluding the interests from the estate of the debtor. In response, ATP, as debtor in possession, argued that the various term ORRIs that it transferred to third parties in exchange for cash should be considered to be “disguised financings,” as opposed to absolute conveyances, or “true sales,” of real property interests, and the underlying assets should therefore be considered part of the bankruptcy estate. The holders of the term ORRI interests moved for summary judgment on the characterization issue, arguing that as a matter of Louisiana state law, a term ORRI is an absolute conveyance of a real property interest.

Judge Marvin Isgur denied the holders’ summary judgment motions, relying on the holding of the Louisiana Supreme Court in *Howard Trucking Co. v. Stassi*, 474 So.2d 915 (La. 1986), to conclude that the

best evidence of the parties’ intent as to characterization is “what the parties agreed to do,” i.e., the “economic substance of the transactions.” The bankruptcy court then held that there was a genuine issue of material fact as to the economic substance of the term ORRI transactions. In so holding, the court looked past the language of the transaction documents and focused on the economic terms and circumstances of the transactions. For instance, the court noted: (i) the transactions included the use of a designated IRR and cash-on-cash hurdles that were to be paid to the ORRI purchaser on top of the “purchase” price, a provision that ATP argued is analytically equivalent to the payment of interest on a loan; (ii) in certain instances ATP, as opposed to the buyers, took the risk of performance and was responsible for ensuring that the buyers achieved their designated IRR; (iii) certain transactions provided for conditional increases in distribution and royalty percentages, such that royalty percentages increased if ATP failed to reach certain milestones by a given date; (iv) certain transactions provided for cross-collateralization such that the buyer was entitled to receive full production payments across multiple leases, even where one lease ceased production; and (v) certain transactions contained a protective mortgage (i.e., a security agreement that granted a security interest in the specified amounts owed to the buyer) that would take effect in the event a court found the interests did not constitute real property interests. Judge Isgur’s rulings denying summary judgment have since been affirmed by the district court.

For now, the cases continue, and the end result cannot be predicted. In the meantime, therefore, capital providers that are considering entering into term ORRI transactions, or similar transactions such as NPI transactions, must take into consideration the possibility that the interest they acquire may be similarly treated in the event of the bankruptcy of the lessee of the property. ♦

# Enforceability of the JOA Forfeiture Mechanism Under Brazilian Law

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## Basic Concepts and Principles

As a general rule, Brazilian law adopts the principle of freedom of contract. Contracting parties are authorized to determine the specific terms and conditions that will be applicable to their contractual relationship, to the extent such terms and conditions are not forbidden by law and do not affront the public order. Moreover, the contracting parties are committed to act in accordance with the principles of probity and good faith, tightly connected with the *pacta sunt servanda principle* (Latin for “agreements must be kept”), as provided for in article 422 of the Brazilian Civil Code.

In the specific context of the oil and gas industry, a party’s freedom to choose with whom and on what terms to contract becomes particularly important given the significant investment of time and money intrinsic in exploration and production joint ventures. Because the joint operations cannot stop simply due to lack of funds, the parties will normally need to be as clear and specific as possible in their Joint Operating Agreements (“JOA”) in order to discourage and manage any party’s payment default.

The importance of this is reflected by the forfeiture mechanism included in the “default clause” of the Association of International Petroleum Negotiators (“AIPN”) Model Form JOA. According to the JOA, a defaulting party would be forced to forfeit its participating interest under the JOA to the other parties, without any compensation, if it fails to timely pay its cash obligations to the joint venture.<sup>1</sup> Specifically, the clause states:

If a Defaulting Party fails to fully remedy all its defaults by the thirtieth (30th) Day following the date of the Default Notice, then, without prejudice to any other rights available to each non-defaulting Party to recover its portion of the Total Amount in Default, each non-defaulting Party shall have the option, exercisable at any time thereafter during the Default Period, to require that the Defaulting Party completely withdraw from this Agreement and the Contract.<sup>2</sup>

