Evaluating Hydrocarbon Exploration and Extraction Contracts in Mexico, 2015-2017

Víctor Rodríguez Padilla [a]

Date received: April 20, 2018. Date accepted: October 15, 2018.

Abstract

An estimation is made of the way oil revenue and production volume are distributed between the State and the contractor, in accordance with the provisions of the contracts awarded. First, contractual modalities, the tax system, and the bidding mechanism are described. Then, the physical and economic distribution of production is analyzed. It is concluded that the State receives an average of 72.4% of the revenue when the contractor is efficient, as opposed to 56.6% when the contractor is inefficient. The State receives no production from licensing and in shared production contracts with inefficient costs, the State recovers 30% of revenue.

Keywords: exploration contracts; production contracts; hydrocarbons; bidding rounds; oil revenue.

INTRODUCTION

Mexico freed up the exploration and extraction of hydrocarbons in December 2013, ending PEMEX's exclusivity which lasted for 75 years.[1] The Constitutional reform came with the government's promise that the state will receive all the oil rents, and that the nation will retain ownership of the oil and gas in the subsoil (Presidencia de la República, n.d.). Another benefit of unique importance was the strengthening of the nation's energy security with the entry of new operators to increase production.

The reform established a new organizational and regulatory model in the energy supply chains.[2] In the field of upstream oil activities, the resources, reserves, and oilfields were divided into two: those that PEMEX would retain and those to be offered up to domestic and foreign investors through public in-ternational bids called *Rondas del Estado* (Rounds for the state).

In July 2015 and January 2018, eight calls for bids were carried out, four in round one and four in round two, in which 120 maritime and terrestrial areas were auctioned off. The maritime areas include shallow, deep, and ultra-deep-water areas in the Gulf of Mexico. From the total number of-fered, 15 shared production contracts were awarded along with 73 licensing contracts, for a total of 88 contracts (CNH, 2018).[3]

The main objective of this investigation consists of estimating the sale and volume of pro-duction which corresponds to the State according to the contracts. The process consisted of applying the contractual rules to an oil barrel in order to deduce the percentage of the sale and of the produc-tion which the State keeps. This approach can be explained by the fact that "the stance of the State in reaction to the participation of private capital in the exploration and production of oil should above all we a question of business, not ideology" (Boue, 2013). It is the business carried out by the state in its role as landowner "when it demands compensation for assets in the form of royalties, production rights and other encumbrances on oil and gas extraction in exchange for land exploitation of its hy-drocarbon resources" (Boue, 2013).

For the sake of consistency, I adopted the definition of rent as used by the Mexican au-thorities, that is the difference between the sale price and the cost of production,[4] which coincides with that used by the oil industry and by international organizations thanks to its easy estimation (Bolt *et al.*, 2002, p. 8).[5] However analyzing the accuracy of this definition in light of economic theory goes beyond the objectives of this investigation.[6]

This article is divided into three parts. In the first we describe the fiscal regime, the grounds for bids and the selection criteria. In the second section, we will present the results of round one and two. In the third we estimate the distribution of rent and production when the contractor is inefficient.

2. CONTRACTS, FISCAL REGIME AND BIDS

In accordance with the new legal framework, the nation shall assume responsibility for carrying out the activities of exploration and extraction of hydrocarbons with the aim of acquiring income for the state. These activities are considered strategic and exclusive, and are carried out via direct assign-ments to companies of the state or via contracts awarded to domestic and foreign companies which have been the subject of a competitive selection process. The Constitution leaves an opening making it possible for the authorities responsible for the sector to use any kind of contract and it explicitly men-tions those related to licensing contracts, shared production or earnings contracts, and service con-tracts; the only thing not allowed is the use of concessions.

The ministries of energy and revenue establish technical and fiscal guidelines for the de-sign of both contracts and the grounds for bids. The Ministry of energy decides the contractual areas to offer as well as the type of contract. The law mandates that said contract type maximize the nation's income. Meanwhile, the Ministry of Revenue determines the variables for selection and the parameters under which the bidders must tender their bids. The National Hydrocarbon Commission (CNH)[7] carries out the bidding process and signs the contract with those selected. There are technical, operative, and fi-nancial pre-selection stages to verify that the interested corporations have sufficient experience and skills for the jobs.

