

TAX MANOEUVRE COMPLETION: WHAT ARE WE TO EXPECT?

Moscow, October 2018



PETROMARKET
RESEARCH GROUP

AUTHORS



**Ivan Aleksandrovich
Khomutov**
General Director



**Konstantin Renovich
Kwon**
Senior Consultant



**Anton Faudovich
Kuliev**
Consultant



**Oleg Nikolaevich
Skorobogatko**
Senior Analyst

The authors would like to thank Petromarket Research Group team and specially Alexandra Zubachyova and Vladimir Prohorenkov without whose assistance the below analysis would have not been possible. Special thanks also go to Yakov Ruderman for his helpful ideas and stimulating feedback on this material.

LIMITATIONS ON USE

This publication and its contents are copyright. No part of this publication may be reproduced, distributed, reprinted, or otherwise used in any form or by any means without the prior written permission of Petromarket Research Group. Any use of the below materials is only allowed provided Petromarket Research Group cited as the source. This publication is not a targeted consultation and may be used for informational purposes only.

SUMMARY

- The tax reform in the petroleum industry to be launched on January 1, 2019 represents both a follow-up and a completion of the tax manoeuvre launched 4 years ago. The key outcome of the new reform is expected to be in the form of complete liquidation of the system of export petroleum and petroleum products duties in 2024. Alongside duties, the automatic redistribution mechanism will be eliminated; petroleum royalties will be discarded in favour of the petroleum refining industry (via the petroleum and petroleum export prices margin) and petroleum product consumers (via wholesale prices reduced by the export duty amount). Instead of unconditional and essentially indiscriminate duty-related subsidies petroleum refineries and consumers (and, at that, not only in Russia, but also in a number of countries that import petroleum and petroleum refinery products from Russia free of duty), **2019-2024 will see a gradual introduction of a new royalty income management mechanism, that is called to make subsidies to economic entities more efficient and more targeted.**
- The essence of the new mechanism can be described as follows:
 - All petroleum royalties will be concentrated in the petroleum refining industry and subsequently collected by the state in the form of severance tax into the federal budget.
 - The tax burden on petroleum production facilities will remain unchanged meaning that in this regard the tax manoeuvre in question has no impact on the economy.
 - Subsidies to “friendly economies”, in the form it has taken hitherto, through duty-free supplies of petroleum and petroleum products, will no longer be the case.
 - Royalty subsidies for the petroleum refining industry will continue, but will now become more targeted: they will no longer be indiscriminately granted to just every refinery, but only to those meeting specified criteria reflecting the ideas that the authors of the reform have as far as the value of a specific refinery for the Russian economy is concerned. The instrument of state support will now be represented by excise tax refund, which fully compensates its recipient for the duty-related subsidy lost. Some of the refineries - the ones with the worst export logistics among those eligible for excise tax refund will even stand to gain because excise tax refund will be extended to them with a regional multiplying coefficient of more than 1.
 - Subsidies to consumers of petroleum products will also become strictly targeted. There will be two categories of consumers entitled to support from the state. The former will include petrochemical enterprises (who purchase raw materials for subsequent refining), airlines (who purchase

fuel) and ship owners (re residual fuel bunkering). The latter will include gasoline and diesel fuel consumers. The first category will receive subsidies in the form of excise tax refund on fuel or raw materials purchased, the second – in the form of the so-called “offsetting markup” to be eligible for which petroleum refineries need to peg down the motor fuel prices to an established level.

- The completion of the tax manoeuvre is expected to bring about the following:
 - A rise in the royalty income into the federal budget on account of the state appropriating a percentage of the royalty, which, prior to the reform, would go to petroleum product producers and consumers or friendly economies.
 - Encouragement of upgrading programmes implementation in the Russian petroleum refining industry, which was envisaged to become one of the required criteria making a petroleum refinery eligible for a state subsidy.
 - Termination of the operation of technologically undeveloped and non-upgradable refineries which merely clutter the domestic market with non-excisable surrogate motor fuels, depriving the state budget of income and petroleum companies of their legitimate share of the market.
 - Ensuring a reliable supply of the domestic market with petroleum products, primarily with gasoline (the need to mitigate the demand for which puts a great strain on the country’s petroleum refining industry) at a minimum possible utilization level.
 - Total control over the domestic market prices for such socially significant products as motor fuels through the “offsetting markup” on excise tax refund.
- To analyse the impact of the tax manoeuvre upon the Russian petroleum product market and to find out the extent to which the expectations of its authors may be fulfilled upon its completion in 2024, the authors of this analysis have carried out calculations under Brent 71 scenario (based on an assumption that the Brent price in 2019-2024 will be 71 USD/bbl based on the 2017 prices, as well as on a number of other fairly realistic assumptions).
- Estimates show that **the government revenues in 2024 will be 631 billion rubles, or 9.3%, higher than they would have been under the existing tax system introduced in 2017. The greatest impact will be felt by consumers of petroleum products, the royalty subsidies to which are going to be reduced by 470 billion rubles (-91.6% on the 2024 rate under the 2017 tax treatment). In terms of absolute losses they are followed by “friendly economies”, which will now be fully deprived of royalty subsidies (140 billion rubles), and the Russian petroleum refining industry which will**

suffer a total loss of 21 billion rubles (-1.5% on the 2024 rate under the 2017 tax treatment).

- **Collection of royalties from the petroleum refining industry will be performed by means of selective eligibility for excise tax refund.** This means that mini refineries, whose production in 2017 totalled less than 600,000 tons of petroleum, do not produce a sufficient quantity of Garde 5 gasoline (K5) and/or straight-run gasoline for petrochemicals, and none of their owners with a total participating interest of no less than 50% are under international sanctions, will a priori not be entitled to this. Moreover, as of 01.10.2018 those no longer eligible for subsidies will include KrasnodarEcoNeft, Novoshakhtinsk Refinery, Slavyansk ECO, Pervy Zavod, Anzher Petroleum and Gas Facility, VPK-petroleum, TomskNeftPererabotka, TransBunker. All the other petroleum refineries are already eligible to excise tax refund as of 01.10.2018.
- The impact on most owners of petroleum refineries the tax manoeuvre will be rather neutral in terms of the amount of subsidies granted by the government. **In practice, revocation of eligibility to state subsidies only affects independent refineries which are going to lose 28% of the subsidy by 2024 against what they could have expected should the 2017 tax regime be kept through 2024.** However, for the state budget the royalty saved as a result and diverted into petroleum refining proves to be rather insignificant since **the tax manoeuvre also leads to increased subsidies compared to the duty-related subsidies currently received by GazpromNeft, LUKOIL and particularly Rosneft** as a result of application of regional multiplying coefficients to excise tax refund.
- **The tax manoeuvre will not help solve one of the key problems targeted by the reform: optimizing the raw materials input for petroleum refineries. Upon the completion of the manoeuvre in 2024 the annual refinery production under the Brent 71 scenario will notable exceed the figure of 260-265 million tons estimated by the regulator, reaching 303.9 million tons.** This is a mere 3.5 million tons less than the annual production would have been in 2024 under the 2017 tax treatment (307.4 million tons) and approximately 20 million tons in excess of the 2017 figure of 283.5 million tons. The surplus of gasoline will go up to 10 million tons, which clearly exceeds the required baseline (appr. 3 mln tons).
- **One of the reasons behind the refinery production growth is the implementation of development programmes at a number of refineries,** such programmes providing both for expansion of primary crude petroleum refining capacities and for commissioning of recycling units (the latter will result in increased refining margin, which boosts the utilization level).
- **The second reason behind the refinery production growth is that the reform is failing to force simple refineries** that are unable to implement upgrading programmes or to supply the domestic market with high quality

petroleum products to leave the market. In 2017 the total performance of such refineries was 17.1 million tons of petroleum, and in 2024 under the same tax treatment this figure would have reached 17.5 million tons, while upon the completion of the tax manoeuvre it would go down to 8.6 million tons – yet not to zero! **Some of the refineries no longer eligible for subsidies may be able to generate profit resulting from surrogate motor fuel sale exempt from excise tax.**

- **The reform does not provide any ultimate solutions for the problem of simple refineries operating in the market. This, however, does not mean that no solutions exist. One possible option would be to introduce excise duties on all petroleum supplied to the domestic market (similarly to the way this was done in respect of gasoline and diesel fuel) in the amount of about 4 000 Rbs/ton (in real prices for 2017), with excise tax refund to all refineries, except the “poor quality” ones.**
- The task to optimize petroleum refinery production in Russia would appear rather natural if we are to size up the reform from the angle of how it benefits the state budget because the lower the throughput, the less budgetary funds will be required to maintain it. Based on this principle, calculations reveal a significant potential for reduction of the existing subsidies to the petroleum industry (and a respective reduction of petroleum production volumes) with no risk of upsetting the existing balance in the domestic petroleum product market. For example, under the Brent 71 scenario these subsidies may potentially be halved in the case of some of the petroleum refineries, and reduced to an even greater extent in the case of others (eligible for excise tax refund with a regional multiplying coefficient). **This situation is a source of serious risks for the Russian petroleum refining industry because it suggests further manoeuvres will be needed to achieve a reduction of the subsidies granted to petroleum refineries.**
- This tax manoeuvre sends somewhat controversial messages as far as the regulator’s ideas about what subsidies to the refining industry are optimal are concerned. If the purpose of subsidies consists solely in maintaining the country’s refinery production at a minimum providing a balance between the demand for petroleum products in the domestic market then subsidies to those petroleum refineries that are chiefly or exclusively export-oriented due to their actual location would be pointless. However, **the reform successfully stimulates precisely the development of independent petroleum refineries many of which are export-oriented** (Afipsky, Ilsky and some others). These refineries will not make it unless they are eligible for excise tax refund, and this they will not be unless they are able to produce wide-scale upgrading programmes – **unlike petroleum refineries owned by major vertically integrated petroleum companies that will in practice be able to claim budget subsidies regardless of whether they are upgraded or not. This ensures no investments are required to achieve a high margin, which to an extent**

discourages their development. Even though it would seem that the development of such petroleum refineries should rank among the government's priorities as they are chiefly domestic market oriented.

- **Not a single category of petroleum products consumers in Russia is going to benefit from this tax manoeuvre.** All will stand to lose with the exception of LHG consumers whose market will not be affected by the reform. And whereas some categories of consumers will suffer a significant reduction in subsidies they are eligible for, others will face a complete cut-off of the rent subsidies. Among those most impacted will be the ship owners consuming dark bunker fuel (89% of the subsidy amount that they would have been entitled to in 2024 under the 2017 tax treatment), the least affected will be petrochemical enterprises that purchase naphtha and aromatics as raw materials for further processing (15%). Airlines purchasing jet fuel are going to suffer losses of over 32%. All such losses will result from the petroleum product prices rising proportionately to the amount of revoked export duties, as well as to the inflation rate that depreciates the refundable excise taxes due to a specific category of consumers.
- The tax manoeuvre would have been expected to compensate consumers of gasoline and diesel fuel for the loss of duty-related subsidies through a mechanism of the offsetting markup. This is, however, not going to happen. The reason lies in the operating principle of this mechanism. What the authors of the reform had envisaged was for it to hold the refineries' retail gasoline and diesel petroleum prices down below specified controlled levels preventing them from "breaking loose" and reaching the level of export netback prices should the latter become too high as a result of rise in petroleum prices on the foreign markets. **In reality, however, this is the way this mechanism functions only within a strictly defined range of prices for Brent. With Brent prices below the lower limit there is no need for this mechanism, while with Brent prices above the upper limit – in the context of free pricing in the domestic motor fuel market – refineries would find it more profitable to set the product prices on a par with the export netback prices and to waive the offsetting markup.** As a result, the desirable gasoline and diesel oil prices under the Brent 71 scenario will only be ensured by the offsetting markup y 2019, whereas in 2020-2024 gasoline and diesel fuel pricing will be based on refineries' export netbacks, and the prices will well exceed the reference levels. Moreover, **it cannot be ruled out that the regulator will start looking for ways to coerce petroleum companies to sell motor fuels at prices below market rates.** This would result in producers losing part of their revenue.
- The paradigm behind the final stage of the tax manoeuvre is undoubtedly a step forward as far as the Russian petroleum market regulation is concerned. However, the regulator's rather apparent lack of a clear vision of the future of Russia's petroleum refining industry, the equally obvious

potential for further reduction of subsidies to petroleum refineries, the inefficiency of the efforts to encourage the upgrade of refineries owned by major vertically integrated petroleum companies, the failing mechanism of the offsetting markup – **all of these make the prospects of the reform being launched rather vague, causing to expect further adjustments of the taxation system.**

ACRONYMS AND ABBREVIATIONS

MF	– Motor fuel
JK	– Jet kerosene
VGO	– Vacuum gas oil
DM	– Domestic market
HC	– Hydrocracking
HT	– Hydrotreatment
GF	– Gasoil fuels
GFP	– Gas fractionating plant
DF	– Diesel fuel
DC	– Delayed coking
ISO	– Isomerization
CC	– Catalytic cracking
FO	– Fuel oil
PP	– Petroleum product
PC	– Petrochemistry
SGP	– Straight-run gasoline for petrochemistry
PCOP	– Primary crude oil processing
REF	– Reforming
JF	– Jet fuel
NWE	– Northwestern Europe
NWFD	– Northwestern Federal District
DC	– Delayed coker

CONTENTS

Summary	5
Introduction	13
1. Petroleum export duties: how it works in Russia?	14
2. The export duties' timeline that is coming to an end	22
3. Completion of the tax manoeuvre in the petroleum industry: the gist of the reform and its implications	31
3.1. Key parameters of the reform	31
3.2. Why the state does not abolish export duties without compensation and with no delay?	35
3.3. What consequences of the reform should we expect?	47
3.3.1 The state is the main beneficiary	47
3.3.2 Beneficiaries and victims among Russian refineries	50
3.3.3 What do consumers of petroleum products lose?	63
4. Completion of the tax manoeuvre: what's next?	69
4.1. Simple refining: life after death	69
4.2. Looking for optimal subsidizing schemes for petroleum refining industry	70
4.3. Strengths and failures of the offsetting markup	76
Appendix A. Settlement terms under scenario	85
Appendix B. Outline description of MRPPM (integrated Model of the Russian Petroleum Product Model)	86

INTRODUCTION

Below is an analysis of the tax reform of the Russian petroleum industry to be launched on January 1, 2019, which is treated by the authors hereof as a completion of the tax manoeuvre launched back in 2015. The reform is scheduled to last for 6 years and represents a gradual transformation of the existing taxation mechanism, of which export duties on petroleum and petroleum products are an important element, into a taxation mechanism not involving export duties. With all that in place, rent subsidies to Russian refiners and Russian petroleum product consumers, which has hitherto been provided by a system of export petroleum duties, will not be discarded, but will simply undergo transformation.

All these changes will affect the crucial interests of a wide range of participants in the domestic petroleum market, as well as the interests of the countries currently benefiting from duty-free petroleum and petroleum products import regulations from Russia. In this connection it appears more important to closely examine the tax innovation that are being implemented to identify the strengths and weaknesses of the reform, the risks with which the completion of the tax manoeuvre is fraught for refiners and various categories of petroleum products consumers, and to assess its overall consistency with the stated objectives. To achieve this, we need to travel mentally from 2018 into 2024, when the tax changes will be completed and their consequences will become clear. And this is what the study below does.

The analysis includes four sections. The main findings are found in Sections 3 and 4. The first two contain an analysis of the existing taxation mechanism and its formation history. These are mostly intended for the benefit of those readers who do not find themselves sufficiently well-versed in the specific area of tax and customs tariff regulation of the petroleum industry. But even those familiar with the subject will probably benefit from reading it to avoid potential in the concluding sections.

1. PETROLEUM EXPORT DUTIES: HOW IT WORKS IN RUSSIA?

The current basis of taxation in the Russian petroleum industry is represented by two taxes: Mineral Extraction Tax (MET) and export duties on petroleum and petroleum products.

Royalty is quintessentially a duty. It was introduced on January 1, 2002 to replace a number of other taxes previously in use in respect of petroleum producers. MET calculation and payment rules are established by the Russian Tax Code. The taxation basis for calculating MET is the total volume of petroleum produced (dehydrated, desalinized and stabilized) in kind. The MET rate (METR) is set in rubles per 1 ton using the formula:

$$BMETR = METR \times SR - DI,$$

where *BMETR* is a Base Rate (rubles per ton), *SR* is the Surcharge Rate applicable to the Base Rate, the value of which coefficient depends on the global petroleum prices, and *DI* is the Deflating Indicator reducing the tax rate which reflects specific petroleum production parameters (reserves depletion, field size, technological conditions of oil extraction, geographical conditions of production)¹.

As of October 1, 2018, the standard *BMETR* was 919 RUB/t, while the value of the *SR* is calculated using the following formula:

$$SR = (P - 15) \times \text{Exchange Rate} / 261,$$

Where *P* is the average for the tax period European market price for a barrel of Urals petroleum, in USD, Exchange Rate is the average for the tax period USD exchange rate to ruble established by the Central Bank of Russia.

Similarly to MET, export duties on petroleum and petroleum products serve as an instrument of collecting natural resource in favour of the state. However, this instrument functions totally differently from MET. First of all, export duties are charged by the state only on the petroleum and petroleum products sold in the foreign markets. Second of all, unlike MET, export duties impact the domestic petroleum market prices and the marginality of the Russian petroleum refining industry. These two factors define the special role played by export duties in allocation of petroleum royalties between the state and the market players.

¹ The RF Tax Code provides for several exceptions from this MET calculation rule. One is that a number of cases require a reduced (zero) METR. The other is that the MET on sea oil from new fields and on gas condensate, which is in practice traded at the same market as oil, is calculated differently. These exceptions to the general rule will not be covered in greater detail in this analysis, but will always be taken into account by the authors where necessary.

Unlike royalty rates, export duties rates on petroleum and petroleum products are established by the Russian government on the basis of the Russian law On Customs Tariff containing formulae for calculation of the marginal rates of export duties. The formulae are as follows:

$$P_{\text{petroleum}} = 0, \text{ if } P \leq 15$$

$$P_{\text{petroleum}} = 0.35 \times 7.3 \times (P - 15) \text{ if } 15 < P \leq 20$$

$$P_{\text{petroleum}} = 0.45 \times 7.3 \times (P - 20) + 12.78 \text{ if } 20 < P \leq 25$$

$$P_{\text{petroleum}} = 0.3 \times 7.3 \times (P - 25) + 29.2 \text{ if } P > 25,$$

Where $P_{\text{petroleum}}$ is the petroleum export duty rate in USD/t; P is the average for the monitoring period price for a barrel of Urals petroleum in the European market, USD/bbl; 7.3 is the approved number of barrels in a ton of Urals petroleum².

Export duty rates may vary depending on the petroleum product, but are all calculated using the generic formula:

$$P_{\text{prod}} = K_{\text{prod}} \times P_{\text{petroleum}},$$

Where K_{prod} is a coefficient with values ranging between 0 and 1 (see Table 1.1). Therefore, the differences between export duty rates are determined solely by the differences between K_{prod} values the marginal values for which coefficient are also stipulated by the Russian law On Customs Tariff

Table 1.1

K_{prod} values in effect since 01.01.2017 in formulae used for calculation of the marginal rates of export duties on selected petroleum products

Source: RF law 5003-1 dated 21.05.1993 (revised on 28.12.2016) On Customs Tariff

Gasoline	Naphtha	Diesel Fuel	Jet Kerosene	Residual Oil	Vacuum Gas Oil
0.3	0.55	0.3	0.3	1	1

Although the law does not prevent the government from introducing export duties below the margin threshold, up until August 1, 2018 it never availed of this privilege. Since that date, the export duty rates on some petroleum products, while remaining the same, proved to be below the margin threshold since the latter had gone up. This was due to rather unscheduled amendments into the Russian law On Customs Tariff in July 2018³ providing

² Under the Russian law On Customs Tariff, the Russian government may introduce (and so it does) special formulae required to calculate the export customs duty rates on very high viscosity oil, on subsea and offshore oil, at oil fields located in Eastern Siberia, in Yamalo-Nenets Autonomous District, and in some other cases. These exceptions to the general rule will not be covered in greater detail in this analysis, but will always be taken into account by the authors where necessary.

