

Oil Industry Taxation: History, Perspectives, the Effectiveness for a Subsurface User

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Abstract: The rational combination of a state tax policy and the interests of subsoil users is the basis for the positive potential innovative development of the fuel and energy industry. The current tax system in Russia for oil companies is predominantly fiscal one and like the other arms of government regulation is rather one-sided. The introduction and the implementation of an unbalanced budget system needs, aimed at meeting the immediate needs led to its permanent adjustments and unpredictability. Constantly changing legislation for oil companies increases the tax revenues to the state treasury, only by reducing the profits on investment costs of a subsoil user. The use of so-called “big tax maneuver” provides only a minimum return from one-time costs for a subsoil user. The reform of oil producing companies taxation is discussed at the moment and if the tax burden will continue to increase, it will lead to the unconditional curtail of new investment projects and hence to reduce oil production in the short term. The basis of the potential development for any industry is a stable predictable taxation in the long term which allows you to plan the development of industry and attract the necessary investment which unfortunately is not observed in the oil industry.

Key words: Oil extraction, legislation, mineral extraction tax, efficiency, net discounted profit

INTRODUCTION

In the 90s of the 20th century a new taxation system for the Fuel and Energy Complex (FEC) started to develop in Russia. This system was very different from the centralized method of a national economy planning. The basic principles of a new taxation system for oil production companies were established by the Russian Federation Law dated on December 27, 1991 No 2118-1 “About the basis of the tax system in Russian Federation” (Zakon, 1991). The legal act in energy sector was the Russian Federation Law issued on February 21, 1992 No. 2395-1 “About subsurface” (Anonymous, 1992).

According to these laws, the oil companies paid resource taxes intended for a natural rent removal, along with the standard fees for all enterprises of the country. The basis for the calculation of resource taxes was the price of oil but not the final financial result of industrial activity. The resource taxes included:

- The contributions to the fund for the Reproduction of the Mineral Resource Base (RMRB)
- Payments for subsoil use (royalty)
- Excise taxes
- Export duties

The tax system of the last century for the fuel and energy complex enterprises was a fiscal one and within

the conditions of high tax burden in December 1995, the Federal Law “About Production Sharing Agreements” (PSA) (Moreno, 1995) as an alternative taxation system. But, none of the Production Sharing Agreement of the existing oil fields according to PSA Law was not signed. The Russian agreement “Sakhalin-1”, “Sakhalin-2” for Kharyaga oil field were developed till 1995 and according to other conditions.

MATERIALS AND METHODS

The taxation system of oil production enterprises formed in 90ties was reorganized in 2001 with the adoption of the Federal Law No 126-FZ “About amendments and additions to part two of the Russian Federation Tax Code” and some other legislative “Russian Federation acts and Russian Federation legislation with the invalidation of individual acts power”. According to which the Internal Revenue Code has a new Chapter 26 “Tax On Mining” (TOM) which replaced three previous payments: RMRB deductions, royalties and excise. It was assumed that during the initial stage TOM charging for the oil companies will be based on a specific rate with a further transition to the ad valorem rate (16.5%) but later this decision was cancelled and the specific rate of mineral extraction tax for oil extraction is applied to the present.

The value of the specific rate for oil companies during the first two years was 340 rub. t⁻¹ (later the base rate was increased at first to 347 rub. t⁻¹) and multiplied by the factor K_c which described the change of oil prices and exchange rates, it was calculated according to the following formula:

$$K_c = (\Pi - 8) \times \frac{P}{252} \quad (1)$$

Where:

Π = The average level of prices for the oil grade “Urals” (doll./barrels) for the tax period. It is defined as the sum of the arithmetic mean buy and sell prices at the world commodity markets (Mediterranean and Rotterdam ones) for all trading days divided by the number of trading days within the corresponding fiscal period

P = The dollar/ruble average value for the tax period of the Russian Federation established by the Central Bank of Russia

This formula determined a limit price at which the taxation begins (8 USD/barrel) but then the ceiling was revised to 9 first and then to 15 doll./barrel. The formula constant also changed from 252-261:

$$K_c = (\Pi - 15) \times \frac{P}{261} \quad (2)$$

A positive aspect of the tax system is a transparent tax assessment for regulatory bodies which affects tax collection but the tax burden increase on oil producers sharply reduced the profitability of subsurface areas development.