However, application of the forfeiture mechanism is subject to debate in Brazil, particularly when considering the importance given to the principles

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Observations in this update about Brazilian law are by Tauil & Chequer Advogados. They are not intended to provide legal advice to any entity; any entity considering the possibility of a transaction must seek advice tailored to its particular circumstances.

of fairness and the protection against unjust enrichment in the Brazil legal system (and civil law countries alike). Opponents of the mechanism assert that property should not be taken away from a party without proper compensation and without reasonable grounds. Moreover, it is felt that there should be a balance between the value of the forfeited asset and the defaulted amount. For instance, if a petroleum-producing field value is estimated at USD 100 million and the defaulting party's debt is only USD 1 million, a Brazilian court would likely intervene to protect the interest of the defaulting party if it seeks judicial protection based on principles of equity.

In order to help parties avoid this controversy, which is particularly strong in countries with a civil law tradition, the new Model Form JOA released by AIPN in 2012 included a number of alternative options to deal with default. These options should be carefully chosen by the parties, taking into consideration the laws and practices of each jurisdiction.

### Forfeiture Versus Buy-Out

One of the alternative default options in the AIPN 2012 Model Form allows for adopting distinct remedies for periods before and after an oil and gas commercial discovery is made, with forfeiture often being applied to the first period, and a buy-out alternative being recommended in the latter stages. Under the buy-out mechanism, the defaulting party is paid a certain consideration by the non-defaulting parties (the consideration paid is after deduction of the amount in default, the costs for valuation of the asset and, usually, a fixed discount percentage). The main part of the buy-out mechanism of AIPN Model Form JOA 2012 is transcribed below:

If a Defaulting Party fails to fully remedy all its defaults by the thirtieth (30th) Day of the Default Period, then, without prejudice to any other rights available to each non-defaulting Party to recover its portion of the Total Amount in Default, at any time afterwards until the Defaulting Party has cured its

defaults, any non-defaulting Party shall have the option, exercisable in its discretion at any time, to require that the Defaulting Party offer to sell and assign all of its Participating Interest to any non-defaulting Parties wishing to purchase such Participating Interest.<sup>3</sup>

This distinction is based on the need to establish a remedy that approximately balances the value of the forfeited asset and that of the default vis a vis the actual ability of parties to effectively determine the value of an asset during the exploration and production stages.

Determining the value of an exploratory license—a license in the exploration stage, where no commercial discovery of oil and gas has been made—is not a simple task and, in the best of cases, any valuation would be merely an estimation, subject to a great degree of uncertainty. Should a buy-out alternative be applied to an exploratory license, this uncertainty could result in an undesirable situation where the defaulting party could be favored at the expense of the non-defaulting parties. In other words, application of the buy-out mechanism during exploration stage could result in two distinct scenarios:

- A. The non-defaulting parties compensate the defaulting party for its withdrawal based upon their evaluation of the exploratory asset. After conclusion of exploratory works, a commercial discovery is made and the defaulting parties will finally benefit from their investments (whereas the defaulting party will have received an indemnity that may or may not represent the fair market value of its share, depending on how precise the preliminary evaluation was); or
- B. The non-defaulting parties compensate the defaulting party for its withdrawal based upon their evaluation of the exploratory asset. After conclusion of exploratory works, there is no commercial discovery and the license is relinquished to the granting authority. At the end, the defaulting party will have been indemnified and

the non-defaulting parties will have lost all of their investments.

However, application of a forfeiture alternative during the exploration stage results in only one possible scenario in which the defaulting party is effectively punished for its default and the unjust consequences of scenario (B) above are avoided.

After a commercial discovery is made, the license becomes a producing asset (even if actual production has not started yet), and an asset valuation becomes a less complex and risky task.