³ Federal Law 201-FZ dated 19.07.2018 On Amending Articles 3.1 and 3.5 of the RF law On Customs Tariff.

for a leaping rise in the marginal values of K_{prod} up to 0.9 between August 1, 2018 and December 31, 2018 for a wide range of light fuel products, including gasoline, diesel fuel and naphtha. The purpose of this was to enable the government to raise the export duties, if needed, in order to keep the domestic market's petroleum product prices down should such rise too susceptibly for consumers: motorists (gasoline and diesel fuel) and petrochemical enterprises (naphtha). As of October 1, 2018 the government had not availed of its right to raise K_{prod} conferred upon it by the RF law On Customs Tariff. Unless the petroleum product prices rise dramatically, there is hope that K_{prod} values will persist through the end of 2018.

How do export duties impact the domestic market prices? This becomes clearer if we remember that the pricing policy in respect of petroleum and petroleum products in Russia is based on a rather obvious market principle: the return on domestic market sales cannot be below the return on export. Under this principle, domestic market prices (excise taxed not included) may not be below the export netback calculated in rubles which is the international market price net of costs of product delivery to the market and the respective export duty rate⁴.

Therefore, the domestic market price formula for petroleum or petroleum products can be most generally described as: netback price + bonus. The domestic market premium is an objective factor⁵, it may be different for markets of different products, but it does not depend on whether export duties are in place or not.

In the case of petroleum the domestic market price can be taken as equivalent to the export netback price and in the case of some petroleum products the domestic market and not the international one is the premium market (Diagram 1.1). But whatever the situation with the premium size, the state has opportunities to influence not only its own petroleum export income, but also export netback prices, and via those, the domestic market prices through manipulating the petroleum and petroleum products export duty rates.

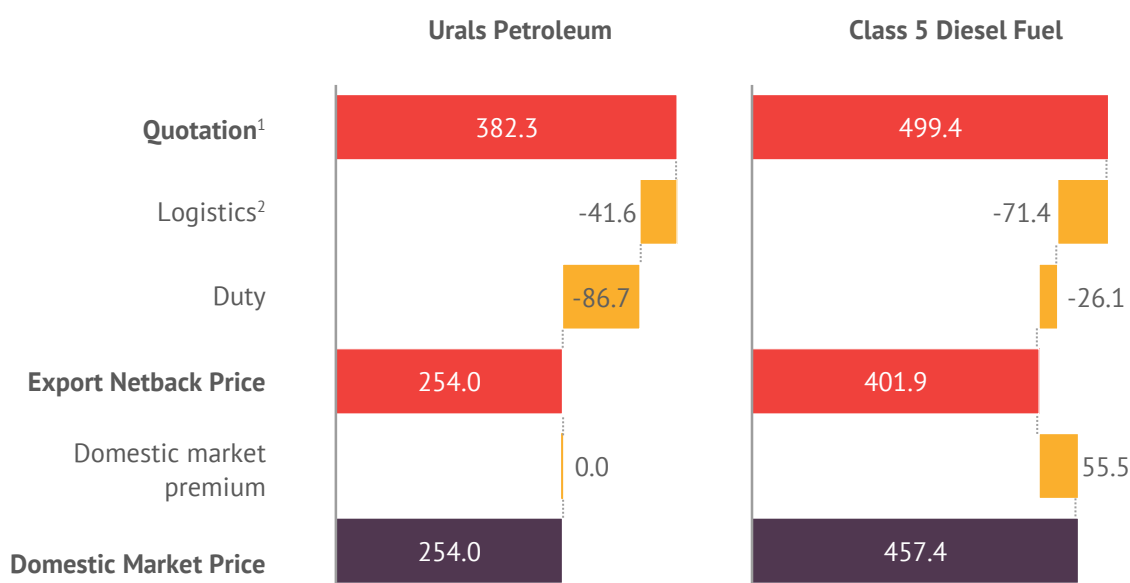
⁴ It stands to note that the pricing principle described here only works provided (a) the state does not interfere directly with the domestic market prices, nor with free export, (b) the export netback values are positive and (c) the transportation systems' capacity does not restrict supplies to the foreign markets. But even with these conditions in place, it may fail to function (as it often happens) "on the fly", because the domestic market is not capable of responding promptly to all changes in exterior conditions. However, on average, for fairly long periods of time it invariably works.

⁵ Factors defining the domestic market premium size are not addressed here.

Diagram 1.1

Pricing factors for West-Siberian oil (free at metering station) and for Grade 5 summer diesel fuel (free at refinery) in Russia, average 2017 values (excise tax not included), USD/t

Source: Petromarket Research Group



Urals pricing – an average of Urals CIF NWE and Urals CIF MED pricing

Grade 5 diesel pricing – an average of ULSD 10ppmS CIF NWE and ULSD 10ppmS CIF MED pricing

1. Logistics for Urals – costs related to supplying petroleum to the European market, including the pipeline tariff, transshipment costs at port, customs duties, tanker freight rate.

2. Logistics for Grade 5 diesel fuel – costs related to supplying diesel fuel to the European market, including the railway rates, the tank rental costs, transshipment costs at port, customs duties, tanker freight rate.

Thanks to this pricing mechanism, oil extracting companies share their royalty income not only with the state (when exporting their production to all countries except Belarus), but also with the Russian and Belarusian petroleum refining industries (when supplying their production to refineries in the Union State of Russia and Belarus)⁶. How does that work?

It is obvious that the Russian budget receives a share of the natural resource royalty as petroleum export duty. It is also an established fact, albeit less obvious, that the petroleum refining industries of Russia and Belarus receive their pieces of the royalties cake on account of reducing raw material prices by the amount of the petroleum export duty rate. In practice, every Russian and Belarusian refinery receives a royalty subsidy in the amount equivalent to the petroleum export duty rate multiplied by the refinery production volume. Being the beneficiaries, as far as royalties are concerned, the state and the petroleum refining industry act like interconnected vessels: the higher the refinery production, the greater the share of the petroleum royalties that goes to refineries and the lesser the share that goes to the state, and vice versa.

⁶ *Petroleum is supplied to Belarus free of duty, meaning that Belarusian refineries buy Russian petroleum at the Russian domestic market prices and their treatment in this respect is no different from that of Russian refineries.*

However, the subsidy received by Russian refineries together with raw materials does not fully remain at their disposal, but is partly collected through export duties on petroleum products. By imposing duties on exported petroleum products, the state brings down in equal measure the export netback prices and the domestic market prices for petroleum products. As a result, the royalty subsidy to refineries is reduced by the export duty amount imputed on the entire petroleum product pool.

If the export duty rates on petroleum products are set below the petroleum export duty rates, like it currently happens in respect of all petroleum products, except mazut, vacuum gas oil, tar and bitumen, the royalty subsidy is not withdrawn from refineries in full. The higher the difference between the export duties on petroleum and petroleum products, the greater percentage of the royalty subsidy is kept by the petroleum refining industry and the higher the industry's marginality. It stands to note that since 2003 Russia's system of export duties has been functioning in such a way that the difference between the export duties on petroleum and petroleum products rises along with the petroleum prices in the global market. This means that rising petroleum prices are a factor behind rise in the royalty subsidy granted to the petroleum refining industry and, by extension, a factor behind its rising marginality.

The situation would have been different if the petroleum product duty rates were equivalent to the petroleum rates or exceed them. Under the former scenario, the royalty subsidy to the petroleum refining industry would be zeroed out, under the latter it would turn out that it is not the state that supports the petroleum refining industry by granting it part of the petroleum royalties, but instead the petroleum industry supports the state at the expense of its own margin.

Part of the royalty subsidy collected from refineries as export duties on petroleum products is divided between the state and Russian petroleum product consumers at the same ratio at which petroleum refinery production is usually divided between the international and the domestic market. The state receives the total amount of duties on petroleum products paid by exporters and consumers receive subsidies through domestic market prices being reduced by the current value of the duty rate. To be precise, speaking Russian consumers we also include into this category consumers in countries that receive petroleum products from Russia free of export duty, i.e. Armenia, Kazakhstan, Kyrgyzstan, and Tajikistan.

To sum it up, the existing system of petroleum export duties in Russia is used not only to replenish the federal budget, but also as an indirect royalty subsidy instrument both to the country's petroleum refining industry and to Russian petroleum product consumers. Royalty beneficiaries would also include petroleum refiners and consumers in the countries that benefit from duty-free supplies of petroleum products from Russia (we will hereinafter refer to these countries as "friendly economies").

It equally stands to note that the measures taken by the government in 2014 to reform the system of export duties under the so-called “big tax manoeuvre” (see Section 2) provided for a consistent reduction of export duties on light fuel products, among other changes, which came as a significant factor behind the rise in the domestic market prices for such products. To respond to that, the government introduced a compensation mechanism for targeted support of specific categories of consumers by means of offsets on excise taxes. Tax offset mechanism is normally used to exempt certain categories of payers technically expected to pay the excise tax from this obligation. However, there are three cases when this mechanism is used to support petroleum product consumers:

- Petrochemical enterprises using straight-run gasoline (naphtha) as raw materials are granted a subsidy calculated as a coefficient (in 2018 it stood at 0.7) multiplied by the excise tax rate charged on the entire quantity of processed naphtha (in 2018 the excise tax rate was 13,100 RUB/t).
- Use of aromatic hydrocarbons (benzene, paraxylene, orthoxylene) in petrochemical production entitles refiners to a subsidy calculated as a coefficient (in 2018 it stood at 2.4) multiplied by the excise tax rate charged on the entire quantity of processed raw materials (in 2018 the rate was 2,800 RUB/t).
- Russian airlines are eligible for a subsidy calculated as a coefficient (in 2018 it stood at 1.08) multiplied by the rate of an excise tax charged on the entire quantity of fuel purchased at Russia’s airports (in 2018 the rate was 2,800 RUB/t).

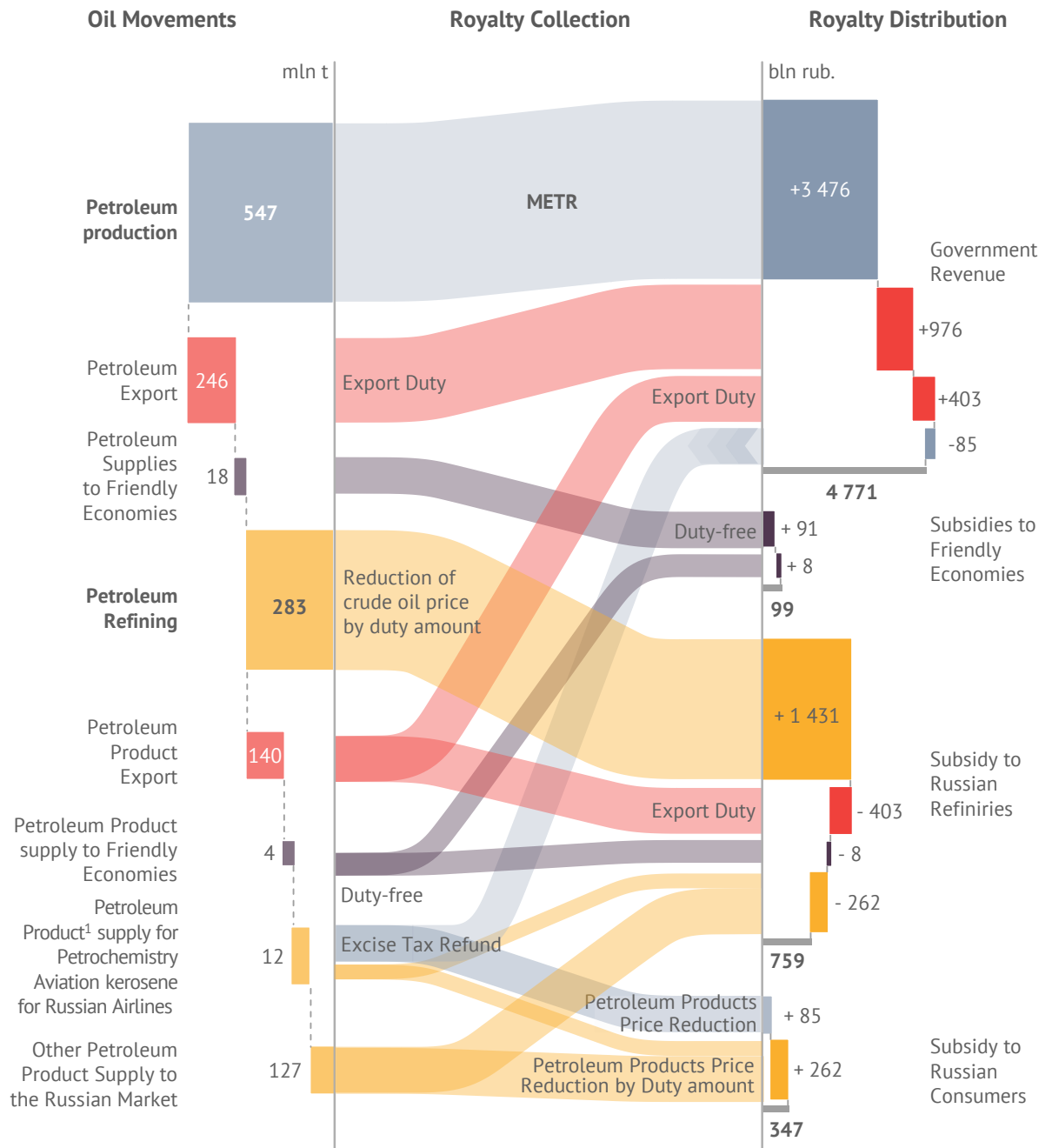
The economic nature of subsidies is such that granting them via tax offsets is carried out on the same basis as royalties: the royalties collected from petroleum product producers and consumers via reduced petroleum and petroleum product export duties are partially refunded to consumers in the form of tax offsets.

Diagram 1.2 shows the directions and parameters of royalty flows generated by the Russian petroleum industry and collected by the Russian tax system via export-related duty and tax offsets mechanisms (example taken from 2017).

Diagram 1.2

Petroleum royalty allocation scheme in Russia in 2017

Source: Petromarket Research Group



As can be seen from the diagram, the bulk of petroleum royalties collected, whether directly or indirectly, from extracting companies (4,771 billion rubles or 80% of all royalties) was appropriated by the Russian state. METR and export duties made up 32.1% of all income into the 2017 federal budget. 1,082 billion rubles of petroleum royalties never made it into the budget, of these 99 billion rubles went into the friendly economies. The royalties granted to Belarus, Kazakhstan, Tajikistan, Kyrgyzstan and Armenia

amounted to 2.86%, 0.05%, 0.08%, 0.43% and 0.05% of these countries' respective GDPs.

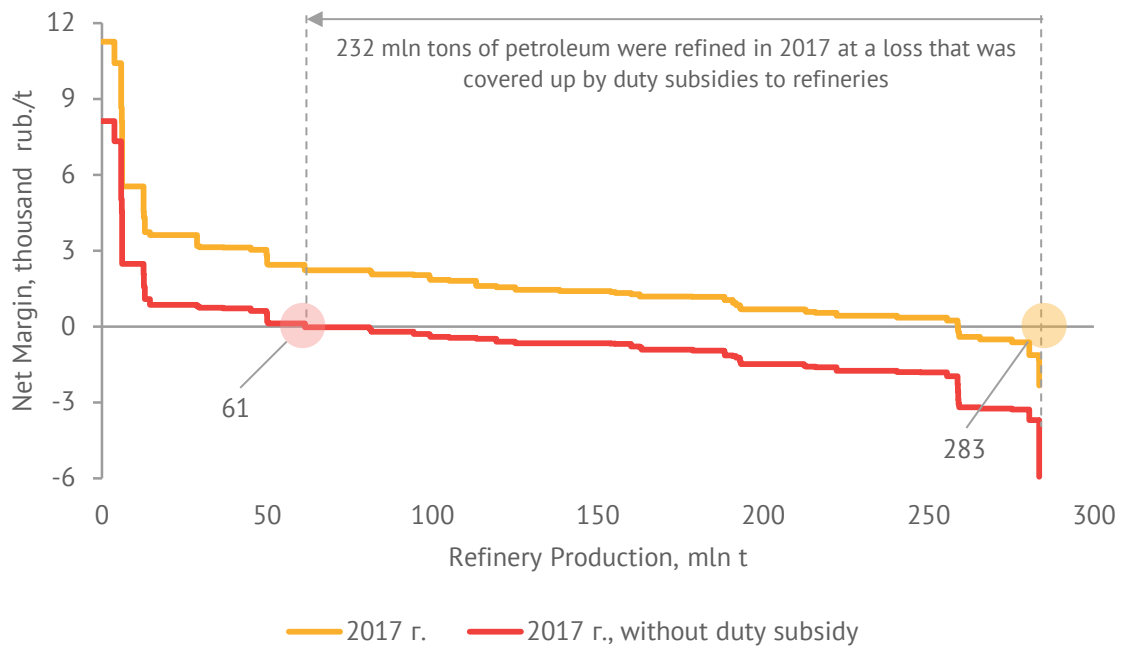
Russian petroleum product consumers received a royalty subsidy in the amount of 347 billion rubles. As was shown above, a consumer receives this subsidy through buying petroleum products at relatively low prices. For example, motorists buying gasoline and diesel fuel at gas filling stations in 2017 were saving 1.14 RUB/l and 1.29 RUB/l respectively (or 3% and 3.4% of the average retail prices for these products).

The largest royalty subsidy - 759 billion rubles - was received by Russian refineries. This subsidy plays a tremendous role in the country's petroleum refining industry. Without it, the 2017 net margin of most Russian refineries would have been negative. Calculations show (Diagram 1.3,) that only 61 tons out of the 283 mln tons of raw materials received by refineries in 2017 were processed with a profit. The rest was basically processed with a loss which was covered by the duty-related subsidy

Diagram 1.3

Russian refineries margin curve in 2017

Source: Petromarket Research Group



2. THE EXPORT DUTIES' TIMELINE THAT IS COMING TO AN END

The completion of the tax manoeuvre scheduled for 2019-2024 and already fully formalized in the laws in the end provides for an abolition of export duties on petroleum and petroleum products. This finally makes export duties history. It nevertheless appears sensible to take a look back and examine the path leading to the introduction and consistent reforming of the system of export duties which was virtually a contemporary of the post-Soviet Russia having lasted through till today (with a brief interruption in the late 90s) in order to gain a deeper insight into:

- What were the issues that the Russian government was seeking to solve by introducing duties;
- Which solutions were successful and which were not;
- Why did all attempts to construct a “perfect” system of duties keep failing and why solutions found to some of the issues created in turn other issues;
- Why were the issues that eventually pushed the Russian Government to abolish export duties as a petroleum market regulation instrument were left without solution in the first place.
- Answering these questions would greatly.