The fiscal regime for the contracts is established in the Ley de Ingresos sobre Hidrocarbu-ros (Hydrocarbon Income Law). The encumbrances are referred to as "compensations in favor of the state" and are received by the Fondo Mexicano del Petróleo (Mexican Oil Fund). Table 1 illustrates the direct tax components. Payments made to the State in the licenses are the following: signing bonus; contractual quota for the exploratory stage; royalties; the "compensation"; tax on the activity of explora-tion and extraction of hydrocarbons, as well as income tax (ISR) [8] . The "compensation" or additional royalty is calculated as a percentage of the contractual value of the hydrocarbons as the companies proposed at the mo-ment of bidding; the contract has provisions for an adjustments mechanism to let additional royalties increase and to halt increasing the profitability of the company in the case of extraordinary circum-stances. The compensation in favor of the contractor is the onerous transmission of hydrocarbons extracted from the subsoil.[9]

Table 1. Hydrocarbon Value Distribution*

Shared production contract

Contractual value of the hydrocarbons

	Net Value				Royalty
	Operating Profits (OP)			Recoverable Costs	
Contract	OP Company	Adj. Mech.	OP State		
	State's compensation			Company's compensation	
	Royalty	Adj. Mech.	OP State	OP Company	Recoverable Costs
	Value of hydrocarbons — production costs = rent 2/			production costs	
Take	State's Compensation	ISR	Net Profits		
	State		Company		

Licensing contract

Contractual value of the hydrocarbons

	Company's compensation				
Contract	State's compensation			Company's compensation	
	Royalty	Adj. Mech.	Additional royalty	Company Profits	Production costs
	The value of hydrocarbons — production costs = rent 2/				Production costs
Take	State's compensation	ISR	Net Profits		
	State		Company		

Notes: *the contractual quota for the exploratory stage and the tax on the activity of exploration and extraction of hydrocarbons are not included due to their being of little significance. Oil distribution according to a scenario where the contractor is efficient and the recoverable costs coincided with production costs. The adjustment mechanism (Adj. Mech.), according to appendix 3 of the generic contract. Operational Profits (OP). Net profits = operational profits - ISR.

Source: created by the author.

In the shared production contracts, the compensation in favor of the State includes a con-tractual quota for the exploratory stage; royalties; and a percentage of operational profits (OP);[10] tax on the activity of exploration and extraction of hydrocarbons as well as income tax (ISR). The compensa-tion in favor of the contractor is the recovering of costs and the remaining OP. The compensations are paid in kind, that is by production; when these are in favor of the State the hydrocarbons are turned over to the State's distributor which in turn hands over the products of its sale to the Mexican Oil Fund. The percent of the OP in favor of the State is subject to an adjustment mechanism to temper the prof-itability of the company when the price of oil or production rises significantly. The recovery of these costs is subject to a limit established by the Ministry of Revenue.[11]

Both for licenses and shared production contracts, the contractual quota for the explorato-ry stage is calculated based on the size of the contracted area and the time that has passed since the signing of the contract. The tax on exploration and extraction of hydrocarbons, which is also based on the square kilometers of the contracted area, differentiates between the stages of exploration and ex-traction.[12] The royalties are determined for each type of hydrocarbon by applying the corresponding contractual val-ue rate for each product.

The royalty for crude oil equals 7.5%, if the price is less than $48 US per barrel. If the price is greater the formula [(0.125 x contractual oil price) – 1.5]% is applied. The royalty for associated gas is equal to the contractual price of natural gas divided by 100. For non-associated natural gas, the royal-ty is 0 if the price is less than or equal to $5 US per million BTU (British Thermal Unit); or for a price between $5 and $5.5 US, they use the formula [(natural gas contractual price — 5) x 60.5]%. If the price is higher, the royalty is equal to the price divided by 100. For condensates, the royalty is 5% if the con-tractual price of the condensates is lower than $60 US per barrel and, for higher prices, they use the formula [(0.125 x contractual price) — 2.5]%.

The sum of the payments that the State receives, expressed as a percentage of the cash flow generated in an oilfield or a contracted area, is known in the oil industry as *government take* (Khelil, 1995) and is a better indicator of why a contract is appealing (Luo and Yan, 2010, p. 758). This concept, *the State's part in oil rent* or simply *the State's part*, does not form part of Mexican legislation, though the authorities use it in public statements and calculations. Included in the payments that the state receives is ISR as it is a fiscal resource in terms of cash flow and an accounting practice (Johnston, 1994, and Johnston *et al.*, 2008).