Consequently, application of a forfeiture alternative in such a situation could be rejected by a court in Brazil (and most civil law jurisdictions) and replaced with an offset system that will take into account the value of the asset and the defaulted amount; if production has already started under a commercial basis, an offset could be allowed between the proceeds of production and the defaulted value.

## Conclusion

The contracting parties' adoption of distinct remedies for both the exploration and production stages would certainly increase enforceability of forfeiture/buy-out provisions. Such affirmative steps would: (i) evidence a fundamental distinction between exploratory and producing licenses, which directly affects the capability of parties to effectively assess the value of the asset; (ii) avoid an undesirable situation where a defaulting party is favored at the expense of the non-defaulting parties; and (iii) evidence that the parties, seeking to observe the principles of equity, have consciously negotiated and agreed upon remedies that are appropriate to the nature of each phase of the contract, thereby avoiding the unfair application of forfeiture to any situation that arises. ♦

## Endnotes

- 1 In this regard, it is worthy to recall that, to ensure continuity of operations, usually the JOAs are subject to a "pay first, complain later" principle, under which the party appointed as operator makes the cash calls and the non-operators are obliged to pay without question. Complaints are to be made only if payment has already been made and by means of an audit process.
- 2 Extract from article 8.4 (Remedies) of default clause of AIPN Model Form JOA 2002.
- 3 Extract from article 8.4 (Remedies) of default clause of AIPN Model Form JOA 2012.



# California Moves to Further Regulate Unconventional Oil and Gas Production:

*A Review of Senate Bill 4 and Its Potential Impact on Shale Development in the Golden State*



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Since 2010, more than 20 states have adopted new laws or regulations specific to hydraulic fracturing, a process used to stimulate oil and gas production that involves pumping pressurized fluids and proppants down a wellbore to create or restore fractures in a target geologic formation. Along with horizontal drilling, advanced hydraulic fracturing technologies have given exploration and production (E&P) companies the ability to economically tap into the United States' vast "unconventional" hydrocarbon formations for the first time, particularly low-permeability shale formations.

With the wave of new regulations, it has become increasingly important for operators and oilfield services companies, and their counsel, to keep themselves informed about new regulatory developments affecting the oil and gas industry. This update addresses California's recently enacted Senate Bill 4 and its potential impact on future shale development in the state.

## Introduction

California is the third largest oil producer in the United States and home to some of the richest

(untapped) oil- and gas-bearing shale formations in the world. California's Monterey Shale is considered the largest shale-oil formation in the United States, holding an estimated 15.4 billion barrels of oil, equivalent to approximately two-thirds of the total recoverable, onshore shale-oil reserves in the contiguous United States. By comparison, the South Texas Eagle Ford Shale holds an estimated 3 billion barrels, and the North Dakota Bakken Shale holds an estimated 4 billion barrels.

Yet, more than 10 years after the "shale revolution" took off in the United States, there has been no large-scale shale development in California, and the state's crude oil production comes largely from conventional sources (with only about 20 percent from unconventional sources). Indeed, California's crude oil production has continued to decline over the past decade while states such as North Dakota are exceeding record production levels year after year.

To date, the single largest challenge to increased shale development in California has been the unique geology of the Monterey Shale. Unlike other major shale formations, the Monterey Shale is tectonically faulted

and fragmented. This has complicated the exploration process and, according to published reports, no company has yet been able to “crack the code” to economically tap into the Monterey.

Despite the rarity of hydraulic fracturing in California, its use has nonetheless become a controversial issue in the state. Indeed, Senate Bill 4 was not the first effort to address the use of hydraulic fracturing and other well stimulation methods key to unconventional oil and gas development.’ For several years, the legislature considered numerous bills that would have further regulated hydraulic fracturing, but they all failed to win approval. On a parallel track, the initiation of a rule-making process and publication of draft regulations in early 2013 by the California Division of Oil, Gas and Geothermal Resources (DOGGR) ensured that, even if the legislature failed to act, the regulatory scheme would be modified. After significant debate and several amendments, Senate Bill 4 passed both houses and was signed by the governor on September 20, 2013.