The calculation procedure for the Export Duty (ED) also changed which was also related to the oil price change. ED was not charged before the price level of 109.5 doll. t⁻¹. With the prices from 109.5-182.5 doll. t⁻¹ ED rate was set at a rate not exceeding 35% of the difference between an actual average price of oil for the previous 2 months and 109.5 doll. t⁻¹. If, the world price of oil above 182.5 doll. t⁻¹ ED rate was set at the rate not exceeding 25.23 doll. t⁻¹ and 40% of the difference between the actual price of oil for the previous 2 months and 182.5 doll. t⁻¹. And from August 1, 2004 the Federal Law No. 33-FZ “On Amendments to Article 3 of the Russian Federation Law “About Customs rate” and the Article 5 of the Federal Law “About the Amendments and Additions to Part Two of the Russian Federation Tax Code as well as about the repeal of Russian Federation certain individual legislative acts” established a 4-rate ED scale for oil (Table 1).

Thus a more progressive ED increase was legally established with the increase of oil world price and the

Table 1: The rates of export duty on oil

The world price for “Urals” oil	Rate (doll./barr.)
Up to 15 doll./barr.	0
From 15-20 doll./barr.	0.35 (c-15)
From 20-25 doll./barr.	12.78+0.45 (c-20)
The >25 doll./barr.	29.2+0.65 (c-25)

pronounced fiscal nature of oil production taxation remained which increased the tax burden for oil companies. The increase of the tax burden on oil companies occurred due to the following reasons:

- The binding of MET rate to oil prices at the world market without taking into account the price changes at the domestic market and the sales in neighboring countries
- The introduction of equalizing tax system with the establishment of a single MET rate for all mining companies without geological and climatic conditions of oil fields development
- The termination of benefits for oil production from the operated idle wells in accordance with the Russian Federation Government Order No. 1213 (Anonymous, 1999)

The reduced profitability of hydrocarbon deposits development led the legislating authorities to the search of ways for MET differentiation in order to reduce the tax burden for oil producing companies. The Federal Law No. 151-FZ introduced the reduction factor (K_v) to MET rate for oil fields according to which the depletion level made >80%. This level was determined by the following formula:

$$K_v = (3.8 - 3.5) \times \frac{N}{V} \quad (3)$$

Where:

N = The sum of oil production at a particular subsurface site (including lost production) according to the state balance of mineral reserves approved in the year preceding the year of the tax period

V = Initial recoverable oil reserves approved in the prescribed manner, taking into account the growth and the write-off of oil reserves (excluding the write-offs of oil stocks and the extraction losses) and defined as the sum of reserves for the categories A, B, C1 and C2 for a particular oilfield in accordance with the state balance data for minerals on January 1, 2006

If the depletion level of a particular oilfield which is determined using the direct method of oil production quantity exceeds 1, K_B factor is taken equal to 0.3 if it is <0.8 K_B = 1.

The choice of MET differentiation as a criterion concerning the degree of hydrocarbon reserves depletion is conditioned by a good management of the indicator as

it provides some privileges for a license area with the oil reserves which are represented in the state balance of reserves.

The same law provides the following wording: "Taxation is made at the tax rate of 0% during the production of extra-viscous oil extracted from the subsoil plots containing oil with the viscosity of 200 mPa.s (in reservoir conditions)". In contrast to the depleted deposits, the application of MET zero rate for highly viscous oils may be carried out not only by the license area but also by the productive layers (horizons). In order to stimulate the development of new oil fields, the tax holidays were established, a little later the geography of MET tax holidays for new fields was expanded. But, the MET benefits were not able to activate the development of the licensed areas in these regions due to the lack of industrial and social infrastructure. And some additional measures were taken to reduce state support of ED to 45% of the base rate. Later, the same decision was made for the offshore fields of the Caspian Sea and then for the Northern territories (Anonymous, 2012, 2013). The fee for these license areas was accrued by the following formula:

$$\Theta\Pi=(\Pi-50)\times 0.45 \quad (4)$$

The adoption of laws allowed to simulate the investors in the development of oil fields within these regions and the Law No. 307-FZ increased the MET base rate to 419 rub./t in 2011, 446 rub./t in 2012 and 470 rub./t in 2013.