The bidding process starts with a call for bids from the CNH, which includes the publish-ing of the rules for the bids, the contract type, prerequisites for qualification, geographical and geologi-cal characteristics of the areas being auctioned off, as well as a timeline of the process. Some days later the SHCP puts out an official communiqué indicating the minimum value of the selection varia-bles for each area being bid upon, which in general are the supplementary investments, the additional royalty in the case of licenses and the OP for the state in shared production contracts. In recent bids, they have included a payment to act as a sort of tie breaker.

It is important to note that the legal framework neither defines nor uses the concept of oil rents. The term appears in government documents which define it as the difference between the in-come from the sale of hydrocarbons and the cost of extraction (Presidencia de la República, n.d.). This definition is generally used in interviews and statements, and above all in situations where high public functionaries assure that all oil rents will be received by the State (Excélsior, 2014; Jiménez-Espriú, 2013 and 2014). The press releases issued by the authorities in charge of bids also assert that the law, contracts, and selection criteria all guarantee that the State shall receive the oil rents (SHCP, 2015b,2015c, 2016, 2017a, 2017b and 2018).

3. ESTIMATES OF THE STATE'S SHARE OF INCOME

In Table 2 are the results of the first two rounds of bidding according to official statements. In round one the state's share of income reached between 74% and 83% in the first call for bids, between 80% to 90% in the second, and 48% and 76% in the fourth. In the third call for bids, the authorities opted for publishing the state's share of the gross income, which reached between 18% and 93%.[13] The government's expected or average share of profits in the second round reached 85.3% with a maximum of 88.3%;[14] in the third call for bids the average was 63%; in the fourth the average reached 59.8% with a maximum of 66.1%. In round two the state's share of profits was a little higher than during the first round.

Table 2. Official Results from Round 1 and 2.

Bid	*Date*	*Type*	*Contracts awarded*	*Range of the state's share of profits*[1, 2] *(%)*	*Expected States of profits*[1, 2] *(%)*	*Expected investment*[3] *($MM US)*	*Guaranteed investment*[4] *($MM US)*
R1.1 Shallow water exploration	Jul. 15, 2015	SPC	2	74 - 83	nd	2 870	151
R1.2 Shallow water extraction	Sep. 30, 2015	SPC	3	82 - 90	85.3 (máx 88.3)	3 248	600
R1.3 Land extraction	Dec. 15, 2015	License	25	nd	nd	1 044	623
R1.4 Deep water	Dec. 5, 2016	License	8	48 - 76	59.8 (66.1 max)	34 353	344
R2.1 Shallow water exploration	Jun. 19, 2017	SPC	10	20 - 75	77.4 (83.9 max)	8 193	309
R2.2 Land extraction	Jul. 14, 2017	License	7	41 - 86	75.0 (82.0 max)	1 100	169
R2.3 Land extraction	Jul. 14, 2017	License	14	42 – 98		964	279
R2.4 Deep water	Jan. 31, 2018	License	19	53 – 74	64.7 (67.2 max)	92 794	1 387
Round 1 and 2 [5]		83% Licenses	88	20 - 98	72.4 (77.5 max)	144 566	3 862

Notes: [1] Includes royalties, contractual quotas for the exploratory stage, tax on hydrocarbon exploration and extraction and ISR, [2] In the R1.3 bids, the State's share of gross income reaches 63% on average, [3] expected investment over the life of the contract assuming successful exploration, [4] minimum investment to which bidders have committed during the first years of the contract with performance bonds, [5] average estimate based on the official data for the eight calls for bids.

Source: created by the author using data from the SHCP *et al.* (2015a, b, c, d, 2016a, b, 2018).

The concept of profits used by the authorities is not to be found in the hydrocarbon in-come law. Nevertheless, the breakdown of income, costs and compensations allows one to verify that said profit is equal to the difference between the value of hydrocarbons and the cost of production, in other words the oil rents as defined in documents and official statements. It is easy to prove with an example: in the case of round 1.1 where the winning bidder for blocks 2 and 7 offered 56% and 69% of OPS; the Mexican authorities conclude that the State's share in said bid reaches between 74% and 86% for block 2 and between 83% and 80% for blocks 7 (SHCP *et al.*, 2015a). Table 3 reproduces these results by applying the contractual and fiscal rules to a barrel of oil in a scenario where the prices are $50 per barrel and $100 per barrel; the method for the calculation includes the concepts of profit and *government take* used by the authorities; the calculations are consistent with the official results and allow us to conclude that profits and oil rents are synonymous.