Answering these questions would greatly help understanding why the need for completing the tax manoeuvre arose, to evaluate its merits and demerits, to predict which issues among those brought about by the system of export duties will disappear upon the completion of the tax manoeuvre and which will persist.

January
1992
February
1995

Petroleum Market Development in Russia Stepwise Price Liberalization First Introduction of Export Duties

Premises

- Transition from planned economy to market economy.
- Budget Deficit.
- Lack of well-developed tax system.
- High Inflation.
- A simple, easy to operate and reliable (preferably foreign currency) fiscal instrument is required.

Solution

- In January 1992 export duties on petroleum and petroleum products were introduced.
- The declared goal is protection of Russian petroleum and petroleum product consumers from potential price rise.

- The duty rates are rigid, rarely change, chiefly in line with the price movements in the domestic market.
- The light petroleum product duty rates are higher than the oil duty rates, the mazut duty rates are lower, which corresponds to the prices for these products in the domestic market.

Domestic market and impact of export duties

- During 1992-1993 the state gradually relaxes and eventually lifts the control over the petroleum and petroleum product prices in the domestic market.
- Pipeline export of petroleum outside the former Soviet republics is limited by the transportation capacity, as well as by the decline in the demand for petroleum in the former Warsaw Pact member states that are going through a social and economic transformation. .
- Railway export of standard quality Urals petroleum is unprofitable
For reference: the netback of petroleum export from Nizhnevartovsk to the Euro-Mediterranean region (by rail from Nizhnevartovsk to Novorossiysk, and then by sea) was on average - USD 70/t.
- No possibilities to increase petroleum export and the low demand for it in Russia bring down the production.
- In the absence of an export alternative, the petroleum duty does not affect its price for Russian refineries; the price depends on the production costs.
- Petroleum product export is unprofitable because the high export duties.
- Refineries reduce refining to minimize the supply of petroleum products abroad
- The net margin of oil refining is close to zero and is maintained exclusively by internal Russian prices for AG and AK that are on par with import prices.

Problems

- Export duties on petroleum products have an adverse effect on petroleum refining, which in turn (and together with physical limitations on export) has an adverse effect on petroleum production.
- Duties will not serve to protect Russian consumers of gasoline and aviation kerosene from the price rise up to the marginal levels in the domestic market. .
- Gasoline and aviation kerosene consumers in practice subsidize the diesel fuel and mazut prices reduced on account of export duties.
- The post-soviet economies receiving Russian petroleum and petroleum products at domestic market prices are in practice subsidized in the amounts of duties they are exempt from paying.

Problems solved
in 1995-1999

February
1995
January
1999

Petroleum export liberalization Reduction and abolition of export duties

Premises

- The deplorable economic situation in Russia over the transition period makes it dependent on IMF loans.
- Under the pressure from the IMF, the Russian Government is left with no other choice to pursue the liberalization of the country's foreign economic policies.
- Abolition of export duties is one of the elements of that liberalization and a key requirement for access to IMF loans.

Solution

- Consistent reduction and eventual zeroing of petroleum and petroleum product export duties.
- Duty rates, up until their abolition, were rigid and rarely changed.
- Petroleum product export duty rates do not exceed petroleum export duty rates. .
- In December 1995 all petroleum product export duties were abolished, with the exception of fuel oil the export of which was taxed with export duty until April 1996.
- In July 1996 the petroleum export duty rate was zeroed.
- Abolition of export duties on petroleum and petroleum products is accompanied by a rise in the tax burden on petroleum production via rising excise tax (the royalty tax which was a predecessor of MET).

Domestic market and impact of export duties

- Effectiveness of petroleum export in 1995 and 1996 is growing as petroleum prices in the foreign markets grow and duties drop.
- Logistical limitations on pipeline export of petroleum and economic limitations on railway export persist, that is why in the international markets the petroleum prices continue to be close to the production costs.
- Reduction and subsequent abolition of petroleum product export duties has a favorable impact on the refining margin. In 1997 the average net refining margin becomes notably positive (approx. 2.5 USD/bbl) and the annual petroleum refining production increases for the first time since the collapse of the Soviet Union.
- 1998 was marked by two important events: a collapse of petroleum prices in the international market and a financial crisis breaking out in Russia in August that year.
- The financial crisis involved a devalued ruble which made the decline in the petroleum exporters' revenue less traumatic.
- Refining margins are supported by high petroleum product spreads in the external market.

Results

- With the abolition of export duties, the specific problems of customs and tariff regulation in the oil market disappear. Disappear to reappear.

February
1999
January
2002

Post-Crisis Economy Second Coming of Export Duties

Premises

- Notable budget deficit in the context of an economic recession.
- Petroleum royalties are the Government's practically single-option source of budget replenishment.
- Of the two royalty collection options: via increasing petroleum production taxation (e.g. by raising petroleum excise taxes) or via introduction of export taxes - the latter appears a better choice due to its relative simplicity and not being fraught with inflation risks/

Solution

- The duty system largely simulates the one that existed before their abolition.
- The duty rates are rigid and rarely change (in September 1999 the Government renounced its initial attempt to introduce a formula establishing a direct dependence of the duty rate on the export price of Russian petroleum).
- In 1999 the petroleum product duty rates are equivalent to the oil duty rates, in 2000 all petroleum product duty rates are below the oil duty rate (yet the mazut duty are lower than the light petroleum product duty), in 2001 the light petroleum products duty rates are higher than the petroleum duty rates, the mazut duty rates are lower than the petroleum duty rates.

Domestic market and impact of export duties

- The rise in global petroleum prices that started in 1999 boosts the profitability of its export.
- Pipeline petroleum export is still limited by the transportation capacity.
- Despite the duties being in effect, railway export becomes profitable and begins to grow
For Reference: in 1999-2002, the netback of petroleum export from Nizhnevartovsk to the Euro-Mediterranean region (by rail from Nizhnevartovsk to Novorossiysk, and then by sea) was on average USD 60/t, which is notably higher than the average production costs of USD 44 /t. In 1999 7.6 mln tons of petroleum was exported by rail, in 2000 this figure was 13 mln tons, in 2001 - 18 mln tons.
- Petroleum continues to sell cheaply in the domestic market. Its price is defined by the railway export netback, which, although higher than the production costs, is still way below the pipeline export netback.
For Reference: in 1999-2002, the netback of petroleum export from Nizhnevartovsk to the Euro-Mediterranean region (by rail from Nizhnevartovsk to Novorossiysk, and then by sea) was on average USD 128 /t.
- Average net margin of petroleum refining industry in Russia is positive even when the duty rates on petroleum products rise above the petroleum duty rate.
For Reference: in 1999-2002 the average annual net margin of an average Russian refinery is within the range of 3.8-6.7 USD/bbl.

- Petroleum refinery production is growing, as is petroleum production stimulated by the growing demand for petroleum inside the country and the opening railway export opportunities.

Problems

Problems solved in 2002-2004

- The procedure for changing export duties is highly non-transparent.
- The export duty rates, the ratio of duty rates to petroleum product export duty rates, light petroleum product duty rates and mazut duty rates are virtually unpredictable for the market participants, which significantly complicates their business operations and, particularly, investment activities.

Problems minimized in 2015-2017 but not fully addressed yet

- Subsidies to petroleum product consumers via reduced, on account of export duties, domestic market prices are extended on an indiscriminate and untargeted basis: i.e. subsidies are granted not only to those who really need them, but also to those who can well make it without state support.
- Repeated introduction of petroleum and petroleum product export prices relaunches the subsidy mechanisms in the post-Soviet economies receiving petroleum and petroleum products from Russia at the prices of the Russian market.

February
2002
July
2004

Regulation of taxation in the petroleum sector METR and marginal rates of export duties introduction

Premises

- The process of changes in export duties is not regulated and lacks sufficient formalization.
- The duty dynamics is unpredictable and fully understood by the market participants.
- The tax environment is so vague and ill-defined that this increases the risks with which petroleum business is fraught.
- The procedure for setting export duties requires rationalization and formalization.

Solution

- In February 2002 (after the introduction of METR to replace other royalty taxes in the petroleum sector) the Russian Law On Customs Tariff introduced formulae to calculate the marginal rate of export duty on petroleum.
- The marginal rate value is set in USD/t, depending on the average export price for Urals petroleum over a specified monitoring period. With Urals prices of up to 15 USD/bbl, the rate is 0; but as the Urals prices rise, the rate rises in line with the. Within the Urals price interval btw USD 15 and 25 USD/bbl, the rate is calculated using the formula: $P_{\text{petroleum}} = K_{\text{petroleum}} * 7.3 * (P - 15)$. Where $K_{\text{petroleum}}$ is a coefficient = 35%. P- actual Urals price. With Urals prices of above 25 USD/bbl, the formula $P_{\text{petroleum}} = K_{\text{petroleum}} * 73 * (P - 25) * 2533$. Where $K_{\text{petroleum}}$ is a ratio = 40%.
- In 2002 the duty rates on light petroleum products were significantly higher than the petroleum duty rates (the year's average - almost 1.5); the average mazut duty rate was approximately 90% of the petroleum duty rate. .
- Since January 2003 the RF law On Customs Tariff sets a marginal rate of the export duty on petroleum products at 90% of the petroleum export duty rate.

Domestic market and impact of export duties

- Up until the spring of 2004 the most efficient of all types of petroleum export transportation - pipeline export - was limited by the TransNeft pipeline capacities, despite the commissioning of the first stage of the Baltic Pipeline System.
- All this time the petroleum prices in the domestic market kept on a par with those offered by the railway transportation option.
- The high (and even very high in 2002) petroleum product duty rates, as compared to the petroleum duty rate, adversely impacted the refining margin right until 2003. Despite this, refineries generate profit due to the relatively low price of crude oil and to high petroleum product spreads in the foreign market.
- In March 2004 the Baltic Pipeline System capacity reached 42 mln tons a year. Petroleum exports grew in line with that.
- Production growth cannot keep pace with new export opportunities; petroleum supply in the free market is declining. Petroleum prices are rising, and the refining marginality is declining. The prospects of further petroleum price rise up to the pipeline export netbacks do not bode anything good for the petroleum refining industry, as it is nearing the risk of loss making.

Problems

Problems solved in 2004-2011

- Rising crude oil prices, combined with high petroleum product duties, create a risk of stunted growth or even decline in petroleum refinery production and, as a result, a risk of petroleum products price rise in the domestic market.

For Reference: refinery production grew continuously in Russia since 1999: whereas the 1998 refinery production was 163.7 mln tons of crude oil, by 2004 this figure was 194.9 mln tons.

- The situation is particularly complicated in the market of mazut. Its production exceeds the domestic demand (by a factor of 2.7 in 2004.), while the export of mazut results in refineries incurring losses. This product is basically 'locked' inside the country, and the market overstocking creates a risk of refinery disposal and resulting shortage, at least, in the gasoline market.

August
2004
January
2011

Petroleum export duties system stabilization Golden Age of Russian petroleum refining industry

Premises

- What is required is to neutralize the risks of decline in petroleum refinery production below the level required to provide for the domestic market needs for gasoline. .
- To that end, the petroleum refining marginality needs to be boosted, and the risks of refinery production stalling as a result of possible loss-making export of mazut need to be ruled out.

Solution

- Since August 1, 2004 the formulae for calculation of the marginal rates of petroleum export duties have been adjusted. Instead of three Urals price intervals with different Kpetroleum values, four were introduced (up to 15, btw 15 and 20, btw 20 and 25, and over 25 USD/bbl).
- What is crucial here is the rise in the export duties at Urals prices of over 25 USD/bbl: it is now calculated using the formula $P_{\text{petroleum}} = K_{\text{petroleum}} * 7.3 * (T_s - 25) + 29.2$. Where $K_{\text{petroleum}} = 65\%$.
- Simultaneously, the government stops scaling up the export duty rates on petroleum products up to the 90% of the petroleum duty rate.
- The procedure for calculating the marginal rates of export duties on petroleum products was finally formalized in early 2005. With Urals petroleum prices of up to 15 USD/bbl duties are not charged, and with prices higher than that threshold the duties grow in proportion to the growth in prices.
- In the period under review, the ratio of average annual rates of duties for light products.

Domestic market and impact of export duties

- Enhancing of the transportation capacity of the Baltic Pipeline System in 2004-2006 up to 74 mln tons of oil a year definitively solves the problem of lack of pipeline capacities for petroleum export.
- Petroleum prices in Russia rise to become on par with the pipeline export alternative.
- As a result of petroleum price rise in the global market, the duty subsidy received by Russian refineries also grows. The subsidy depends on the differences between petroleum duties and petroleum product duties which increase along with the petroleum price rise.

For Reference: btw 2004 and 2010 the average annual Urals price rises by a factor of 2.5 (from 31.9 to 78.1 USD/bbl), while the subsidy to the refining industry rises by a factor of 7 (from 2.4 to 16.9 USD/bbl).

- Refining margin growth stimulates capacity growth.

For reference: if in 2004 the Russian oil refineries were able to process 2,633 million tons of oil per year, in 2010 the figure was as high as 263.5 million tons per year.

Problems

Problem mitigated in 2015-2017, but not solved to date

- Selected by the regulator in 2002, the obvious linear form of the dependencies of the export duty rates for oil and petroleum on the Urals prices has a serious organic disadvantage. The regulatory dependencies of export duty rates on the oil price are such that the duty subsidies to refineries automatically increase as Urals prices rise and decrease as they fall. The system of export duties formed within the framework of the "linear paradigm", by its very nature, does not allow optimizing the duty subsidy for oil refining in a fairly wide range of Urals prices.

Attempts to address the problems in 2011-2017. No solution found yet

- With the current pricing, the duty subsidies for the Russian oil refining are excessive and inefficient. Russian refineries keep more oil rent than it is necessary for reasonable margins. The subsidies are so large that they allow domestic refineries to compete in the European market with local refineries, despite technological backwardness and a less valuable package of petroleum products. To add, without the subsidies most Russian refineries would be in the red.

*Problem solved in 2011-2013
Attempts to address the problems in 2011-2017.
No solution found yet*

- The export duty system suppresses oil refining modernization. Low duties on fuel oil in comparison with the duties on light petroleum products make its production extremely profitable while refining development projects do not pay off.
- The observed growth of the processing capacity is unhealthy: the number of small and large refineries with simple refining that survive only due to a tax subsidy is growing. They generate negative value added value, damaging the country's economy, and are generally not capable of growing.

February
2011
December
2013

The “60-66” reform and its transformation into “60-66-90”

Premises

- Russian oil refining gets too high rental subsidies through the difference in export duties on oil and petroleum products. The subsidy allows even refineries with simple refining, existing solely due to duty subsidies and being of no value to the country's economy, to generate a margin comparable to the margins of the most technologically advanced European refineries.
- The export duty system actually discourages refinery modernization, because thanks to it, the production of fuel oil is subsidized to a greater extent than the production of high-quality fuels.

Solution

- The concept of the “60-66” reform is being developed:
 - To increase the efficiency of the oil rents remaining in the industry by reducing the rent charged from petroleum production in favour of refining;
 - To minimize the duty subsidies to refining to a level sufficient to ensure a positive margin only for the group of the most efficient refineries, which are capable of meeting the needs of the domestic market for the main fuels. Oil refineries with the least valuable packages of petroleum products (export-oriented and those with simple refining) are to be put under conditions where they cannot generate profit,
 - To reduce the scope of oil refining, thereby increasing its exports. To compensate for the losses of the federal budget from the reduction of export duties on oil by increasing its exports;
 - To create incentives for investment in deeper oil refining and the production of high-quality fuels by reducing the rates of duties on light petroleum products and raising the rates for fuel oil to their level.
- Technically, the “60-66” reform implies a gradual reduction in the rate of oil duty (by reducing the Kneft ratio from 65 to 60%) and levelling duty rates for all petroleum products at the level of 66% of the oil duty rate. For duties on light petroleum products, such an adjustment means a slight fall, while for fuel oil it means a significant growth. Dependencies of export duty rates on the Urals price do not change - only the ratios in these dependencies are adjusted. According to reform authors, the reform achieves its goals at Urals prices of about 60-70 dollars per barrel.
- The first step in changing the duties starts on February 1, 2011.
- The so-called “gasoline crisis” that erupted in early 2011 (a rise in prices for gasoline and its shortage in some regions of Russia) makes adjustments to the reform process. In order to restrain the rise in prices for gasoline and saturate the market with fuel, from 1 May 2011 the duty rate for gasoline rises to 90% of the oil duty rate. And from 1 June 2011, the duty rate on naphtha rises to the same level in order to prevent the mass substitution of standard fuel with the surrogate one (based on the mixing of naphtha with octane-increasing additives)
- From 1 October 2011, the new duty system takes on a final look. The so-called “60-66-90”: all duty rates take the planned values, except for the rates of duties on gasoline and naphtha, which are fixed at the level of 90% of the oil duty rate.

Domestic market and impact of export duties

- The “60-66-90” reform does not have a noticeable effect on the petroleum products market in Russia. Oil prices in 2011-2013 rise significantly above the level assumed by the reformers (the average annual price of Urals in this period was about \$ 110 per barrel). The surge in oil prices does not allow the refinery duty subsidy to fall: in the pre-reform 2010 and in the post-reform 2012, it averaged 16.9 USD per barrel a year. Reducing the subsidy in 2013 is insignificant - down \$ 1.5 per barrel only.
- With such a scale of subsidies, the “golden age” of oil refining in Russia continues. The volume of oil refining in 2013 compared to 2010 increases by 11% (from 249.3 to 277 million tons). The capacity of primary refining facilities goes up 9% (from 273.9 to 299.1 million tons). Refineries, which the reformers intended to withdraw from the market, continue to generate profits.

- The Russian government actually admits that the country's system of tax and customs tariff regulation for the oil market does not create sufficient incentives to modernize oil refining. In October 2011, the government (represented by the FAS, Rostekhnadzor and Rosstandart) concludes with refinery owners a so-called "quadrilateral agreement", obliging the latter to modernize their facilities and guarantee demand for petroleum products in the domestic market

Problems

Attempts to address problems in 2014-2017. No solution found.

- Failure to optimize the duty-related subsidy and the volume of oil refining in Russia. All "bad" refining is undergoing reform without serious consequences.

Problems solved 2015-2017

- The reform does not achieve its goals, since it only reduces the duty subsidies for oil refining at a fixed price for Urals, but does not cancel the positive dependence of the subsidy on the price of oil.
- The incentives to modernize the refineries are partly undermined by high duties on gasoline. The most vulnerable are the projects of catalytic cracking plant construction.

January
2014
December
2014

Small tax manoeuvre

Premises

- Petroleum price growth increases the amount of petroleum royalties received by the country. In this situation the existing taxation and customs tariff regulation system prevents the government from adequately (as it sees fit in this case) raising the petroleum royalty revenue into the federal budget. At least, the petroleum refining industry and petroleum product consumers receive duty-related subsidies which, it appears, could be rather smoothly curtailed to the benefit of the state.
- The petroleum refining industry undergoes a slow upgrading, for lack of incentives other than the quadripartite agreements. Simple refining thrives continuing to harm the country's economy and supply surrogate fuels to the domestic market.