But since the most part of the undeveloped oil reserves in Russia falls on small fields with small reserves, the Federal Law No. 258-FZ was approved in 2011 providing for the oil fields with initial recoverable reserves of <5 million t and the degree of reserve depletion less than or equal to 0.05, the introduction of a discounting factor to the MET rate (K_2) calculated as follows:

$$K_2 = 0.125 \times V_3 + 0.375 \quad (5)$$

where, V_3 are initial recoverable oil reserves in mln. tons up to 3 decimals approved in the prescribed manner, taking into account the growth and the write-off of oil reserves (excluding the write-offs of oil stocks and extraction losses) and defined as the sum of reserves for the categories A, B, C1 and C2 by a particular oilfield according to the state balance of mineral reserves approved in the year preceding the year of the tax period.

For the development of stranded oil the Russian Federation Federal Government No 700-p was adopted and later the Federal Law No 213-FZ dated on July 23, 2013 which recognized the possibility of applying a discount factor (K_d) to the MET tax rate for this category of oils. According to the same law in order to account for

the reduction factor concerning the depletion of hydrocarbon reserves K_{dB} reduction factor was introduced which is defined as follows:

- If the value of the coefficient K_d for the deposit of hydrocarbons is <1 and the depletion level of the said hydrocarbon deposit is <0.8, the K_{dB} ratio is accepted equal to 1
- If the value of K_d coefficient for hydrocarbon deposit is <1 and the depletion level of said hydrocarbon reservoir is ≥ 0.8 and ≤ 1 , the K_{dB} ratio is calculated as follows:

$$K_{dB} = 3.8 - 3.5 \times \frac{N_{dB}}{V_{dB}} \quad (6)$$

Where:

N_{dB} = The cumulative oil production for a particular hydrocarbon deposit (including the lost production) in accordance with the data of mineral state balance during the year preceding the year of the tax period

V_{dB} = Initial recoverable oil reserves approved in the prescribed manner, taking into account the growth and the write-offs of oil reserves and defined as the amount of recoverable reserves for A, B, C1 and C2 categories, as of January 1 of the year preceding the tax period and the cumulative production since the beginning of specific deposit of hydrocarbons development in accordance with the state balance data on mineral reserves approved in the year preceding the year of the tax period

- If the value of K_d ratio for the deposit of hydrocarbons is <1 and the depletion level of the said hydrocarbon deposits makes >1 , the ratio of K_{dB} is accepted equal to 0.3
- K_{dB} ratio for the deposits of hydrocarbons is taken equal to the value of the coefficient K_B , if it is in the subsoil part containing other hydrocarbon deposits for which the value of the coefficient $K_d \leq 1$
- If the subsurface area does not contain any hydrocarbon deposits for which the value of the coefficient $K_d < 1$, the ratio K_{dB} during the extraction of oil from hydrocarbon deposits located within said subsurface area is assumed to be 1

RESULTS AND DISCUSSION

In 2013, the law No. 263-FZ was passed which increased the base rate of MET during 3 years to 559 rub./t while reducing the export duty to 55% in the calculation formula ("low tax maneuver") but the law No 366-FZ (the "big tax maneuver") was adopted in 2014 with an even greater change in the basic rate of MET and export duty (Table 2).