Table 3. Sharing Out of an Oil Barrel According the Results of Round 1.1.
Scenarios Prices of $50 US Dollars and $100 US Per Barrel (USD/bbl).

	Block 2		*Block 7*	
Income (I)	50.0	100.0	50.0	100.0
Royalties (RY)	4.5	14.0	4.5	14.0
Efficient cost recovery (ECR)	20.0	20.0	20.0	20.0
Operating profits (OP)	25.5	66.0	25.5	66.0
Operating profit for the State (OPS)	14.3	37.0	17.6	45.5
Operating profit for the company (OPC)	11.2	15.8	7.9	13.2
Adjustment mechanism (AM)	0.0	13.2	0.0	7.3
Company's gross income (CGI)	31.2	35.8	27.9	33.2
Company's costs	20.0	20.0	20.0	20.0
Companies income before income tax (CI)	11.2	15.8	7.9	13.2
Income tax (ISR)	3.4	4.8	2.4	4.0
Company's net income (CNI)	7.9	11.1	5.5	9.2
State's income (SI)	22.1	68.9	24.5	70.8
Project's profits (P)	30.0	80.0	30.0	80.0
State's profits (SP) (%)	74.0	86.0	82.0	88.0
Company's profits (CP) (%)	26.0	14.0	18.0	12.0

Notes: I= oil price; RY=9% and 14% for a price of 50 and 100 US/bbl according to the Hydrocarbon Income Law; OP=income-royalty. OPS=56% of OP for Block 2 and 69% of OP for Block 7 (as offered by the contractor); adjustment mechanism in accordance with appendix 3 of the contract; CGI= recovered cost plus operating profits; CI= gross income-costs; CNI=CI-ISR; SI= royalty+operating profits for the state+ adjustment mechanism+ ISR; Profits=price-costs = oil rents; State's profits = *government take* = State's Income/Profits; Company's profits=*contractor take*=Company's gross income/Profits; The state's income includes ISR (30%).

Source: Created by the author in accordance with fiscal rules and the offers from the companies with winning bids.

In a recent press release on the benefits of the energy reform, the Presidency of the Mexi-can Republic pointed out that:

> we opened the sector to participation from the private sector so that […] private capital […] can dedi-cate itself to the exploration and eventually the exploitation. Of the oil rents […] which will eventually be received when these explorations are successful, […] a good part will be for the Mexican State. The amount of the rent that the State will have is about 65% […] (Presidencia de la República, 2018, p. 1).[15]

Taking into consideration the official information of the state's share of the income which came from the seven calls for bids, it turns out that the winning companies offered to leave the State an aver-age 72.4% of the oil rents. The estimate is based on the offers made by the competing companies in order to be awarded the areas they are interested in. The actual payments for the concepts of compen-sation and taxes will occur many years later under different technical and economic conditions than those set forth in the bids. Even though there is a signed contract, it is not uncommon for the taxation system to change at the request of one or both parties in order to reflect actual production costs and the behavior of oil prices.

4. DISTRIBUTION OF RENT AND PRODUCTION WHEN THE CONTRAC-TOR IS INEFFICIENT

The official estimate for the distribution of profits assumes that the contractor is efficient and production costs are low. This raises the question "how would distribution change if the contractor is purposefully inefficient and turned to *gold plating* in order to keep for themselves the large bag of lucre that the government put on the table for the purpose of recovering costs? To illustrate the scenario, we use characteristics from Rounds 1.1 and 2.4 (see Table 4 which has results for the shared production contract in Round 1.1).