Solution

- The reform was originally designed for 3 years: from 2014 to 2016.
- The first component of the tax manoeuvre is a gradual reduction in the scope of oil export duties (through lower Kneft - from 60% to 55%), while simultaneously increasing the base MET rate.
- The second component is a lower duty rate on middle-distillate (gasoil) fuels - from 66 to 61% of the oil duty rate, while the rates on other light petroleum products remain unchanged.
- The third component is an increase in the duty rate on fuel oil to the 2015 level as early as in 2015. A rapid and radical increase in the duty for fuel oil is designed to stimulate the modernization or closure of refineries with a low refining depth.
- The reform as a whole is clearly fiscal. Its parameters are chosen in such a way as to ensure the redistribution of oil rent in favour of the state - mainly by reducing the duty-related subsidies to consumers of petroleum products.
- Petroleum production and oil refining also send to the federal budget a part of the rent they keep, although a relatively small one: oil production gets a heavier tax burden, while oil refining is deprived of a part of the duty subsidy.
- The reform was suspended in 2015 and replaced by a big tax maneuver.

Domestic market and impact of export duties

- The small tax manoeuvre in the first and last year of its holding had no effect on the market, since changes in export duties in 2014 compared with the 60-66-90 regime in force in 2013 are minimal.

Problems

Problems minimized in 2015-2017. No solution found yet
Problems solved in 2015-2017

- The reform does not affect the essence of the duty-based subsidies for oil refining and consumers, but only reduces the amount of subsidies and changes the proportions in the distribution of subsidies among the beneficiaries. Risks of refineries losing margins at lower oil prices and, on the contrary, risks of extra subsidies to refining are maintained when oil prices rise.
- The oversized duty rate for gasoline remains, which reduces the efficiency of investments in the development of oil refining in order to increase gasoline production.

January
2015
December
2017

Big tax manoeuvre

Premises

- Need for a reform that would open a way for:
 - increasing royalty revenue into the federal budget;
 - improving the tax conditions in terms of enhancing incentives for refinery upgrade;
 - minimizing potential losses of the federal budget due to the merging of petroleum and petroleum product markets within the Eurasian Economic Union.

Solution

- The reform is designed for 2015 to 2017 and implies a gradual (but stronger than for the small tax manoeuvre) reduction of export duties on oil and light petroleum products, while simultaneously increasing duties on dark ones.
- The Kneft ratio in the formula for calculating the marginal rate of oil duty is reduced to 30%. Duty rates for all light petroleum products, excluding naphtha, but including gasoline, previously taxed at too high a duty (90 %), are reduced to 30% of the oil duty rate. For naphtha, the target rate is 55%. The duty rate for dark petroleum products rises to 100% of the oil duty rate, though not in 2015, as in the small tax manoeuvre, but in 2017.
- The fall in state budget revenues due to a fall in the oil export duty is partially offset by a simultaneous rise in the base MET rate.
- The big tax manoeuvre increases, if compared to the small one, withdrawals of duty-related subsidies from consumers. To weaken the negative effect of rising prices due to lower export duties on light petroleum products, changes are made to the excise system. Excise taxes on motor fuels are reduced synchronously with duties; and for consumers of naphtha in the petrochemical industry and for consumers of jet fuels in Russian civil aviation, a mechanism of "return excise taxes" is introduced.

Domestic market and impact of export duties

- The effect of tax reform is blurred by the fall in oil prices on the global market, which began at the end of 2014. The reform was developed in the expectation that Urals prices would remain at about \$ 100 per barrel, whereas the average monthly price for Urals in 2015-2017 fell below 55 dollars per barrel.
- As a result, the refining subsidy slumps dramatically, much lower than expected by the reformers. If in 2014 it averaged 115 USD/ton, in 2015 - only 595 USD/ton.
- The fall in refining marginality leads to a reduction in its volumes from 290.8 million tons in 2014 to 283.4 million tons in 2015. But then the annual refining volume stabilizes at the level of 280 million tons.
- Simple refining demonstrates stability despite both the "deadly" increase in the duty on fuel oil and the unfavourable dynamics of oil prices.
- A significant reduction in the duty on all light petroleum products and an increase in the duty on dark petroleum products relative to the duty on light oil ones boosts the incentives to modernize the refinery.

Problems

- The duty-related subsidies to refineries are declining, but they are still unconditional and unaddressed. A reflection of this problem is the preservation of "bad" refineries with simple refining - they find opportunities to remain on the market without worrying about modernization.
- The dependence of the duty-based subsidies to refinery on oil prices, although significantly weakened, remains.
- Consumer subsidies continue to be almost unconditional and devoid of targeting (although elements of targeting manifest themselves in additional subsidies to consumers of gasoline and diesel fuel, as well as those of petrochemicals and Russian airlines).
- The problem of subsidizing the economies of the post-Soviet countries (mostly EEC ones) that have an opportunity to import petroleum and petroleum products from Russia at intra-Russian prices is still not fully resolved although the scale of the problem is deflating.

To sum up this brief background review, we will list the key issues created by the system of export duties which remain unresolved as of the start of the tax manoeuvre completion:

- Duty-related subsidies to refineries are granted on an inherently indiscriminate basis, meaning that state support is received by both profit-making refineries that do not require it and by loss-making ones, and at that, for the latter eligibility for state support does not entail commitments, nor is dependent on any conditions. For example, some of the refineries receiving subsidies have no prospects of development and are of no value to the economy. If subsidizing petroleum refining is accepted as necessary (and currently without it the domestic petroleum product market will not be fully provided with domestic products), then amending the subsidy mechanism should also be deemed necessary. Yet an appropriate mechanism will be hard to find unless solutions are found to a number of issues hitherto unresolved:
 - What refinery production capacity should be deemed optimal for Russia and will the support mechanism be helpful in making the petroleum refining industry keep to that level;
 - How can outdated, non-upgradable refineries that were launched after 2004 be forced out of the market – something that has been sought for the past 7 years;
 - What scope of refinery upgrading should be seen as optimal and could such be achieved through granting subsidies;
 - Should the subsidy only be extended to refineries for a limited period;
 - What should the subsidy amount depend on and should it depend on the current petroleum prices or not.
- Subsidies to Russian consumers are also granted on a predominantly indiscriminate basis. A more targeted approach is required in this area.
- The state proves unable to control the aid it provides to friendly countries who basically receive it in the form of duty-free petroleum and petroleum product supplies from Russia – under an agreed scope of supplies, the higher the petroleum prices, the larger the assistance.

3. COMPLETION OF THE TAX MANOEUVRE IN THE PETROLEUM INDUSTRY: THE GIST OF THE REFORM AND ITS IMPLICATIONS

3.1. Key parameters of the reform

The key feature of the tax manoeuvre completion in the petroleum industry is complete, albeit gradual (scheduled for the period from 2019 till 2024), elimination of the system of export duties on petroleum and petroleum products.

Amendments to the Russian law On Customs Tariff taking effect on January 1, 2019 are intended to introduce a gradual reduction of the marginal rate of the export customs duty on crude oil down to zero using a special adjustment coefficient (K_{corr}). This coefficient acts as a multiplier for the marginal rate of the petroleum duty established in compliance with the 2018 regulations. The size of the coefficient depends on a particular year and would be the following: 0.833 in 2019, 0.667 in 2020, 0.5 in 2021, 0.333 in 2022, 0.167 in 2023, and 0 in 2024. The annual dynamics of the marginal petroleum duty rate is therefore defined by the adjustment coefficient dynamics.

The formulae used to calculate the marginal rates of export duties on petroleum products in 2019-2024 will remain unchanged compared with 2018: the duty rate per product will be calculated by multiplying the marginal rate of the petroleum export duty by K_{prod} . The K_{prod} values for the entire spectrum of petroleum products will remain as of January-July 2018 (see Table 1.1 in Section 1).

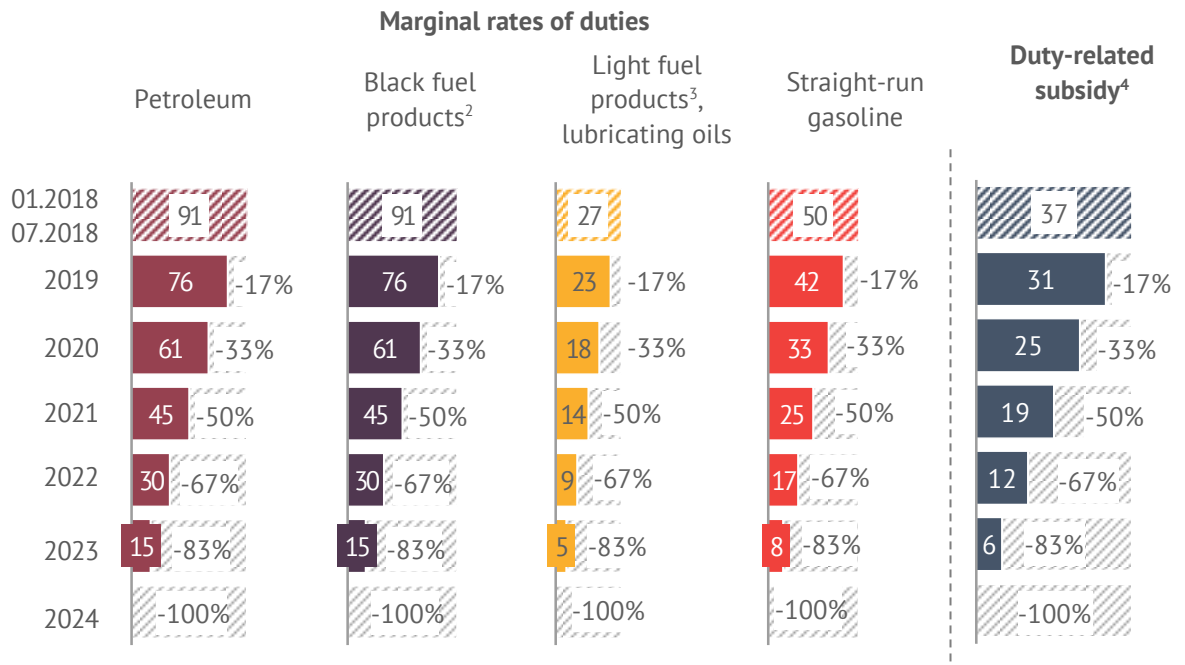
This means that marginal export duty rates on petroleum products and, consequently, the duty-related subsidy amount received by the petroleum refining industry per ton of processed raw materials will go down at the same rate as the marginal export duty rates on petroleum, simultaneously reaching zero in 2024 (see Diagram 3.1).

The second component of the tax manoeuvre is represented by amendments to Part II of the RF Tax Code taking effect on January 1, 2019. These amendments will, for example, affect the METR formula which will have an extra summand introduced starting January 1, 2019. This summand will serve to increase the MET amount by the difference between petroleum export prices in 2018 and during the current tax period, i.e. whatever is saved by refineries as a result of reductions in the export duty will be included into the METR.

Diagram 3.1

Marginal rates of export duty on petroleum and petroleum products and the duty-related subsidy amount to refineries per 1 ton of petroleum in 2018 and during the completion of the tax manoeuvre at average annual nominal Urals prices as of 2017¹, USD/t

Source: Petromarket Research Group



1. 53.1 USD/bbl

2. Mazut, bitumen, vacuum gas oil, processed petroleum oils, paraffin, vaseline.

3. Light and middle distillates (exc. straight-run gasoline), benzene, toluene, xylene.

4. Subsidy to an average Russian refinery in 2017

What is important to note is that the tax manoeuvre proves to have no impact on the economics of oil producing enterprises: their tax burden on petroleum export (MET + export duties) remains unchanged, and as far as petroleum supplies to the domestic market are concerned the rise in METR is fully compensated for by the equivalent rise in prices.

The neutral impact of the tax manoeuvre on the petroleum production industry means that the amount collected in royalties remains unchanged. That said, year after year the tax manoeuvre reduces the size of the royalty subsidy received by the petroleum refining industry (via the difference between the export duty on petroleum and that on petroleum products) and by petroleum product consumers (via reduced prices). The percentage of royalty thus saved that would have been due to refineries and consumers now goes to the state. In 2024 all royalties will go to benefit the state.

Under the tax manoeuvre the gradual redirection of the total royalties into the federal budget will go hand in hand with selective compensation by the state of losses incurred by Russian refineries and Russian petroleum product consumers as a result of abolition of duty-related subsidies. This compensation will take the form of offsets on petroleum excise taxes extended to those petroleum refineries that meet the stipulated criteria and

of offsets on petroleum excise taxes extended to specific categories of consumers, i.e. not indiscriminately.

The crucial innovation into the current version of the Tax Code is the introduction of an excise tax on petroleum with *Apetroleumt* rate, calculated as rubles per ton, using the following formula:

$$A_{petroleumt} = SCS_t \times Exchange\ Rate \times Kreg^7,$$

where *SCSt* is the difference between the duty-related subsidy for the year *t* calculated in compliance with the 2018 regulations and the duty-related subsidy for the year *t* calculated in compliance with the year *t* regulations; *Exchange Rate* is the average for the tax period dollar to ruble exchange rate established by the Central Bank of Russia; *Kreg* is a coefficient used to define the features specific to that regional market of petroleum products which is the target market for a refinery paying the excise tax. The *Kreg* values for selected regions of Russia and a list of major refineries in those respective regions are provided in Table 3.1.

Table 3.1

Kreg values for selected regions of Russia

Source: Petromarket Research Group, based on Federal law 301-FZ On Amending Part II of the RF Tax Code, dated 03.08.2018

Region	Major refineries in the region	<i>Kreg</i> value
Republic of Khakassia and Krasnoyarsk Territory	Achinsk Refinery	1.5
Republic of Tuva and Irkutsk region	Angarsk Petrochemical Company	1.4
Yamalo-Nenets Autonomous District, Komi Republic, Nenets Autonomous District, Republic of Sakha (Yakutia), Buryat Republic	UkhtaNeftePererabotka	1.3
Tyumen, Novosibirsk and Tomsk regions, Zabaikalsky Territory	Antipinsky Refinery	1.1
Omsk region, Altai Territory, Republic of Altai	Omsk Refinery	1.05
Other RF subjects		1.0

The mechanism of subsidy support received by petroleum refineries will consist in granting an offset in the amount equivalent to double excise tax charged using the above rate on the total processed raw materials. As a result, refineries will not only get excise tax refund, but will also be refunded for the entire amount of the duty-related subsidy *t* that they no longer receive multiplied by *Kreg* coefficient. In other words, the refineries whose *Kreg* = 1 will be able to keep the subsidy pegged at the level calculated in compliance with the 2018 rules, and the rest will be eligible for

⁷ This formula for calculating the excise tax rate is true for Urals prices above 25 USD/bbl. At prices below that level the *Apetroleumt* value is calculated using the formula: $A_{petroleumt} = 20 \times Exchange\ Rate \times Kcorr$.

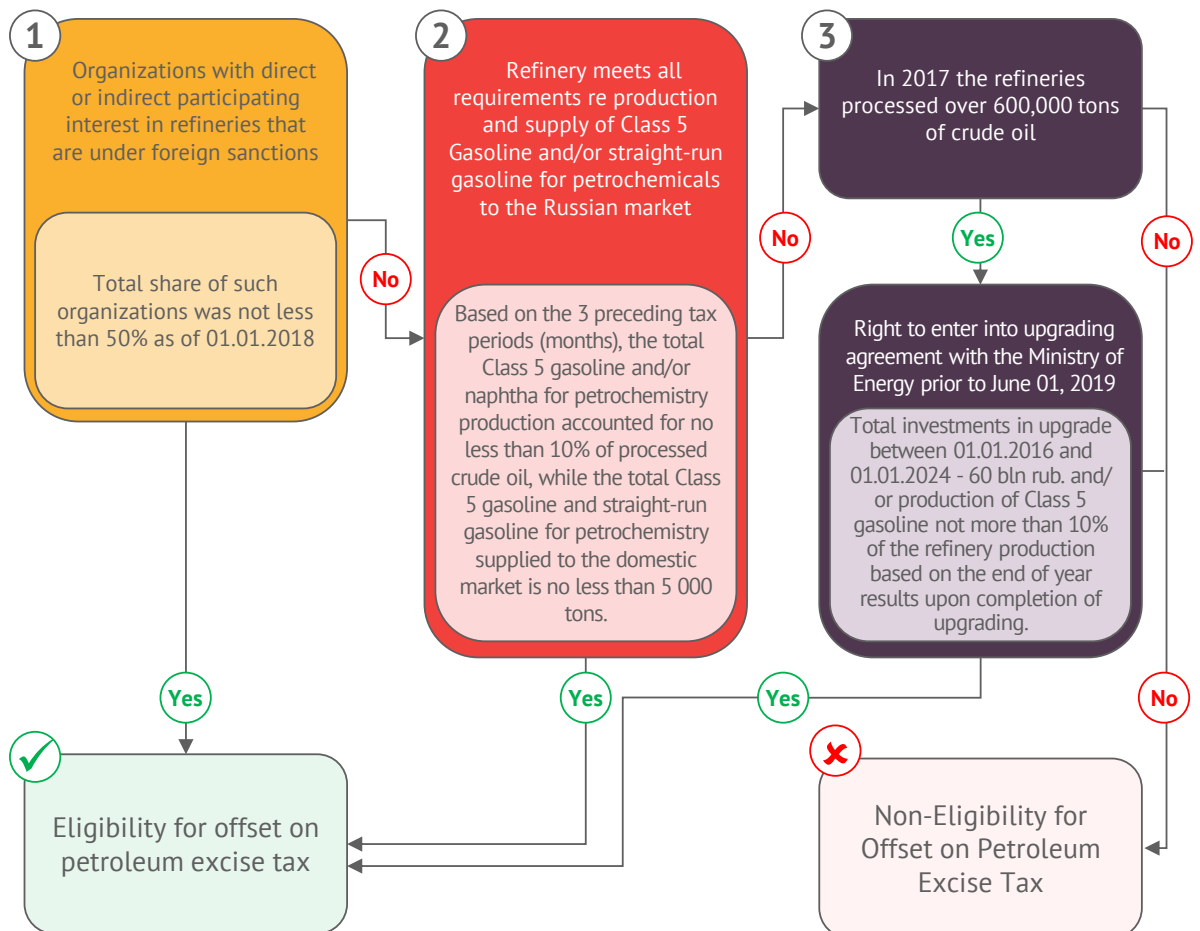
this subsidy with the multiplying coefficient *Kreg*. This is basically a different form of that same royalty subsidy to the petroleum refining industry.

What is also important to remember is that not all refineries will be eligible for this tax offset but only those meeting a specified list of requirements (see Diagram 3.2).

Diagram 3.2

How to become eligible for offsets on petroleum excise tax under the completion of the tax manoeuvre

Source: Petromarket Research Group, based on Federal law 301-FZ On Amending Part II of the RF Tax Code, dated 03.08.2018



Under Federal Law 301-FZ On Amending Part II of the RF Tax Code, dated 03.08.2018, a refinery eligible for tax offset on petroleum excise tax will be also eligible for supplemental tax offset – a so-called “offsetting markup” – provided average wholesale prices for gasoline AI-92 and diesel fuel across the country are no more than 10% in excess of certain specified target price levels.

The “offsetting markup” per ton of Grade 5 gasoline or diesel fuel supplied to the domestic market is defined as a percentage of the difference between the average for the tax period export price and the domestic market reference price for Grade 5 gasoline AI-92 (or between the export and the reference prices for Grade 5 diesel fuel respectively).

The offsetting markup mechanism and how it works will be described in greater detail in Sub-Section 4.3. Here we will merely do what is most important now, namely, specify the purpose of introducing such mechanism. And that consists in preventing motor fuels price rise in the domestic market in excess of the thresholds provided for by the law – regardless of the reasons behind such price rise. The state basically undertakes to compensate refineries for losses that they are going to incur as a result of selling gasoline and diesel fuel in the domestic market at prices below export parity prices while keeping to the target set by the government of no more than 10%.