Table 2: Tax maneuvers for oil extraction

Rates	2015r		2016r		2017r	
	Small tax maneuver	Large tax maneuver	Small tax maneuver	Large tax maneuver	Small tax maneuver	Large tax maneuver
MET (rub. t ⁻¹)	530	765	559	856	559	918
ED (%)	57	42	55	36	55	30

Table 3: Legislative acts during oil extraction

Legislative act	Application object	Influence on a subsurface user tax burden
No 126-FZ issued on 08.08.2001	Oil extraction	Increase
No 33-FZ issued on 07.05.2004	Exported oil	Increase
No 151-FZ issued on 27.07.2006	recoverable oil reserves depleted >80%	Decrease
	The oil viscosity at reservoir conditions makes >200 mPa.s	Decrease
	The lands of the Far North and the Far East	Decrease
No 307-FZ issued on 27.11.2010	The change of the base rate for MET calculation	Increase
No 258-FZ issued on 21.07.2011	The fields with oil reserves sepletion up to 5%	Decrease
The order No 700-p dated on 03.05.2012	The low permeability reservoirs to 2 mD	Decrease
No 213-FZ issued on 23.07.2013	High viscous oil at reservoir conditions of >10,000 mPa.s	Decrease
No 263-FZ issued on 30.09.2013 (small tax maneuver)	Base rate change for MET calculation	Increase
No 268-FZ issued on 30.09.2013	Export duty rate calculation change	Decrease
No 366-FZ issued on 24.11.2014 (large tax maneuver)	Continental shelf, the Caspian Sea	Decrease
	Base rate change for the calculation of MET	Increase
	Change of export duty rate calculation	Decrease

It turns out that in 2017 the growth of the base MET rate will be 164.2% of the planned earlier). The law also introduced and an additional reduction factor for the calculation of MET- K_{KAH} that characterizes the region of mining and the oil properties.

The use of different reduction factors for the calculation of MET led to the need of introduction a measure describing the peculiarities of oil extraction (Π_M), it is determined according to the following formulae:

$$\Pi_m = K_{ndpi} \times K_c \times (1 - K_v \times K_z \times K_{\pi} \times K_{dm} \times K_{kan}) \quad (7)$$

where, K_{ndpi} is the base rate. The MET calculation formula per tonne of crude oil is the following one:

$$MET = K_{MET} \times (C - 15) \times \frac{P}{261} - \Pi_M \quad (8)$$

Table 3 shows the legislation acts for oil extraction and its impact on the tax burden of a subsoil user.

Economic evaluation of the tax burden on oil extraction companies at various tax regimes under comparable conditions without the reduction factors for MET calculation is shown by Fig. 1.

Constantly changing legislation for the oil companies constantly increases the public revenues by reducing the profits of a subsoil user. The application of reduction factors for the calculation of MET and ED reduction to 30% of the base rate in 2017, allows only a slight reduction of the tax burden on the production of hydrocarbons.

The taxation reform for oil producing companies is discussed at the moment. So the privileged category was

Table 4: Differentiation of oil viscosity by value at reservoir conditions

Viscosity value (mPa.s)	Name of hydrocarbon source	Sources
$\mu \leq 5$	Oil with low viscosity	The indices in the draft guidelines for the use of the classification of reserves and potential
$5 < \mu \leq 10$	Low viscosity oil	
$10 < \mu \leq 30$	Oil with higher viscosity	
$\mu > 30$	High viscosity oil	Resources
> 30	Oil with high viscosity	State balance of mineral reserves (Oil)
> 200	Oil with maximum viscosity	Russian Federation Tax Code

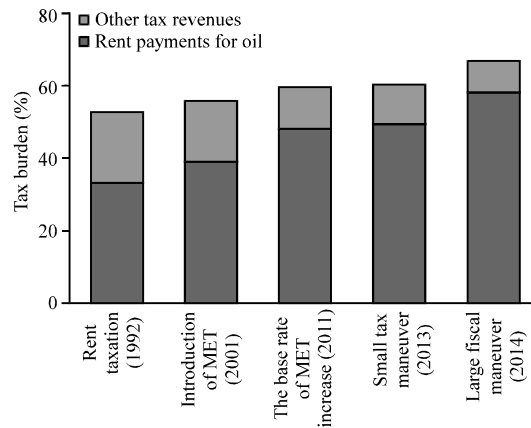


Fig. 1: Tax burden of oil companies

not presented by highly viscous oils with the oil viscosity in reservoir conditions from 30-200 mPa.s (Table 4).