Table 4. Round 1.1. Shared Production Contract in Shallow Waters; Distribution of an Oil Barrel When the Contractor is Inefficient.
Scenario price 50 USD/bbl with an inefficient production cost of 30USD/bbl

	Price (USD/bbl)	*Royalty (%)*	*Cost recovery (%)*	*Operating profit (%)*	*State's operating profit (%)*
SHCP	50.0	7.8	60.0	32.2	12.9
Block 2	50.0	7.8	60.0	32.2	18.0
Block 7	50.0	7.8	60.0	32.2	22.2

	ISR (USD/BBL)	*State = royalty+State's operating profit+ISR (USD/bbl)*	*Rent = price-efficient cost (USD/bbl)*	*State's Rent (%)*
SHCP	2.9	23.6	30.0	44.1
Block 2	2.1	27.9	30.0	50.1
Block 7	1.5	31.5	30.0	55.0

Notes: 40% as base for OPS as defined by the SHCP. Winning bid of 55.99% in Block 2 and 68.99% in Block 7. Estimate arrived at under the following suppositions: *1)* the royalty will be paid in kind; *2)* contractual quota for the exploratory stage and the annual tax on the exploration and extraction are not significant; *3)* the contractor is inefficient and reaches the limits of cost recovery (60% of production's contractual value); *4)* the operating profit's adjustment mechanism does not apply due to elevated costs and a low oil price; *5)* efficient cost of 20 USD/bbl.

Source: Created by the author by applying fiscal rules and the winning bid offers.

The base established by the SHCP implies leaving the inefficient contractor with 55.9% of all rent and the state with 44.1%; the winning bids elevate the State's share to 50 and 55%, which is be-low the 74% expected from an efficient operator; the conclusion is unavoidable: a contractor's ineffi-ciency has a high cost for the State.[16]

In the case of licenses in round 2.4, the contractor's inefficiency impacts the adjustment mechanism for the royalty and the payment of ISR: the high costs make the first inoperable and leaves the ISR to be paid at zero. The base established by the SHCP implies sacrificing almost two thirds of the oil rent but the winning bids raise the *take* of State to 61.5% on average (see Table 5). Depending on the contract, the tax base for ISR becomes zero when the efficient production costs (40 USD/bbl in deep water) grow in a range which goes from 22% to 46% as a result of inefficiency and of *gold plating*.

Table 5. Round 2.4. Deep Water License Contract; Distribution of an Oil Barrel When the Contractor is Inefficient. Scenario Price and Production Cost of 70 and 40 USD/bbl.

Area number	Winning company	Additional Royalty [1] (%)	Base Royalty (%)	Total Royalty (%)	State's income [2] (USD/ bbl)	Oil rent (USD/ bbl)	State's rent [3] (%)	SHCP proposed State's rent (%)
2	Shell and PEMEX	15.0	10.3	25.3	17.7	30.0	58.9	35.6
3	Shell and Qatar PI	10.0	10.3	20.3	14.2	30.0	47.3	35.6
4	Shell and Qatar PI	10.0	10.3	20.3	14.2	30.0	47.3	35.6
5	PEMEX	6.2	10.3	16.5	11.5	30.0	38.5	35.6
6	Shell and Qatar PI	20.0	10.3	30.3	21.2	30.0	70.6	35.6
7	Shell and Qatar PI	20.0	10.3	30.3	21.2	30.0	70.6	35.6
10	Repsol, PC Carigali and Ophir	20.0	10.3	30.3	21.2	30.0	70.6	31.2
12	PC Carigali, Ophir and PTTEP	20.0	10.3	30.3	21.2	30.0	70.6	31.2
14	Repsol and PC Carigali	20.0	10.3	30.3	21.2	30.0	70.6	31.2
18	PEMEX	7.1	10.3	17.4	12.2	30.0	40.5	31.2
20	Shell	20.0	10.3	30.3	21.2	30.0	70.6	35.6
21	Shell	20.0	10.3	30.3	21.2	30.0	70.6	35.6
22	Chevron, PEMEX and INPEX	18.4	10.3	28.7	20.1	30.0	66.9	35.6
23	Shell	10.1	10.3	20.3	14.2	30.0	47.4	35.6
24	Eni and Qatar PI	9.5	10.3	19.8	13.8	30.0	46.2	35.6
25	PC Carigali Mexico	20.0	10.3	30.2	21.2	30.0	70.5	35.6
26	PC Carigali Mexico	20.0	10.3	30.3	21.2	30.0	70.6	35.6
28	Shell	20.0	10.3	30.3	21.2	30.0	70.6	35.6
29	Repsol, Carigali, Sierra…	20.0	10.3	30.3	21.2	30.0	70.6	35.6
	Average	16.1	10.3	26.4	18.5	30.0	61.5	34.7

Notes: [1] Additional royalty proposed by the winning bid; [2] State's Income = base royalty+additional royalty; [3] Rent = price-cost; The adjustment mechanism is not applied to the additional royalty; The contractor's inefficiency nullifies the payment of ISR (the tax base becomes 0 for a cost overrun between 22% and 46%, depending on the contract); Efficient cost = 40 USD/bbl.