Despite refineries being the recipients of such supplemental tax offsets, the beneficiaries of this mechanism are Russian motor fuels consumers who are supported by the state through reduced prices, while refiners do not in any way benefit from the supplemental tax offset.

As far as subsidies to petroleum product consumers via the tax offset mechanism goes, the tax manoeuvre brought no novelties compared to how this mechanism currently functions (see Section 1). Only excise tax rates will change: on naphtha (from the current 13,100 RUB/t to 17,965 RUB/t in 2024) and on benzene, orthoxylene and paraxylene (from the current 2,800 RUB/t to 3,574 RUB/t in 2024), and consumers of black bunker fuel will join the other categories of consumers eligible for subsidies. These will be eligible for a subsidy in the amount of 1,000 rubles per ton of fuel purchased starting 2022.

3.2. Why the state does not abolish export duties without compensation and with no delay?

Why the completion of the tax manoeuvre, the purpose of which is apparently to abolish export duties on oil and petroleum products, cannot do without compensating the refineries for their losses due to the loss of duty subsidies, without offsetting the rise in prices for motor fuels and without increasing support for the most vulnerable groups of consumers through the mechanism of tax deductions? Maybe it would be enough just to “transfer” the export duties on oil to the mineral extraction tax and stop levying duties on deliveries of crude oil and its products to the foreign market? Why did it take to spread the reform for the whole 6 years? Wouldn't it be worth holding it in 1 year to get rid of the insufficiently effective system of export duties and concentrate all oil rent in the hands of the state without any delay? Let us try to figure it out.

As was noted above, the tax manoeuvre discussed herein is to be completed in 2024. To begin with, we should get an idea of how the allocation of petroleum royalties between the recipients would look with this deadline in mind under two scenarios:

- if the tax conditions of 2017-2018 remained unchanged;

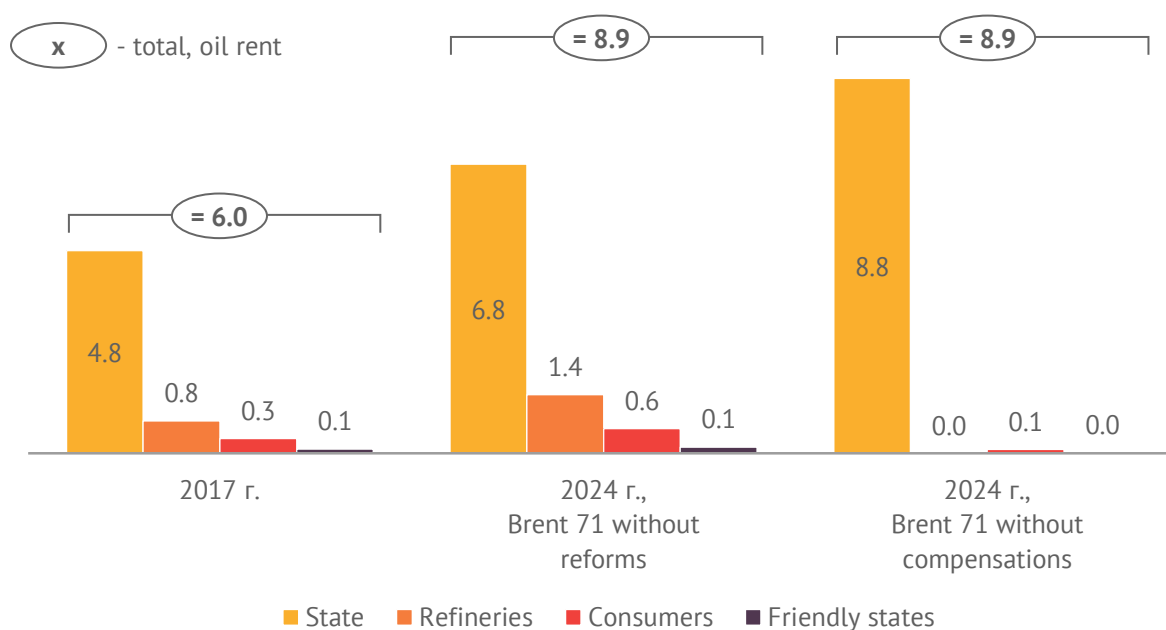
- if the tax manoeuvre was carried out without compensatory measures.

Diagram 3.3 shows the actual allocation of petroleum royalties among the recipients in 2017, with the average annual price of Brent oil at USD 54 per barrel and the forecasted royalty allocation in 2024, assuming that by that time the average annual cost of Brent in 2017 dollars will be USD 71 per barrel (the Brent price hypothesis is part of the broader scenarios within which the calculations were made - see the basic parameters of the Brent 71 scenario, Appendix A). The royalty allocation forecast for 2024 contained two options. Under the first option (Brent 71 without reforms) the royalty would be allocated under the tax conditions of 2017-2018; the second option (Brent 71 without compensation) shows the hypothetical situation if the tax reform was carried out without compensating subsidies for the petroleum refining industry and additional consumer support.

Diagram 3.3

Actual (2017) and forecasted (2024) allocation of petroleum royalties, RUB trillion, in 2017 dollars

Source: Petromarket Research Groups



It is easy to see that the Brent 71 without reforms option reproduces the pattern of the 2017 petroleum royalty allocation, adjusted for the increase in royalty due to the rise in global petroleum prices. The Brent 71 without compensations option gives us a completely different picture: the state appropriates almost the entire amount of royalties reducing to a minimum support to petrochemical enterprises and aviation companies through tax deductions on excise taxes (at the level of 2017-2018), as well as to LPG consumers whose market is not affected by the reform.

Seemingly, the Brent 71 without compensations option is perfect for the interests of state - it becomes the sole holder of petroleum royalties, while

having no special obligations to the petroleum market participants. However, things are not so simple if you remember the role that petroleum royalties play for their current recipients - refineries and consumers of petroleum products. As will be shown below, the abolition of petroleum export duties without compensation entails a number of negative consequences which the state seeks to avoid.

First of all, it is necessary to figure out how the abolition of export duties would affect the Russian petroleum refining industry in 2024 if the loss of the duty subsidy was in no way not compensated. To estimate the potential effect of such operation, a series of predictive calculations were performed the results of which can be seen in Diagram 3.4 in the form of marginality curves of the Russian petroleum refining industry. The calculations were carried out using the MRPPM integrated model of the Russian petroleum products market⁸ (see the description of the integrated model, Appendix B) under the Brent 71 scenario and assuming that all refinery upgrading programs that can be considered relevant as of the beginning of 2018 (see Insert 1. The Refinery Upgrading Programs) will be fully implemented – both in terms of the planned scope and within the planned period.

The first thing to note in Diagram 3.4 is that the forecast marginality curve of Russian refineries in 2024 under the tax conditions of 2017 noticeably shifted upwards relative to the actual curve of 2017. This means that while maintaining the tax conditions of 2017 in 2024, i.e. maintaining the current volume of duty subsidies, there is an increase in refinery marginality. The improvement in the petroleum refining economy in 2024 is partly due to higher oil prices in comparison with 2017, but, to a greater extent, to the upgrading of refineries and their technological improvement.

But petroleum refining upgrading on a scale that is currently supported by actual programs is not sufficient for all Russian refineries to be able to generate a positive margin without a duty subsidy in 2024.

On the contrary, most refineries, having lost the subsidy, would prove to be loss-making (see the curve “2024, under 2017 tax conditions, without duty subsidy” in Diagram 3.4). In this regard, the situation of 2024 does not qualitatively differ from the situation of 2017 discussed in Section 1 (Diagram 1.3), although the annual break-even refining increases from 61 million tons to 145 million tons. This volume is not sufficient to fully meet the domestic market’s need for petroleum products

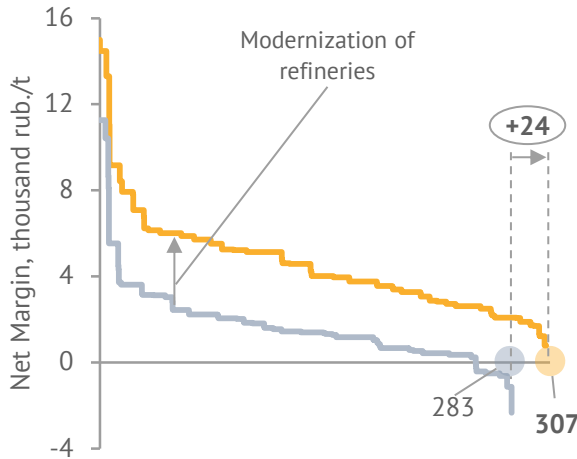
⁸ *Original development of Petromarket RG.*

Diagram 3.4

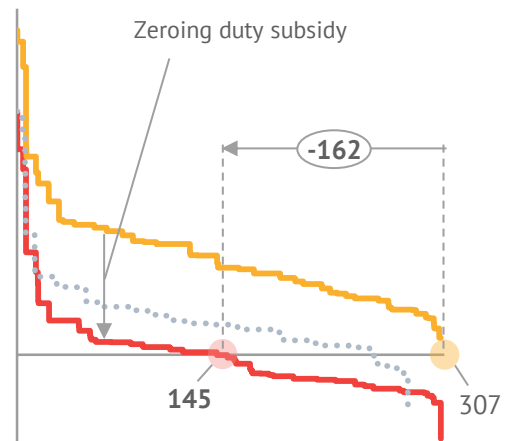
The impact of duty abolition without compensation on the marginality of Russian refineries (in 2017 dollars) and the volume of raw materials refined in 2024

Source: Petromarket Research Group

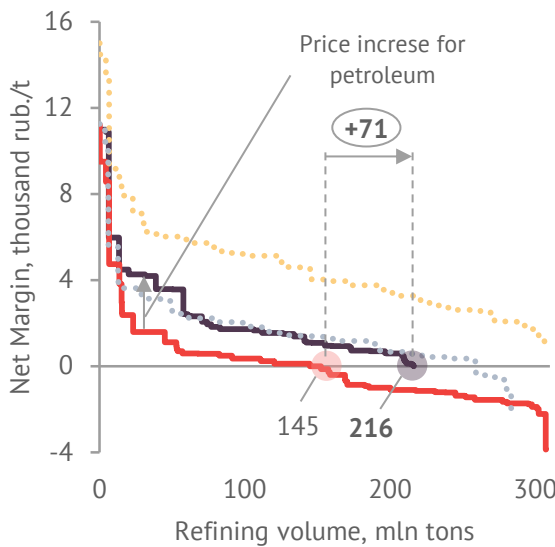
1 Initial equilibrium: if the duties are kept at the level of 2017, then the upgrade of refineries will help increase refining by 24 million tons compared with 2017



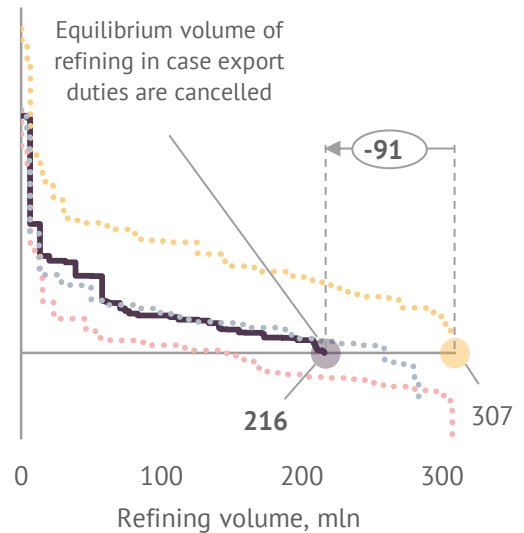
2 But despite the upgrading, 162 million tons will be processed with losses compensated by duty subsidies



3 If duties are abolished, refineries will raise prices on products in the domestic market to compensate for losses.



4 New equilibrium: after the duties are abolished, the volume of petroleum refining will decrease by 91 million tons compared to the 2017 level.



- 2024 r., tax reform without compensations
- 2024 r., tax conditions of 2017, without duty-related subsidy
- 2024 r., tax conditions of 2017
- 2017 r.

Insert 1. The Refinery Upgrading Programs

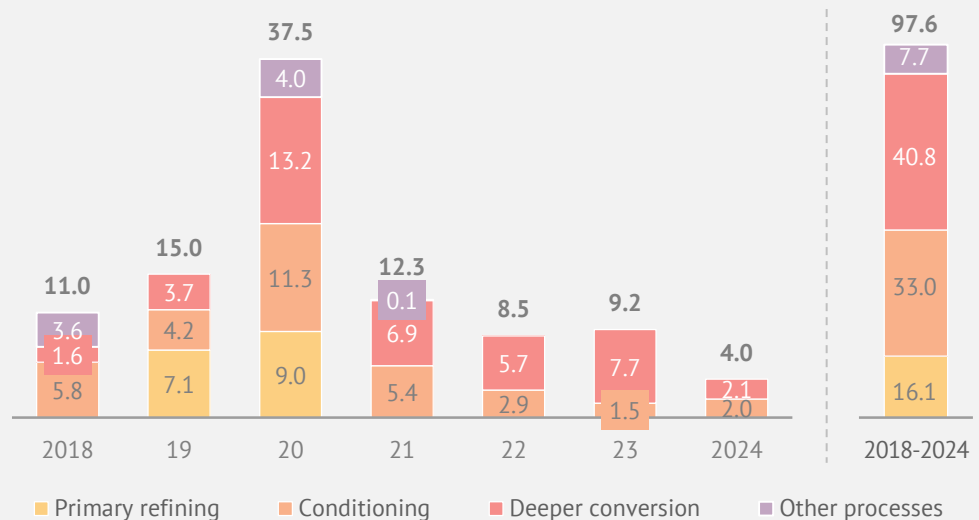
This analysis uses data about refinery upgrading programs received by Petromarket Research Group from official and corporate sources. Data relevance: as of January 1, 2018. The calculations took into account the commissioning of process units planned for the period up to 2023 inclusive, on the assumption that the commercial operation of each new unit begins in the year following the year of scheduled commissioning.

The total capacity of the primary refining units and conditioning and deeper conversion processes the commercial operation of which should begin in the period from 2018 to 2024 inclusively is shown in Diagram a.1.

Diagram a.1

The expected increase in the capacity of primary and secondary oil refining (according to the years of industrial operation beginning), 2018-2024, million tons per year

Source: Petromarket Research Group



Deeper conversion processes: catalytic cracking, hydrocracking, and coking. Conditioning processes are processes that improve the quality of petroleum products: catalytic reforming, isomerization, alkylation, and hydrotreating. Other processes: vacuum distillation, visbreaking oxygenate production.

How can the supply of petroleum products be balanced with the demand for them from Russian consumers without subsidizing petroleum refining? Only through a rise in prices for petroleum products in the domestic market (increase in premiums to export netbacks). Rising prices will have a positive effect on refining margins and increase the number of refineries in the break-even zone. The prices of petroleum products and the number of profit-making refineries will grow until the quantity of break-even refined petroleum is sufficient to meet the domestic demand for petroleum products. Or until prices reach import parity opening the way for product supply from abroad.⁹ The key product in this regard is gasoline. To meet the demand for

⁹ The rise in prices in the domestic market of petroleum products is limited by the imported alternative. If the volume of oil that Russian refineries can process with a profit when prices for petroleum products are at the level of the imported alternative is insufficient to provide the domestic market with petroleum products, then the deficit will be covered by imports.

it, more petroleum needs to be refined than to meet the demand for other petroleum products.

As shown by calculations, if you simply abolish export duties on petroleum and petroleum products without compensating the refining industry for the lost duty subsidies, then under the Brent 71 scenario the market equilibrium in 2024 is achieved at the amount of petroleum refined standing at 216 million tons (see the curve «2024: tax reform without compensations» in Diagram 3.4), which is more than 90 million tons below the 2017 level (-23% to the level of 2017).

It should be noted that the assumption above, to the effect that all the refinery upgrading programs in the period of 2019-2024 will be fully implemented, in case the 6-year-long tax reform not providing for compensating the petroleum refining industry for the gradual reduction and eventual abolition of the duty subsidies is implemented, is extremely optimistic. In fact, a sensitive reduction in cash flow may put into question the feasibility of implementing a number of refinery development projects.

Diagram 3.5 shows an assessment of the scope of refinery development projects with and without payback in the context of reforming the system of export duties without compensation (the principles for estimating the payback of refinery upgrading programs are summarized in the insert of the same title below).

Insert 2. Principles for assessing the payback of refinery upgrading programs

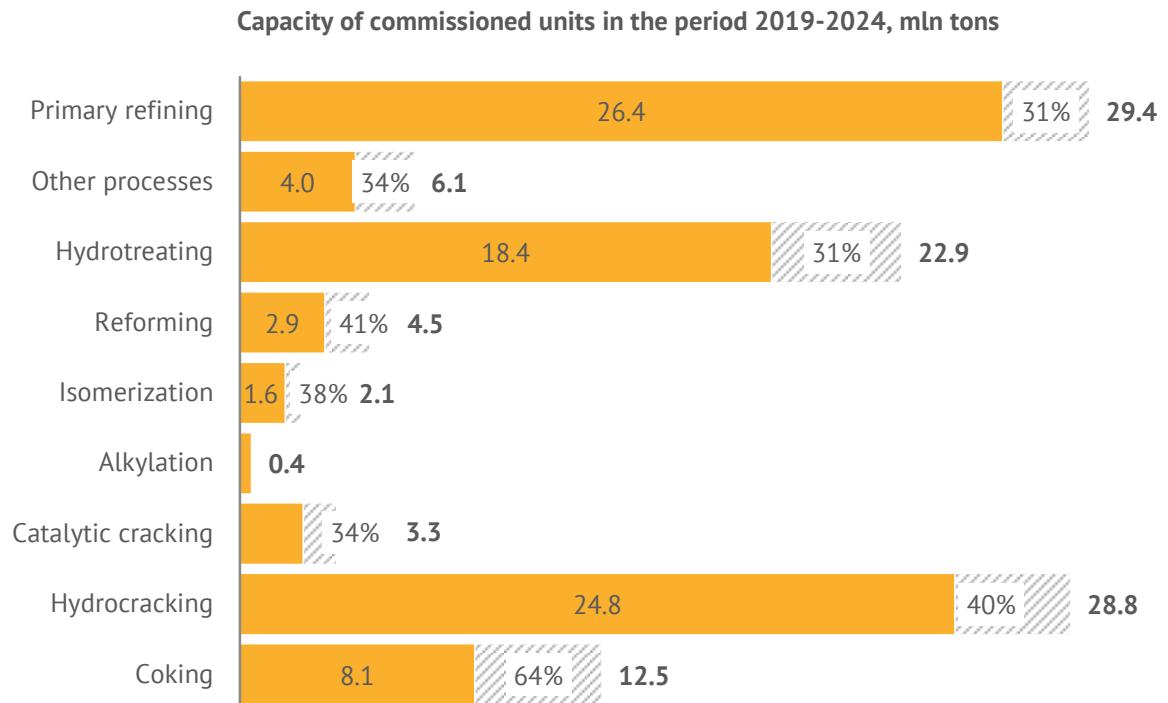
The project for the construction of any process unit (or a combination of units) was recognized as effective if the estimated net present value (NPV) of the project had a positive value upon the expiration of the unit's/combination of units 20-year lifetime. When calculating NPV, the capital expenditures (CapEx) for commissioning a unit/combination of units were distributed according to certain rules by the years of its/their construction; the USD component of CapEx was converted into RUB taking into account changes in the USD exchange rate; increase in the net profit of the refinery was estimated taking into account changes in depreciation charges and after commissioning new units. The real discount rate for petroleum refineries in the structure of VIOCs was taken as 15%, for independent refineries - as 20%.