### Application of Senate Bill 4

Senate Bill 4 applies broadly to oil and gas activities involving “well stimulation treatments.” The bill defines “well stimulation treatments” as “any treatment of a well designed to enhance oil and gas production or recovery by increasing the permeability of the formation ... [including but] not limited to, hydraulic fracturing treatments and acid well stimulation treatments.” The bill does not, however, apply to “steam flooding, water flooding, or cyclic steaming[,] .... routine well cleanout work, routine well maintenance, routine removal of formation damage due to drilling, bottom hole pressure surveys, or routine activities that do not affect the integrity of the well or the formation.” In addition, the bill does not apply to treatments on wells used at underground gas storage facilities.

### No Moratorium

Senate Bill 4 does not contain an express

prohibition or moratorium on hydraulic fracturing. Rather, the law requires the DOGGR and other agencies to promulgate new rules and regulations and take other actions that address well stimulation treatments. Until such new rules and regulations are adopted, an operator is allowed to proceed with well stimulation treatments provided that the operator notifies the DOGGR, provides a “complete well history” and certifies compliance with certain sections of §3160.

Senate Bill 4 requires the DOGGR to conduct, by July 1, 2015, an environmental impact report (EIR) pursuant to the California Environmental Quality Act (CEQA). It remains to be seen whether the EIR required for well stimulation activities prior to the enactment of regulations will be used as a reason to effectively prohibit well stimulation prior to that time. Currently, there is ongoing litigation on the issue of whether the language of Senate Bill 4 frees operators from the need to go through CEQA until the DOGGR’s EIR is complete. Governor Brown recently signaled that the DOGGR’s EIR required under the law may take up to 18 months to complete.

### Independent Scientific Studies

In addition to the EIR that the DOGGR must conduct, Senate Bill 4 requires that the Natural Resources Agency (an umbrella agency that includes the DOGGR) undertake and complete by January 1, 2015, an independent scientific study on well stimulation treatments. The study is to cover various specific items, with the goal of evaluating “the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety.”

In addition, a study is required to be completed by 2020 evaluating acid matrix stimulation techniques, based on data collected by the state, and establishing “threshold values” for preventing, as far as possible, damage to life, health, property and natural resources. In this respect, the new law is

broader than similar initiatives in other states that focus mostly or exclusively on hydraulic fracturing. For reasons that are not entirely clear, acid treatments of wells also became the subject of comment in the press and from interest groups, and so Senate Bill 4 includes coverage for “acid fracturing treatments” and “acid matrix stimulation treatments,” as well as hydraulic fracturing. The agency is also required to give a progress report to the legislature every four months until the studies are completed.

### DOGGR to Promulgate New Rules and Regulations

Senate Bill 4 gives the DOGGR regulatory authority to promulgate (in consultation with other state and local agencies) new regulations specific to well stimulation treatments, including new rules governing the construction of wells and well casings and full disclosure of the composition and disposition of well stimulation fluids. The DOGGR must adopt and implement these new regulations by January 1, 2015, but the DOGGR is widely expected to finalize the regulations much sooner.

In addition, §3160(c) provides that the DOGGR is required to enter into “formal agreements” with a number of other state and local agencies “clearly delineating requirements associated with well stimulation treatments and well stimulation treatment-related activities, including air and water quality monitoring, in order to promote regulatory transparency and accountability.”

### Well Permit System as Means for Enforcement

The bill requires an operator to apply for a well stimulation permit prior to performing any well treatments and would prohibit the operator from either conducting a new well stimulation treatment or repeating a well stimulation treatment without a valid, approved permit. The DOGGR will utilize this permitting mechanism as a means of enforcement once it adopts new rules and regulations specific to well stimulation treatments.