Oil extraction with the viscosity up to 30 mPa.s is carried out using the basic method flooding which has good technological and economic indicators. High-viscosity oils demand the performance of special

Table 5: The effectiveness of oil extraction under different conditions of taxation

Indices	Rental taxation	MET introduction	MET base rate increase	Small tax maneuver	Large tax maneuver
Discounted state income (mln. rub.)	163.000	173.000	184.000	187.000	206.000
Discounted net income (mln. rub.)	34.600	27.400	19.300	17.100	2.800
The index of discounted costs (shares of units)	1.177	1.135	1.091	1.080	1.012
Internal rate of return (%)	38.000	32.300	25.600	23.800	12.500
Project payback (years)	3.000	4.000	4.000	5.000	7.000

events aimed at oil recovery ratio increase which is not interesting for a subsoil user because of its high cost. The oil with the viscosity above 200 mPa.s belongs to the category of highly viscous one and it has a zero MET rate and before this border the tax is not differentiated and its full rate is applied that defies simple logic (Yartiev, 2011).

The Ministry of Energy and a number of oil companies believe that a Tax on Financial Result (TFR) may replace MET and offer 12 projects with different depletion of oil reserves for a new system of taxation development.

The bill “On Amendments to Parts One and Two of the Russian Federation Tax Code regarding the introduction of the tax system in the form of an income tax from the sale of oil” submitted to the Duma by the senators of Nenets and Khanty-Mansi Autonomous Districts. The proposed bill has an aggressive rate of an uplift (the write-offs of capital expenditures) and an additional income tax at the rate of 60%, without justifying the principle of the selected projects choosing. But this approach involves the simultaneous double taxation of the same object the profit of oil company as a whole, without the differentiation of activity type. A vertically integrated oil companies have in their assets not only the license areas of oil production but also the refineries with the sale of oil products at their service stations and a variety of social facilities with different and not always positive profitability.

In world practice, the tool of natural rent withdrawal to the state budget is the additional taxes on the financial results taking into account the profile of a project cash flow:

- Tax on Additional Income (TAI)
- Excess Profit Tax (EPT)

Unlike rent taxes of a fiscal system these taxes may be levied on the financial results of a separate oil field development and therefore they are more progressive ones.

At TAI the financial result is determined on the basis of total costs (capital and operating ones), at that capital costs are not amortized but are written off at the same

time. The withholding of a tax is not performed as long as all costs incurred are not paid off. To implement this tax system a separate accounting of income and expenses is necessary for each field of hydrocarbons.

EPT depends on the financial result for the whole company which means that the losses on unprofitable fields are covered by the profits of other fields and then they are taxed. The tax base is the profit of the company, increasing its rate. We can say that EPT resembles the proposed NFR but its use must be limited only to oil production.

With the introduction of a taxation system on oil producing enterprises it is necessary to take into account the situation on MET differentiation. During the implementation the EPT the benefits on deposits will not be calculated and the introduction of TAI, one may save privileges on specific oil fields.

The basis of any industry stable development is a stable and a long-term taxation which allows you to plan the development of production and attract the necessary investment that are not observed in the taxation of oil companies, especially in during the last decade and beyond.

Let’s carry out an economic assessment of an average operating efficiency for a production well within the amortization period at different tax regimes under comparable conditions without taking into account the reduction factors for the calculation of MET (Table 5).

CONCLUSION

Constantly changing legislation for the oil companies reduces the effectiveness of non-recurring costs, since the use of “large tax maneuver” provides only the minimum margin on investment for a subsoil user. If the tax burden continues to increase, it will lead to the unconditional curtail of new investment projects and hence to the reduction of oil production in the short term.

Constantly changing legislation with the steady increase of the tax burden on oil companies does not allow a subsoil user to plan for an expanded reproduction of production processes for a long-term based on innovation decisions and the use of import-substituting production technologies of hydrocarbons and the preparation of commodities.

In a market economy, a subsoil user is interested first of all in obtaining of the greatest return on investment in production facilities and the state is interested to achieve maximum social and economic benefits during the development of oil fields (Yartiev, 2006).

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