The effectiveness of not only the announced upgrading program for each refinery as a whole, but also of all reasonable options for its partial implementation, including the construction of individual units or technologically integral combinations of units, was evaluated. By looking through the options for each refinery, the optimal project for its upgrading with a maximum NPV value was selected. If this value turned out to be positive, the upgrading project was recognized as effective, while capital investments necessary to implement it were included in the total amount of projected investments in petroleum refining.

Diagram 3.5

The ratio of development projects of Russian petroleum refineries with and without payback in the context of the reform of the system of petroleum export duties without compensating refineries for duty subsidy reduction

Source: Petromarket Research Group



Investments in oil refining in the period 2019-2024, RUB billion, in 2017 prices.

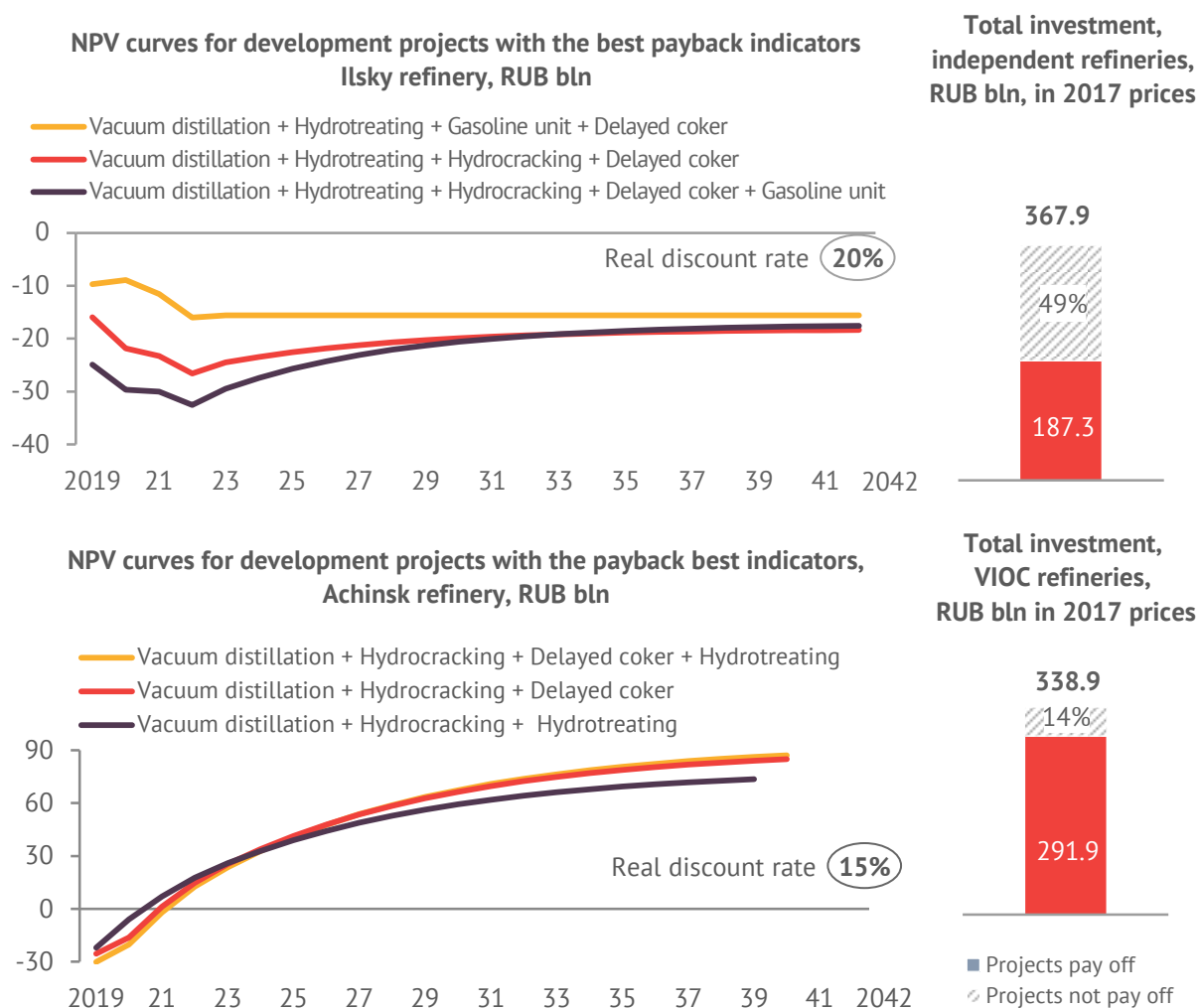


It should be noted that independent refineries are most affected by the loss of duty subsidies. This situation is described in Diagram 3.6, which shows typical NPV curves for independent petroleum refiners and for VIOCs, using the example of the Ilsky and Achinsk refineries, respectively. It can be seen that if, in the case of the Achinsk refinery, some options for its development pay off, then at the Ilsky refinery, NPV is not in the positive zone for any of the combinations of units planned to be built. If we talk about the independent refining industry in general, then, as can be seen in Diagram 3.6, the export duties reform without compensating refineries for decrease in their margins involves the risk of reducing investment in the development of this group of enterprises by 49% (by RUB 180.6 billion). VIOCs are facing a much smaller decrease in investments - by 14% (by RUB 47 billion).

Diagram 3.6

The payback of projects in the development of Russian refineries in the context of the reform of the system of oil export duties without compensating them for duty subsidy reduction

Source: Petromarket Research Group



Now it is worth remembering that the above estimate of the decline in petroleum refining down to 216 million tons in 2024 in the event the duties are abolished without compensation was obtained assuming that all refinery upgrading programs will be implemented in full. If we take into account that the refusal to compensate the refining industry for the duty subsidies it loses shifts a significant part of these programs to the no payback category, then the volumes of petroleum refining will show even more negative dynamics by 2024 – by decreasing to 208 rather than 216 million t.

Such prospects for the industry are already a source of concern for the state. This is the first group of negative consequences that the state is trying to avoid by abolishing duties after introducing compensation measures for the petroleum refining industry.

The second category of problems associated with the abolition of petroleum export duties, if such abolition happens without introducing various kinds of

compensatory measures, will have a major impact on the society and domestic politics.

The first socially sensitive problem is the rise in prices for petroleum products in the domestic market. As the forecast analysis showed, under the optimistic Brent 71 scenario (assuming that all refinery upgrading programs are completed), the largest price increase in absolute terms in 2024 compared to 2017 can be expected in the gasoline market. Average Russian wholesale prices for the AI-92 gasoline will rise from RUB 42,800/t to RUB 67,400/t in real terms (см. Diagram 3.7), i.e. almost by 58%, or by RUB 18.5/l. Prices for diesel fuel will increase by RUB 16,700/t (by 41%, or by RUB 14.2/l), for jet fuel - by RUB 17,900 (+ 52%), for fuel oil - by RUB 15,600/t, or by more than 112% (this is the largest growth rate).

An analysis of forecasted price increase factors for petroleum products in 2024 in comparison with 2017 is shown in Diagram 3.8. Among the factors underlined, there are two factors directly related to the reform of the export duty system. The first of these is the increase in the export netback due to the zeroing of export duties on petroleum products; the second is the change in the domestic market premium in the context of abolishing the duty for the petroleum refining industry. The influence of the first factor is most pronounced in the fuel oil market. The reason is quite clear: At the start of the reform, the exportation of fuel oil is subject to a maximum duty, so its abolition will lead to the most noticeable rise in the export netback. But the increase in premium affects the gasoline market to the greatest extent. The growth of the seller's premium in the wholesale segment predicted for 2024 would increase the retail price of gasoline by RUB 5.1 /l, a sensitive increase for car owners. Such effects are extremely unpleasant for the state which is trying to prevent a significant increase in gasoline prices to avoid a negative response from the general public and owners of commercial vehicles. The expected increase in diesel fuel prices is to a lesser extent tied to an increase in the premiums in the domestic market: the predicted increase in the retail price resulting from this factor is only RUB 0.2/l.

Diagram 3.7

Supply/demand ratio (mln tons) and average wholesale prices in Russia with indirect taxes (thousand RUB/t in 2017 rubles) in the markets of the main petroleum products of Russia under the conditions of the 2019-2024 tax reform without compensating refineries for the decreased duty subsidies.

Source: Petromarket Research Group

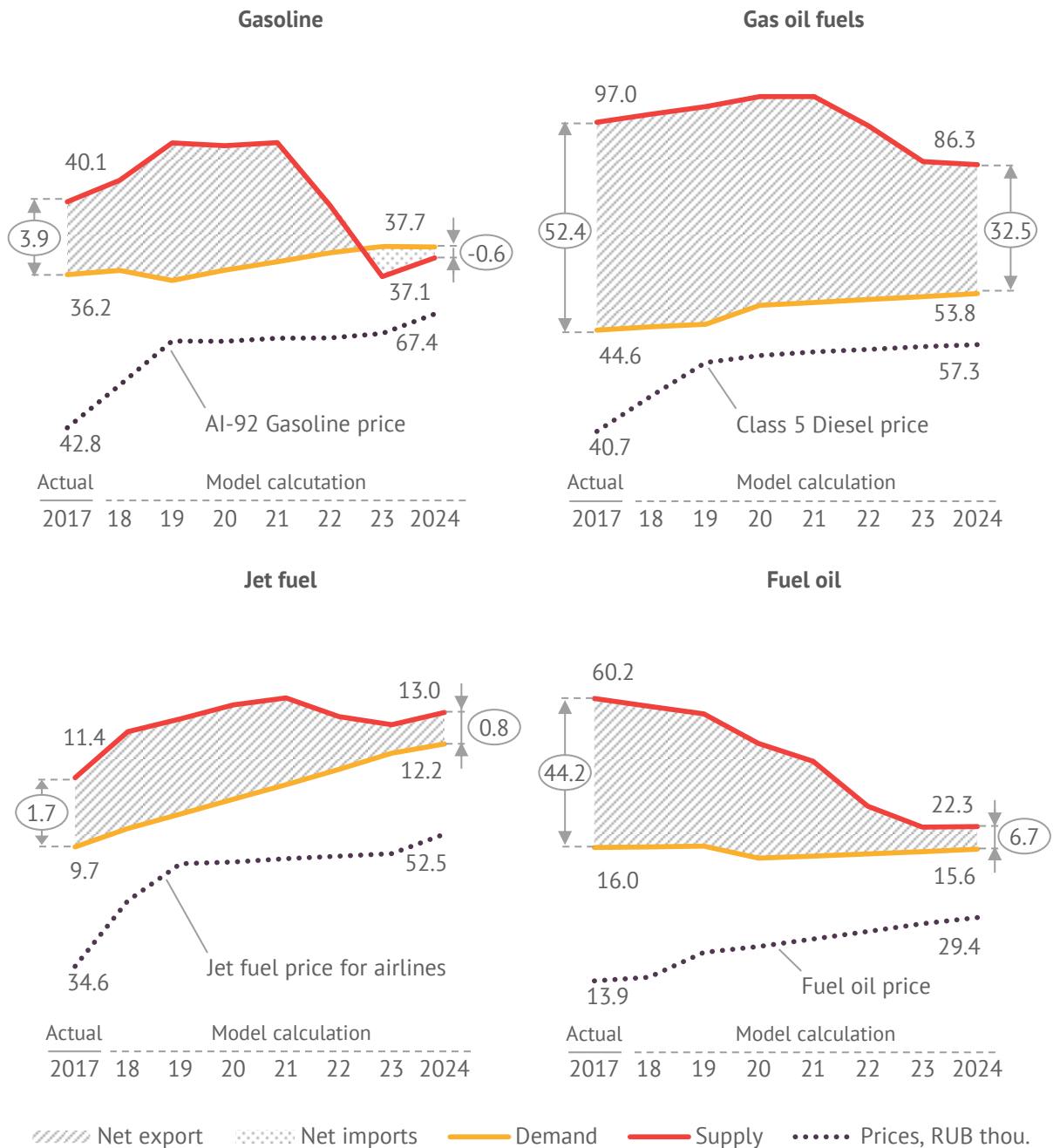
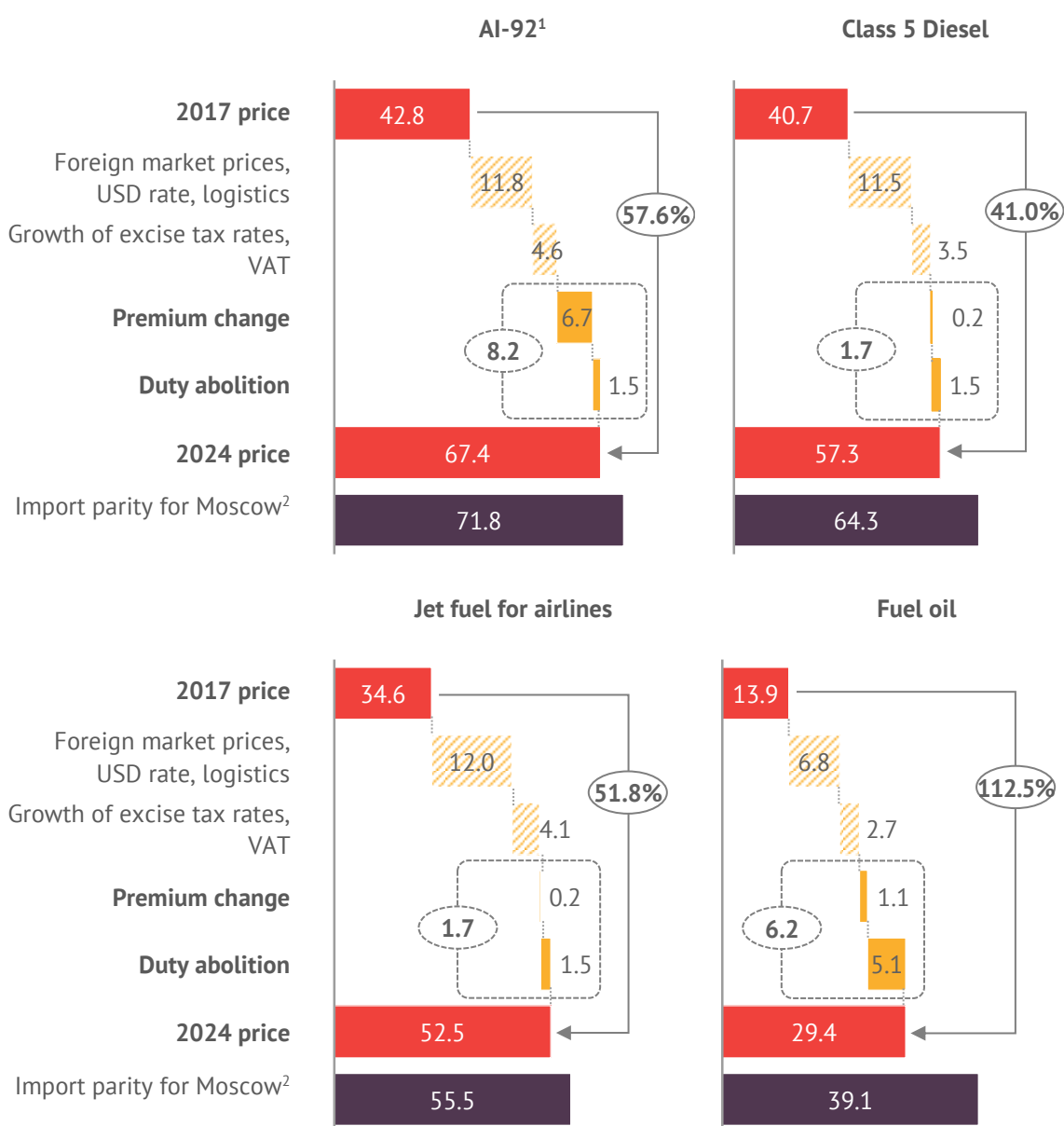


Diagram 3.8

Factor analysis of changes in average wholesale prices for petroleum products in Russia taking into account indirect taxes in the context of the 2019-2024 tax reform without compensating refineries for reduced duty subsidies, thousand RUB/t (in 2017 rubles)/

Source: Petromarket Research Groups



1. It is assumed that the need for imported gasoline will be covered by Belarusian refineries. For this reason, gasoline prices will not reach the import parity level upon importing products into the country from North-Western Europe.

2. Import parity upon importing products to Moscow from North-Western Europe.

The second socially sensitive problem is the unprofitability of some refineries (KirishiNefteOrgSintez and Novoshakhtinsky refinery) counting as town-forming enterprises,¹⁰ which could lead to their closure. Unless the state finds a way to cover the losses of such enterprises, they will shut down

¹⁰ The town-forming enterprises in Russia include: Kirishinefteorgsintez, Tuapse Refinery, Afipsky Refinery, Ilsky Refinery, Novoshakhtinsky Refinery, Nizhegorodnefteorgsintez, Gazprom Neftekhim Salavat, TAIF NK, TANEKO, Angarsk NHC and some other enterprises.

inevitably. In this case, the state will have to bear the costs associated with the liquidation of single-industry cities (it is assumed that the state will not abandon their inhabitants to the whims of fate). An estimated cost to liquidate a single-industry city in 2017 rubles is RUB 1,630,000 per 1 resident (the results of the research conducted by the Centre for Strategic Research were used for the calculation¹¹). Based on this estimate, the total cost of liquidation of single-industry cities, in which unprofitable refineries act as town-forming enterprises, will be almost RUB 260 billion (see Table 3.2).

Table 3.2

The cost of liquidation of single-industry cities in 2017 rubles

Source: Petromarket Research Group

Single-industry city	Enterprise	Population, thousand people	The cost of liquidation of a single-industry city in 2017 rubles, RUB mln
Kirishi	KirishiNefteOrgSintez	50	81 496
Novoshakhtinsk	Novoshakhtinsky Refinery	109	177 662
Total		159	259 158

The liquidation of a single-industry city entails direct (albeit one time) state spending, for which it would have to use part of the royalty withdrawn from the petroleum refining industry, a fact that obviously reduces the effect of the “uncompensated” tax reform to the state.

The situation may become even harsher if the reform not involving compensations is radicalized and implemented within 1 year rather than 6 years, with the duties abolished as early as in 2019. This scenario will entail approximately the same negative consequences as the 6-year-long reform, with the only difference being that all of these consequences will be manifested at once:

- Refinery production will drop instantaneously (from 283 million tons in 2017 to 190 million tons in 2019);
- Real prices for petroleum products will increase instantaneously (gasoline - from RUB 42,800 per ton in 2017 to 71,500 in 2019 (+ 67%), diesel fuel - from 40,700 to 58,700 (+ 44%), jet fuel - from 34,600 to 53,500 (+ 55%), fuel oil - from 13,800 to 30,400 (+ 120%));

¹¹ CSR (2014) *Single-industry cities. Reload. Search for new models for functioning of single-industry cities of Russia in the changed economic conditions. A study conducted by the Center for Strategic Research at the request of Basic Element.*

<http://www.basel.ru/bitrix/images/catalog/%D0%9C%D0%BE%D0%BD%D0%BE%D0%B3%D0%BE%D1%80%D0%BE%D0%B4%D0%B0%20%D0%9F%D0%B5%D1%80%D0%B5%D0%B7%D0%B0%D0%B3%D1%80%D1%83%D0%B7%D0%BA%D0%B0%20%282%29.pdf>.