In addition to applying for a permit, §3160(d) requires that the operator submit to the DOGGR a significant amount of information about the planned well stimulation activities. At the discretion of the DOGGR supervisor, this permitting process may be combined with other well permitting matters. The operator’s application must provide details about the well and stimulation treatment, including the dimensions of the job, the expected chemical composition of the well stimulation fluids, a water management plan, a groundwater monitoring plan and other aspects of the proposed operation. The DOGGR is required to furnish copies of issued permits to various agencies. The bill also requires the operator to provide notice to the DOGGR at least 72 hours prior to the actual start of a well stimulation treatment in order for the DOGGR to be able to witness the treatment.

Before a well treatment can begin, the bill further requires the operator to provide a copy of the approved well stimulation treatment permit to specified tenants and property owners at least 30 days prior to commencing a treatment. The operator is to engage “an independent entity or person” to give 30 days’ advance notice and certain information to “every tenant of the surface property and every surface property owner or authorized agent of that owner whose property line location is one of the following:

- (i) Within a 1,500 foot radius of the wellhead or
- (ii) Within 500 feet from the horizontal projection of all subsurface portions of the designated well to the surface.

The identity of the surface property owner is to be established by reference to county tax records. The statute does not, however, provide a mechanism for determining the identity of tenants.

Unlike other state laws, Senate Bill 4 also gives a property owner the right to request that the operator undertake and pay for water testing and analysis of a surface or well water source that is “suitable for

drilling or irrigation purposes.” The testing includes follow-up measurements after the well stimulation has occurred.

### Well Stimulation Fluid Chemical Disclosure

Like the laws in many other states, Senate Bill 4 requires operators in California to publicly disclose information about all chemical additives that they use in “well stimulation treatments” via FracFocus. FracFocus is an online searchable chemical disclosure registry that emerged in April 2011 to allow operators to voluntarily disclose information about hydraulic fracturing treatments to the public on a well-by-well basis. FracFocus is a joint project of the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission. As of November 4, 2013, there were nearly 56,000 disclosures posted on FracFocus and more than 500 participating companies.

The bill requires that the operator make this disclosure within 60 days of the cessation of a well stimulation treatment. This is in addition to the disclosure the operator must make to the DOGGR officials before commencing the treatment. Ten states currently utilize FracFocus as a means of official state chemical disclosure, including Texas, Oklahoma, North Dakota, Colorado and Pennsylvania.

No later than January 1, 2016, the DOGGR is also to have its own web page for disclosure. Apparently in light of some criticism of the functions of the FracFocus web page, the DOGGR web page is required to allow the public “to easily search and aggregate, to the extent practicable, each type of information required to be collected...using search functions” on the web page. FracFocus recently released a new version of its search feature in order to address many of these criticisms.

While requiring public disclosure, the California law also allows companies to protect certain proprietary information from disclosure by asserting trade secret protection. This is for good reason. E&P companies, oilfield service companies,

independent researchers and universities have developed, or contributed to the development of, a wide array of hydraulic fracturing and horizontal drilling technologies. In the highly competitive and diversified oilfield services market, the development of new hydraulic fracturing technologies can confer distinct market advantages to those that use them. In the event that an operator, service company or supplier withholds information on the grounds that it is proprietary trade secret information, then the withholding party must provide the DOGGR with the following information in order to substantiate its claim:

- The extent to which the trade secret information is known by the supplier’s employees and others involved in the supplier’s business and outside the supplier’s business.
- The measures taken by the supplier to guard the secrecy of the trade secret information.
- The value of the trade secret information to the supplier and its competitors.
- The amount of effort or money the supplier expended developing the trade secret information and the ease or difficulty with which the trade secret information could be acquired or duplicated by others.

In the event that the DOGGR disagrees, the party claiming trade secret protection must seek relief in court or the DOGGR will release the information. Where proprietary trade secret information has been withheld, the withholding party must provide substitute information for public disclosure that includes a list of the chemical constituents of the additive and Chemical Abstract Service (CAS) identification numbers.