Source: created by the author by applying fiscal rules and the winning bid offers.

In the two examples chosen — a shared production contract in shallow waters and licenses in deep waters — the price and cost scenario establish an oil rent level of 30 USD/bbl. This trait shared by both examples allows one to observe, in quantitative terms, that a contractor's inefficiency has a lesser impact on the State's income in the case of licenses when compared to shared production contracts. It was a foreseeable result in said production contracts from the moment that the cost inter-vened twice in calculating the State's income; whereas in the case of licensing it only affects the calcula-tion of the ISR. The strict control of costs during the operation of contracts is crucial for the State to receive the expected benefits.[17]

Following the same procedure as in the two previous examples, we analyzed the eight calls for bids to have a complete picture of the real or simulated impact that the contractor's inefficiency has.

The inefficient scenario is created by taking into account how the change in costs renders ineffective the adjustment mechanism for royalties and the payment of ISR on licenses ineffective on the one hand, and the adjustment mechanism for operating profits and the payment of ISR on shared production contracts on the other.

The numbers displayed in Table 6 show that the rent for the State lies in the range of 20% to 88%, with an average of 56.5%. This is far from the 72.4% expected from efficient contractors (see Table 2).

Table 6. Results from Round 1 and 2 When the Contractor is Inefficient.

	Area awarded km²	*Prospective resources awarded (MMbcoe)*	*Guaranteed investment at 50 USD/ bbl*	*Guaranteed investment at 100 USD/bbl*	*Rent for the state[1] (%)*	*Production volume for the State (%)*
Round 1						
1.1. [2]	660	244	126	196	43 - 65	26 - 38
1.2. [2]	168	471	517	805	40 - 64	30 - 39
1.3. [3]	777	1 882	170	264	> 58	0
1.4. [4]	18 818	8 444	500	584	36-87	0
Round 2						
2.1. [2]	5 872	2 420	288	356	24 - 53	14 - 32
2.2. [2]	2 917	435	169	208	20 - 88	0
2.3. [2]	2 594		279	344	20 - 88	0
2.4. [4]	44 178	2 798	1 291	1 689	41 - 77	0
Round 1 & 2	75 984	16 694	3 340	4 446	56.5	Lic=0; SPC=30

Notes: [1] In shared production contracts an inefficient contractor exhausts the limits of cost recovery (60% of the production's contractual value); neither the adjustment mechanism nor ISR apply due to the high recoverable production costs (costs recognized for tax purposes). [2] Price of 50 USD/bbl minus the production cost of 20 USD/bbl = a rent of 30 USD/bbl. [3] For R1.3, the extraction of crude oil, a price of 50 USD/bbl minus a production cost of 12 USD/bbl=a rent of 38 USD/bbl. [4] For rounds auctioning off deep water (R1.4 and R2.4) a price of 70 USD/bbl minus a production cost of 40 USD/bbl = a rent of 30 USD/bbl. SPC=Shared Production Contract.

Source: created by the author by applying fiscal regulations and the winning bid offers.

Thanks to the distribution of molecules (hydrocarbon production), the results are notori-ously unfavorable for the State: it has access to 15 of 88 awarded contracts; in the case of licenses, all the production goes through the hands of contractors and in the case of shared production contracts they only receive on average 30% of the extracted hydrocarbons. The terms for physical distribution of oil and natural gas allow one to conclude that the first two rounds of oil contracts will contribute little to improving the country's energy security, in addition to the fact that contractors are not legally, contractually, or fiscally obligated to channel a percentage of production through the domestic market.

5. CONCLUSIONS

This investigation proposed to evaluate the performance of 88 hydrocarbon exploration and ex-traction contracts awarded in the first two rounds of bids. The main focus was on the distribution of rent and production resulting from the terms offered by the Mexican authorities in the eight calls for bids. The new constitutional framework mandates that the state choose the type of contract and the types of compensations which will maximize the nation's income in order to get the greatest benefit and development in the long run, which is what makes this investigation pertinent and relevant. At the end of this analysis we concluded that:

1. Oil rents and profits are two words used by the Mexican authorities to refer to the same thing: the difference between the price of oil and the production costs. Mexico does not recover 100% of the oil rent, but rather a fraction which depends on the fiscal offering of each bidder. The results are con-sistent with the nature of the oil contracts whose main objective for an oil company is access to the natural resource and associated rents.