- Simultaneously, on an even larger scale, the problem of single-industry cities, like the ones where the already mentioned Novoshakhtinsky Refinery and KirishiNefteOrgSintez are located, will arise, like it is in the case of the Afipsky Refinery which, under the scenario of gradual reduction of duties with their resulting abolition in 2024, would have been able to upgrade and keep afloat.

This reform scenario is significantly worse than the gradual zeroing of duties, and it can have a more negative impact on the socio-political situation, which most likely was taken into account by the reformers when choosing the trajectory of the tax manoeuvre completion.

Thus, when choosing from the three options: a 6-year-long reform with the introduction of compensatory measures for the petroleum refining industry and consumers of petroleum products, a 6-year-long reform without introducing compensatory measures, and instantaneous abolition of duties without introducing compensatory measures, the state goes for the first option. Under this option, with sufficient compensation (and the tax manoeuvre completion implies, in particular, that most refineries, and, in any case, all key refineries, will receive full compensation for the reduced and subsequently zeroed duty subsidy):

- We will see no radical decline of the country's petroleum refining industry;
- The risk of refineries development projects shifting to the no payback category
- There will be no conditions for a radical rise in prices for petroleum products due to a drop in petroleum refining production;
- The threat to the town-forming refineries is minimized.

3.3. What consequences of the reform should we expect?

3.3.1 The state is the main beneficiary

Analysis of tax manoeuvre parameters shows that the main goal of this reform is to change the model of royalty subsidies for refineries and consumers of petroleum products. Today subsidies, which are granted through the mechanism of export duties, are “automatic” and largely untargeted¹². It covers refineries and consumers not only in Russia, but also in some friendly economies that import petroleum and/or petroleum products at Russian domestic market prices.

¹² *The only exceptions are petrochemical and airline companies, for which, along with duty subsidies, subsidies were provided for by the big tax maneuver through the mechanism of tax deductions for excise taxes when purchasing naphtha and aromatics (as raw materials) and jet fuel (as fuel), respectively.*

After the tax manoeuvre is completed, the situation will be completely different. The principle of targeted subsidies, which only Russian refineries and only Russian consumers will be eligible for, will triumph. Refineries (if certain conditions are met) will gain access to petroleum royalties through offsets on excise tax for purchased and refined petroleum, and some categories of consumers - through offsets on excise taxes for purchased petroleum products. Access to subsidies will be granted to certain categories of jet fuel, naphtha, heavy bunker fuel, and aromatic hydrocarbons consumers. In addition, a special form of subsidies - through prices lowered through the offsetting markup mechanism - will be applied to consumers of gasoline and diesel fuel.

Such a change of model will allow the state to accumulate an additional part of petroleum royalties in the Russian budgetary system, having withdrawn it, partially or in full, from the Russian petroleum refining industry, Russian consumers of petroleum products and friendly economies. But what is the scale of these withdrawals?

The calculations carried out under the Brent 71 scenario show that the state budget revenues in 2024, after the tax system conversion is completed, will be RUB 631 billion, or 9.3%, higher than they would have been if the 2017 tax system was kept (Diagram 3.9).

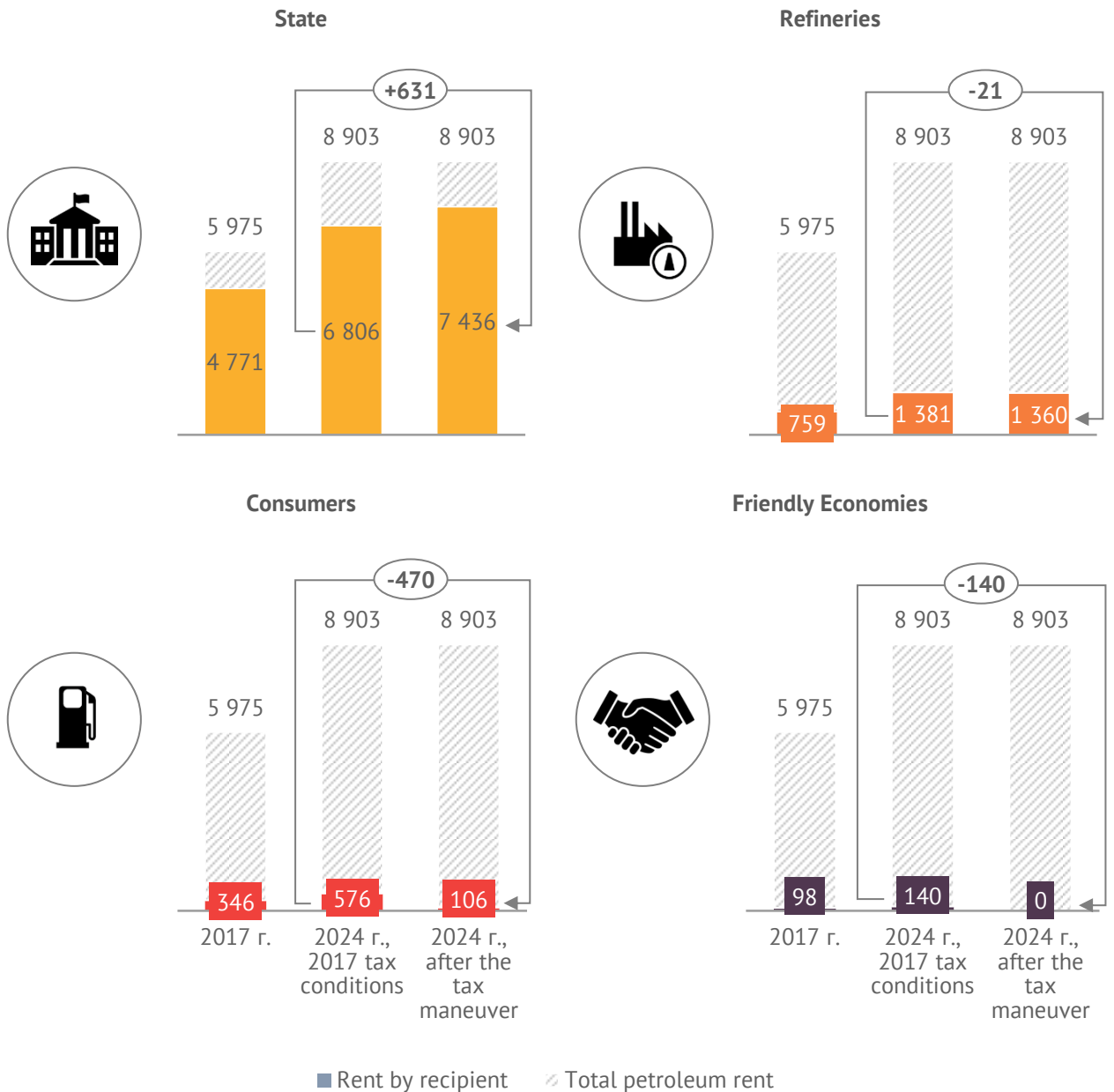
The manoeuvre will have the greatest impact on consumers of petroleum products royalty subsidies to which will decrease by RUB 470 billion (-91.6% vs. 2024 in the 2017 tax conditions). In terms of absolute losses, they are followed by friendly economies whose royalty subsidies will be completely abolished, and the Russian petroleum refining industry whose losses will be RUB 21 billion (-1.5% vs. 2024 in the 2017 tax conditions).

At the same time, not all petroleum refineries will be deprived of royalty subsidies, but only the outdated ones that have no upgrading prospects. And not all categories of petroleum products consumers, but mainly those in respect of whom the state can withdraw its support without fear of negative social or economic consequences.

Diagram 3.9

Allocation of petroleum royalty in 2017 and 2024 under the Brent 71 scenario, RUB billion, in 2017 rubles

Source: Petromarket Research Group



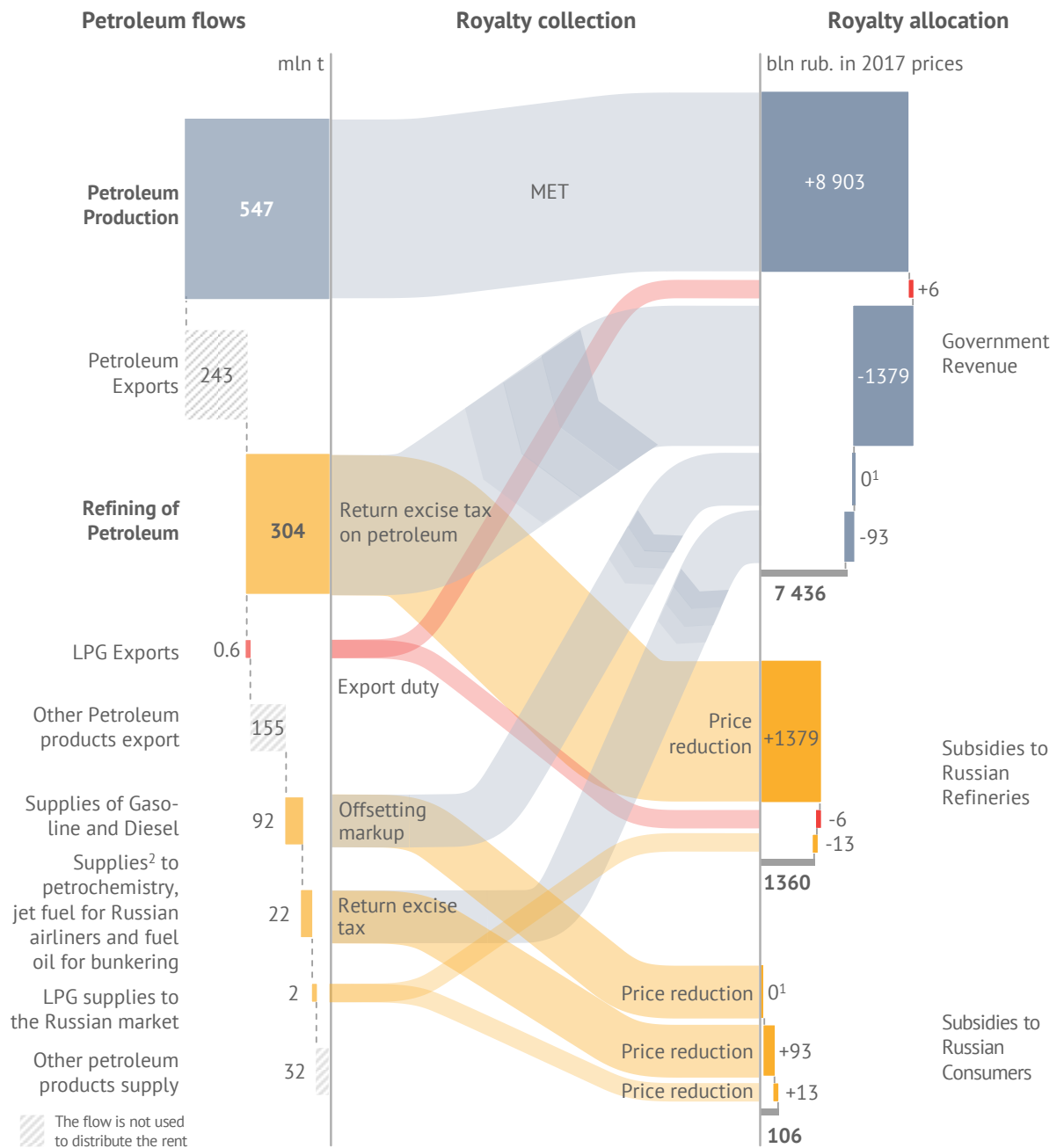
Note: Royalty in 2024 was calculated assuming that the petroleum production and its structure in the breakdown by fields in 2024 match the 2017 level.

The mechanism of petroleum royalty allocation as a result of completing the tax manoeuvre is sketchily shown in Diagram 3.10. A detailed impact analysis of this mechanism on the refining industry and consumers of petroleum products is shown below.

Diagram 3.10

Petroleum royalty allocation diagram after the tax manoeuvre is completed in 2024 acc. to the Brent 71 scenario

Source: Petromarket Research Group



3.3.2 Beneficiaries and victims among Russian refineries

It should be emphasized that the refineries that receive an offset on the petroleum excise tax will not incur any losses in comparison with the 2017 tax conditions as a result of the tax manoeuvre completion as far as the

terms of subsidizing go. And some refineries with regional multiplying coefficients on excise tax refund will even benefit from it. However, as noted in Sub-section 3.1 not all refineries will be eligible for excise tax refund, but only those meeting certain requirements. These requirements leave mini-refineries, which in 2017 processed no more than 600,000 tons of raw materials, do not have owners with a total participation share of at least 50% who are under foreign sanctions and do not produce enough Class 5 gasoline and petrochemistry naphtha, with no chance of eligibility for offsets on the excise tax.

All other refineries, a list of which can be found in Table 3.3, have chances to be deemed eligible for excise tax refund. So, almost all the refineries on this list processed more than 600,000 tons of petroleum in 2017. This means that even if a majority group of owners under sanctions is not the case, and the refinery is unable to produce and supply to the domestic market a required quantity of gasoline and petrochemistry naphtha, it, at least, potentially, can be eligible for the subsidy by signing with the Ministry of Energy Russia an agreement on refinery upgrading (there is no such option for a mini refinery from the “deprived” group). All other refineries (with a production of no more than 600,000 tons) from the list in the table are eligible for excise tax refund either because they have owners with a total participation share of at least 50% who are under foreign sanctions, or because they produce sufficient quantities of gasoline and petrochemistry naphtha.

Table 3.3

Refineries eligible to receive for excise tax refund (as of 01.10.2018).

Source: Petromarket Research Group

Company / refinery	Owners with a total share of at least 50% are under foreign sanctioned	The production and supply of gasoline and naphtha corresponds to the parameters of Condition 2	The refinery upgrading program corresponds to the parameters of Condition 3	Eligibility for offset (excise tax refund)
Gazprom				
Astrakhan GPP		+		✓
Gazprom Neftekhim Salavat		+		✓
Surgut CSP	+	+		✓
UrengoyGazprom	+			✓
YamburgGazprom	+			✓
Gazprom Neft				
Moscow Refinery	+	+	+	✓
Omsk Refinery	+	+	+	✓
LUKOIL				
VolgogradNeftepererabotka	+	+		✓

Company / refinery	Owners with a total share of at least 50% are under foreign sanctioned	The production and supply of gasoline and naphtha corresponds to the parameters of Condition 2	The refinery upgrading program corresponds to the parameters of Condition 3	Eligibility for offset (excise tax refund)
KogalymNeftegaz	+	+		✓
NizhegorodNefteOrgSintez	+	+		✓
PermNefteOrgSintez	+	+		✓
UralNefteGaz	+	+		✓
UkhtaNeftePererabotka	+	+		✓
NNK				
Khabarovsk Refinery	+	+		✓
NOVATEK				
NOVATEK-Ust-Luga	+			✓
New Stream				
Antipinsky Refinery			+	✓
Afipsky Refinery			+	✓
Mari Refinery			+	✓
Rosneft				
Angarsk NHK	+	+		✓
Achinsk Refinery	+	+	+	✓
VankorNeft	+			✓
Komsomolsk Refinery	+			✓
Krasnoleninsky Refinery	+			✓
Kuibyshev Refinery	+	+		✓
Nizhneartovsk RPA	+			✓
Novokuibyshevsky Refinery	+	+	+	✓
PurNefteGaz	+	+		✓
Ryazan Refinery	+	+		✓
Saratov Refinery	+	+		✓
North Oil	+			✓
Strezhevsk Refinery	+	+		✓
Syzran Refinery	+	+		✓
Tuapse Refinery	+		+	✓
Bashneft				
Novo-Ufimsky Refinery	+	+		✓
UfaNefteKhim	+	+		✓
Ufa Refinery	+	+		✓
Slavneft				

Company / refinery	Owners with a total share of at least 50% are under foreign sanctioned	The production and supply of gasoline and naphtha corresponds to the parameters of Condition 2	The refinery upgrading program corresponds to the parameters of Condition 3	Eligibility for offset (excise tax refund)
YaroslavNefteOrgSintez	+	+		✓
Surgutneftegaz				
KirishiNefteOrgSintez	+	+		✓
Tatneft				
Kichuysky Refinery		+		✓
TANECO			+	✓
Other				
Anzherskaya OGC				✗
VPK-Oil				✗
Ilsky Refinery			+	✓
KrasnodarEcoNeft				✗
Novoshakhtinsky Refinery				✗
OrskNefteOrgSintez		+	+	✓
Pervy Zavod				✗
Slavyansk ECO				✗
TAIF-NK		+	+	✓
TomskNeftePererabotka				✗
Transbunker				✗
Yaysky Refinery			+	✓

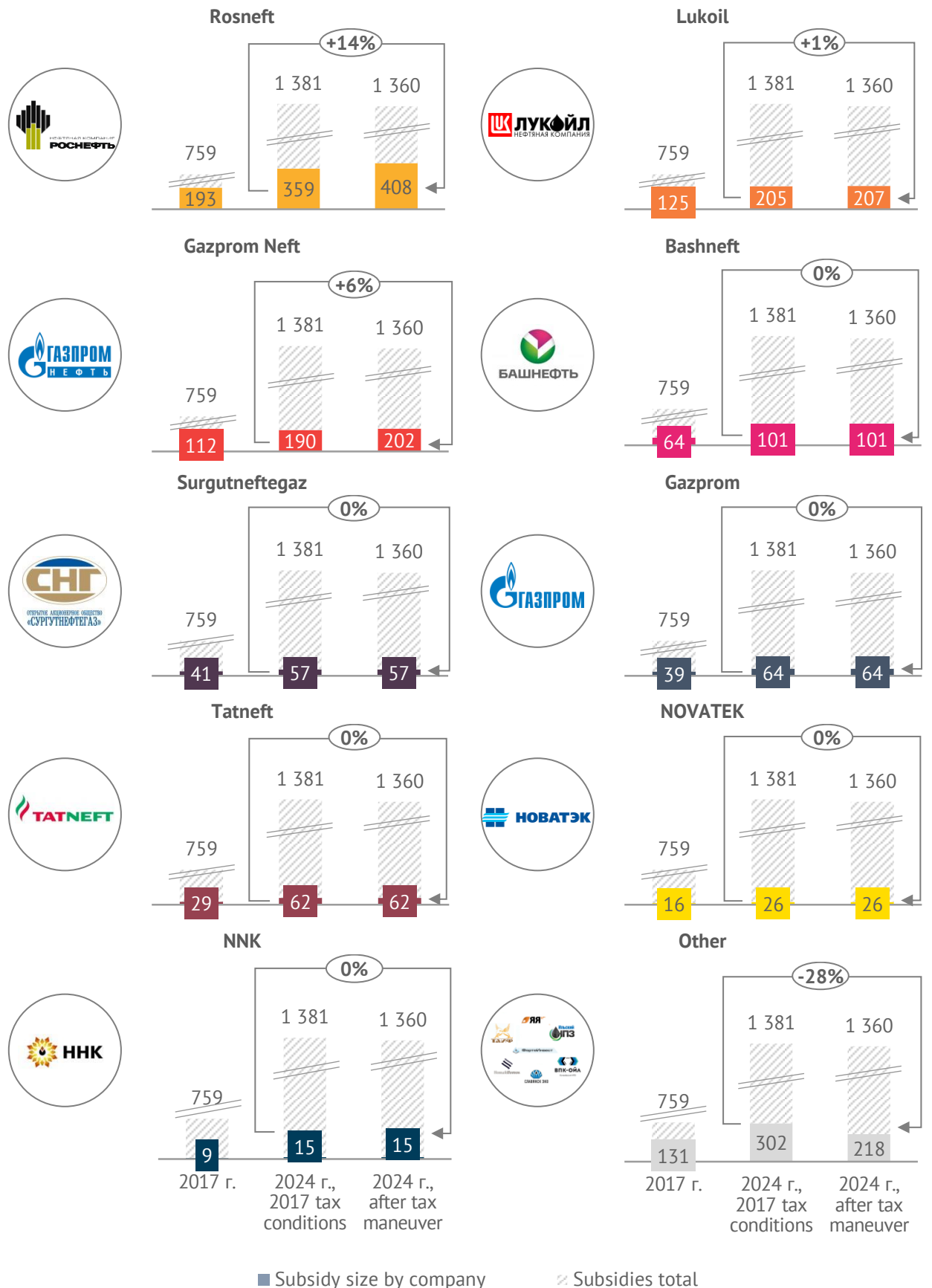
As can be seen from the table, the overwhelming majority of refineries in it are already eligible for excise tax refund. But there are those on the list who risk not being eligible for the subsidy, because as of October 1, 2018 they fall short of the requirements imposed by the Tax Code. The risk category includes KrasnodarEcoNeft, Novoshakhtinsky Refinery, Slavyansk ECO, Pervy Zavod, Anzherskaya OGC, VPK-Oil, TomskNeftePererabotka, and Transbunker. The situation may, of course, change if these refineries come up with an upgrading program complying with the requirements of the Tax Code and enter into an appropriate upgrading agreement with the Russian Ministry of Energy before June 1, 2019.