The DOGGR is also required to develop a procedure to make trade secret information available to health professionals. This is a common provision in state chemical disclosure laws and mirrors some aspects of federal law.

Senate Bill 4 allows health professionals to obtain proprietary trade secret information in the event of an emergency or to diagnose or treat a patient. The health professional must, however, submit a written statement of need. The health professional can then share such trade secret information with other persons as may be professionally necessary in order to diagnose or treat a patient, subject to certain restrictions, and those with whom he or she shares trade secret information cannot be required to sign a confidentiality agreement.

### DOGGR Reporting

In addition to the other interim reporting required of the DOGGR while the new permitting program is being developed and implemented, the DOGGR must make comprehensive annual reports starting on January 1, 2016.

### Fines

Senate Bill 4 significantly increases the amount that an operator or service company performing a well stimulation treatment can be fined for a regulatory violation. Previously, an operator or service company engaged in oil and gas production activities, including well stimulation treatments, was only subject to a fine of up to \$25,000 per violation of the DOGGR's oil and gas regulations. There was no minimum floor for fines or applicable *per diem* fine. Now, an operator or service company engaged in oil and gas production activities involving well stimulation treatments is subject to a civil penalty of *not less* than \$10,000 and up to \$25,000 *per day per violation* of DOGGR's regulations specific to well stimulation treatments.

### Other Agency Involvement

As noted above, the DOGGR must consult with a number of other state and local government agencies in the areas where the DOGGR is responsible. Senate Bill 4 requires that the State Water Resources Control Board (SWRCB) develop "model groundwater monitoring criteria," to be

implemented on a well-by-well basis, or on a regional scale. The stated purpose of these criteria is to "assess the potential effects of well stimulation treatments ... on the state's groundwater resources in a systematic way." These new criteria are to be completed by July 1, 2015. Regional groundwater monitoring programs (based upon the developed criteria) are to be implemented by the SWRCB and regional water boards by January 1, 2016.

To the extent that the DOGGR shares jurisdiction with a federal entity, Senate Bill 4 requires that the DOGGR's rules and regulations apply in addition to all applicable federal laws and regulations.

### Conclusion

Governor Brown's signing statement for Senate Bill 4 indicates that he is directing the DOGGR's parent agency, the Department of Conservation, to develop "an efficient permitting program ... that groups permits together based on factors such as known geologic conditions and environmental impacts, while providing for more particularized review in other situations when necessary. The bill needs some clarifying amendments and I will work with the author in making those changes next year." Inasmuch as the Governor's public statements have suggested that he encourages responsible development of the state's oil and gas resources, his signing statement suggests that he intends to develop a workable and practical program for allowing well stimulation treatments in California. Having an effective, efficient and workable regulatory program will be important in the years to come as technology develops and more information is learned about the state's shale potential.

Indeed, California's geologic and technological challenges in the Monterey Shale today are not wholly unlike the challenges faced in the North Texas Barnett Shale 15 years ago or the North Dakota Bakken just five years ago. In each case, the problem was not knowing that there were shale hydrocarbon reserves in those areas—that had been known for decades. Rather, the problem was

finding a way to economically extract the hydrocarbons trapped in those formations. In fact, with seemingly insurmountable technical barriers, the industry largely ignored shale for decades. That all changed in the late 1990s and 2000s.

Mitchell Energy, a relatively small, independent Texas exploration and production company, did what nearly everyone at the time thought was impossible—the company developed a way to economically tap into the natural gas-rich Barnett Shale in North Texas. In the following years, different companies further advanced the technology originally used by Mitchell to tap into the Barnett Shale, adapting it to the unique geologies of other shale gas plays through the 2000s and then to shale oil plays starting in 2008. In the end, the real question regarding shale development in California should not be “if,” but “when. ♦

## Endnotes

1 See, e.g., S.B. 4, 2013-2014 Leg., R.S. (Cal. 2013).

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