2. In the eight calls for bids that were carried out by January 2018, the State's *take* lay somewhere in the range from 20% to 98% with an average of 72.4%, including ISR. The final estimate supposes that the contractor will be efficient and will pay the totality of taxes which it promised to during the bidding process.

3. When the contractor is inefficient and costs are fiscally recoverable, it distances itself from the minimum cost and the State's average *take* decreases. Estimates place it on average as far as 56.5% in the eight calls for bids. When the costs increase, physical income shrinks as the adjustment mechanism for the fiscal burden is not applied. Income taxes are not paid as the majority of that which is extracted in shared production contracts is destined to recover the costs. For the State to re-ceive the expected rent will require institutional strength experience and wisdom in order to rigorously and effectively control the contractor's costs it is willing to recognize. Without these attributes, it is not possible to comply with the constitutional mandate of maximizing the nations income.

4. The governmental preference for licenses has the advantage of providing certainty and immedia-cy to the tax collection as it is based on royalties. The disadvantage is that all production stays in the hands of the operator, with no obligation of supplying the domestic market. In the case of energy se-curity, these shared production contracts are better as part of that which is extracted stays in the coun-try; nevertheless, that which is received by the State in the three calls for bids barely reaches 30% of that extracted when the contractor is inefficient. The contracts in their current form contribute only marginally to the nation's energy security.

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[a] National Autonomous University of Mexico (UNAM), Postgraduate Department of the Faculty of Engineering, Mexico. Email: energia123@hotmail.com

[1] According to the oil regime theories of Mommer (2003), Mexico replaced the *proprietorial* hydrocarbon regime for a *non propietorial* one, or by bringing an end to the transition process which had begun in the 1990s (Vargas and Morales, 2011, pp. 53-56).

[2] The secondary legislation was issued in August 2014, in which the hydrocarbons law and the hydrocarbons income law stand out.

[3] According to the national hydrocarbons commission, in the middle of May 2018 there were three more bids corresponding to around three, with the total of 81 areas on offer. Nine of these are nonconventional resources whose exploration will be carried out via fracking.

[4] it would be more correct to talk about the price of production instead of the cost of production (Bartra, 2013, p. 119).

[5] Comparing the rent of oil and natural gas with the GDP, the World Bank (2018) face value of production at an international price minus the cost of production directly from the wellhead using unitary production costs estimated by country.

[6] For example, CEPAL (ECLAC) defines pure economic rent as the difference between the value of production at an international price and the production cost directly at the wellhead or the mine. This includes the opportunity cost of the capital invested in the extraction operation (Acquatella *et al.*, 2013, p. 17).

[7] From the Spanish "Comisión Nacional de Hidrocarburos".

[8] From the Spanish Impuesto Sobre la Renta (Tax on Profits).

[9] This means that the State transferred to the contractor all ownership rights on the product, as long as it finds itself up to date with its payments.

[10] The operating profits in shared production contracts are equal to the contractual value of hydrocarbons minus the royalties and recoverable costs.

[11] The law permits that the costs, expenses and investments which have not been paid in the corresponding period due in said period be transferred to subsequent periods.

[12] This tax incorporates the Fondo para Entidades Federativas y Municipios Productores de Hidrocarburos (Fund for Federal Entities and Municipal Producers of Hydrocarbons) under the rules of the Mexican Internal Revenue Service (SAT).

[13] Some companies which participated in round 1.3 did not show up to sign the contract, possibly because the fiscal burden was too high (up to 92% of the gross income) and did not allow them to cover the costs. Since then the SHCP has placed an upper limit on the bids.

[14] The maximum is reached when the adjustment mechanism is applied according to appendix 3 of the contract.

[15] Translated from the original Spanish.

[16] When the limit of cost recovery is reduced, it increases exposure to the risk of operational inefficiency.

[17] The question carries over whether the Mexican institutions are sufficiently prepared to carry out this task in the context of extreme information asymmetry, and if they have the strength to withstand pressure from both operators (who are almost always reluctant to share their accounts, justify expenses, or make their accounting transparent), and political powers inclined to fiscal evasion when it comes to foreign investments.