Diagram 3.11 shows the impact of the tax reform on petroleum royalty allocation among refinery owners, assuming that refineries from the risk category will not be eligible for excise tax refund (this is a general assumption made when assessing the consequences of the tax manoeuvre completion).

Diagram 3.11

Comparison of royalty subsidies received by owners of Russian refineries in 2017 and 2024 under the Brent 71 scenario, RUB billion, in 2017 rubles.

Source: Petromarket Research Group



As can be seen from the diagram, the tax manoeuvre has a neutral impact on most refinery owners as far as the amount of state subsidies received goes. However, there are some exceptions.

The first exception includes refineries independent from the vertically integrated petroleum companies which in 2024 will lose 28% of subsidies in comparison with the 2017 tax treatment due to the fact that a significant number of these enterprises are simply not eligible for excise tax refund. It would seem that under these conditions, the total amount of royalties granted to the Russian petroleum refining industry should be significantly reduced. However, as noted above, it remains virtually unchanged. The reason for this paradox has to do with other exceptions, but of an opposite nature: the subsidies to Rosneft, Gazprom Neft and LUKOIL. Rosneft will see a particularly noticeable increase in subsidies (by 14%), due to the fact that the tax manoeuvre grants the highest regional multiplying coefficients on excise tax refund to the Angarsk NHK and Achinsk Refinery that are owned by Rosneft. In addition, the multiplying coefficient improves the refining margins of the Angarsk NHK so much that it stimulates a noticeable increase in the refinery's production (compared to the scenario under the old tax system), which gives an additional increase in the total subsidy amount due to the refinery. The growth in subsidies for Gazprom Neft and LUKOIL by 6% and 1% will result from the fact that regional multiplying coefficients will work for the Omsk Refinery and UkhtaNeftePererabotka, respectively.

Changes in the tax system will have little effect on the refining margin for most refineries. Refineries that are eligible for a regional multiplying coefficient on excise tax refund will significantly increase their margins, however, refineries that are not entitled to offsets will on the contrary incur significant losses. But will the net margin of "poor quality" refineries be negative, which would be a signal for closure of enterprises in line with the expectations of the regulator? Will the petroleum refinery production in Russia decrease to 260-265 mln tons a year, an amount that the regulator wishes to see¹³?

However strange this may seem, but, according to our calculation, after the tax manoeuvre is completed in 2024, the annual petroleum refinery production in the country will significantly surpass the target level, reaching 303.9 million tons, rather than falling to the target level (Diagram 3.12). This is only 3.5 million tons less than the annual petroleum refinery production in 2024 under the 2017 tax conditions (307.4 million tons) and about 20 million tons higher than the 2017 level of 283.5 million tons.

¹³ <https://ria.ru/economy/20180907/1528035941.html>

Diagram 3.12

The relationship between the marginality of Russian refineries (in 2017 rubles) and the volumes of raw materials processed by them in 2024 under the Brent 71 scenario

Source: Petromarket Research Group



What are the reasons for the high petroleum refinery production in Russia in 2024? There are two main reasons.

The first one is the implementation of development programs at some refineries, which provide for both increase in the capacity of primary petroleum refining and for commissioning of secondary refining units (in the latter case, the refining margin increases, which stimulates growth of refinery utilization load). In 2024, the petroleum refinery production will significantly increase at the Afipsky Refinery (+3 million tons of raw materials on the pre-reform 2018 level), Mari Refinery (+6.1 million tons), Achinsk Refinery (+0.9 million tons), Komsomolsk Refinery (+2.6 million tons), Novokuibyshevsky Refinery (+0.8 million tons), Omsk Refinery (+5 million tons), Orsk Refinery (+1.5 million tons) and the TANECO plant (+2.5 million tons).

The second reason is that petroleum refining at refineries, which are losing eligibility for subsidies, will not stop, despite the expectations of the reformers, even though it will fall. In 2017, these enterprises processed a total of 17.1 million tons of petroleum, in 2024, under the same tax conditions, this figure would increase to 17.5 million tons, whereas at the end of the tax manoeuvre it will drop to 8.6 million tons - but not to zero! As the calculations show, by the time the manoeuvre is completed, only KrasnodarEcoNeft (-2.5 million tons of raw materials on the level of 2017/2024 under the tax conditions of 2017), Novoshakhtinsky Refinery (-5 million tons) and some of the mini refineries (- 1 million tons on the level of 2017 and -1.6 million tons on the level of 2024 under the tax conditions of

2017) will shut down. It would be expected that the refineries that have lost the duty subsidy and have not been in any way compensated for them by the state, the refining operations of most of which come down to primary distillation of petroleum, will not be able to generate profits and will have to shut down. But no: some of the “poor quality” refineries will move to the Russian market of middle distillate fuels.

The fact is that straight-run middle distillate fuels (individually or mixed with other products) are readily used by a part of Russian consumers as a substitute for more expensive diesel fuel. The discount to the price of Class 5 diesel fuel, offered by middle distillate fuel sellers in the wholesale segment can be very significant. In 2017, according to Petromarket Research Group, the difference between the average prices for Class 5 diesel fuel and its substitutes in Russia, with indirect taxes taken into account, was about RUB 9,000/t. Due to such a discount, in 2017, 25% of the total demand for diesel fuel from the key civilian categories of its consumers (motor vehicles, agricultural, mining, railway, and construction machinery) was covered by its substitutes. The capacity of the diesel fuel substitutes market was huge - 9 million tons.

At the same time, in spite of the discount, the supply of diesel fuel substitutes to the domestic market was extremely beneficial for producers (including in comparison with export deliveries¹⁴), because they were able to circumvent the excise tax on their products in a variety of ways, which is technically provided by the Russian Tax Code for middle distillates. If we proceed from the fact that the current practice of state regulation and control of the middle distillate market will not undergo significant changes, then the strategies for dodging excise tax on middle distillates practiced by some refineries will persist.

When modelling the impact of the tax reform on the development of the Russian petroleum market, the assumption was that the conditions for sales of middle distillate fuels not taxed with excise tax in the domestic market would remain stable. A survey of buyers of diesel fuel substitutes showed that the demand for them will remain at a minimum discount to the price of diesel fuel of about RUB 3,300/t (the prices include indirect taxes). On the other hand, such very moderate discount level makes it possible for some of the simple refineries that do not pay excise taxes, generate a positive margin, and, therefore, survive

In theory, the offsetting markup mechanism, which was invented in order to curb the rise in prices for motor fuels, and, in particular, diesel fuel in the domestic market, could become a tool to fight substitute fuels. Since the prices of substitutes are tied to the price of diesel fuel through a discount, the offsetting markup also works against the increase in substitute fuel

¹⁴ In 2017, the average price for diesel fuel substitutes cleared of VAT in the domestic market exceeded the average export netback for middle distillates by about RUB 2 000/t.

prices. However, according to our estimates, the introduction of the offsetting markup mechanism will not lead to a decrease in diesel fuel prices, which could result in extremely low domestic market prices for middle distillates and thus lead to the closure of “poor quality” refineries.

If we now turn to the dynamics of the annual petroleum refinery production in Russia forecast for 2019-2024, the calculations carried out in the framework of the Brent 71 scenario show the oscillatory trajectory of this indicator (see Diagram 3.13). This is not surprising, since refining will be mainly influenced by two competing factors described above: continuous reduction (down to zeroing in 2024) of subsidies to enterprises that are not eligible for excise tax refund (which adversely influences the refining dynamics) and implementation of development programs for some refineries (which positively influences the refining dynamics).

It should be noted that, due to the introduction of excise tax refund on petroleum, the tax manoeuvre is has a much more favourable impact on investments into petroleum refining than the abolition of duties without compensation: there are almost no projects with zero payback (see Diagram 3.14). The reform makes it appropriate to invest an additional (compared to the scenario of duties abolition without compensations) RUB 195.2 billion into the industry (in real prices of 2017) over the period from 2019 to 2024. Importantly, much of this growth is accounted for by refineries independent of VIOCs (RUB 162.8 billion against RUB 32.4 billion from petroleum refineries owned by VIOCs).

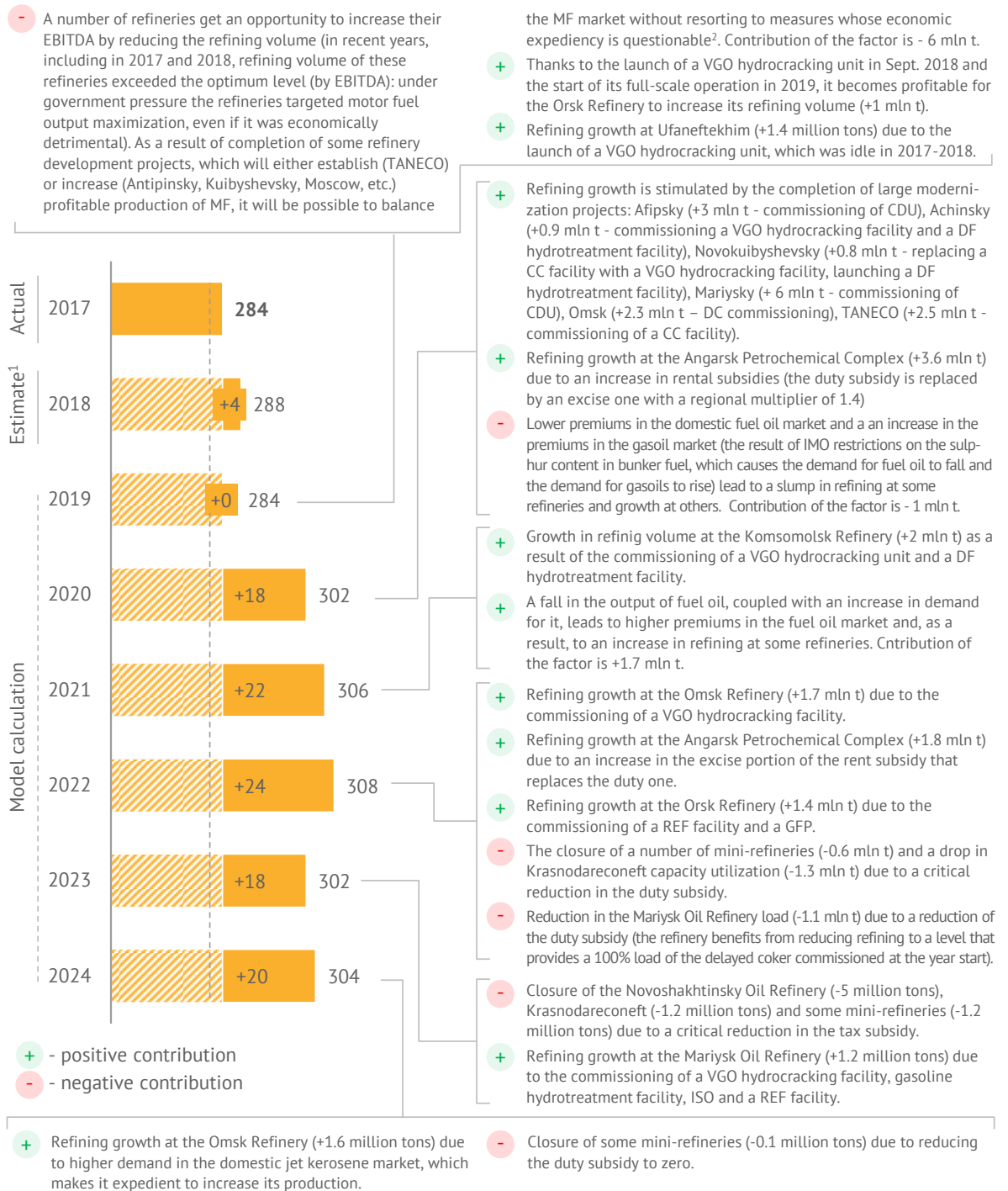
It is also important to note the fact that the petroleum excise tax refund mechanism has a completely different effect on the propensity to modernize enterprises belonging to independent refinery owners and VIOCs.

The former case can be illustrated by the example of the Ilsky Refinery. This refinery has no other option of eligibility for subsidy in the form of excise tax refund except for signing an upgrading agreement with the Russian Ministry of Energy. Without excise tax refund, this refinery’s prospects are bleak. On the one hand, it is impossible to upgrade it: as calculations show, without excise tax refund, the current program of enterprise development does not pay off, regardless of whether it is implemented in full or in part (see Sub-section 3.2). On the other hand, without upgrading, in the process of tax manoeuvre, the refinery will gradually lose the duty subsidy with no compensation provided, sooner or later become loss-making and eventually shut down. Alternatively, it may concentrate on trading diesel fuel substitutes in the domestic market. But this idea can hardly be a strategic one.

Diagram 3.13

Dynamics of petroleum refinery production in Russia during the tax manoeuvre under the Brent 71 scenario, million tons

Source: Petromarket Research Group

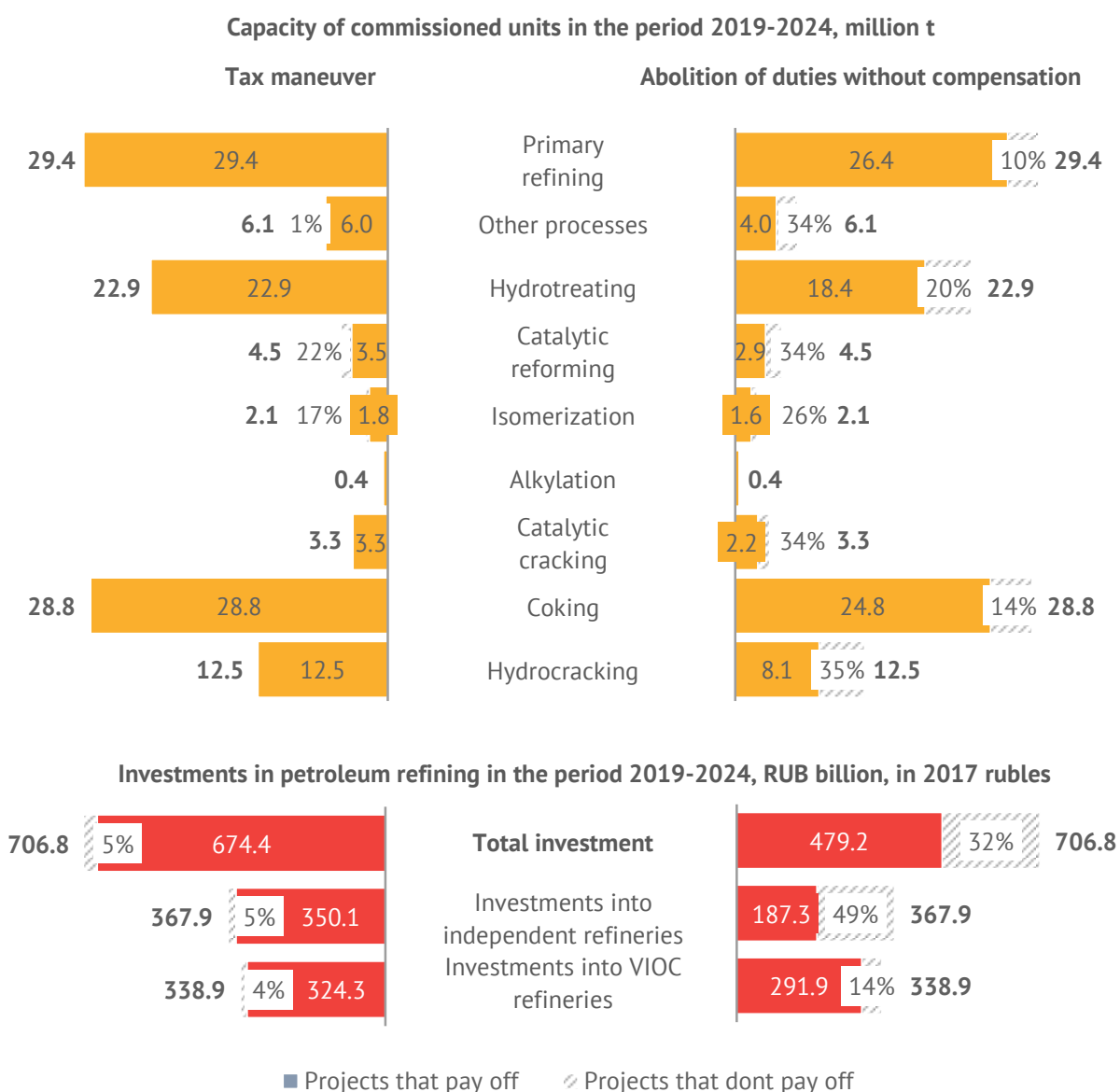


1. Estimate by Petromarket R&D Team based on the refining volume data for 1-9m 2018 and expected repairs of oil processing and pumping units at the refineries.
 2. As of 01/10/2018, the Russian government had an agreement with Rosneft, LUKOIL, Gazprom, Surgutneftegaz, Gazprom Neft and Tatneft on the supply of motor fuel to the domestic market from their refineries at a level not lower than in 2017 (one of the outcomes of the meeting on petroleum industry development and oil production stimulation, chaired by D. Medvedev on September 18, 2018). These agreements may prevent the implementation of the described scenario.

Diagram 3.14

The ratio of development projects of Russian petroleum refineries with to that of refineries without payback in the context of the petroleum export duties system reform under the Brent 71 scenario

Source: Petromarket Research Group



Thus, for the Ilsky refinery, there is virtually no alternative to signing an upgrading agreement with the Russian Ministry of Energy. In principle, an enterprise can curtail its development program and go for partial upgrade, but only if the investment in the curtailed program is at least RUB 60 billion for the period from January 1, 2016 to January 1, 2024, or the curtailed program will provide at least 10% yield of Class 5 gasoline. Not so many of such options are available - 9 out of 18, with one of them not paying off even under the conditions of excise tax refund (see Table 3.4).

In other words, for independent refineries, the petroleum excise tax withholding mechanism works exactly as it should - it forces the refinery to

launch upgrading on the conditions set by the state. Or it can refuse to upgrade thus forcing itself out of the market.

Table 3.4

The payback of the Ilsky Refinery upgrading program and options for its partial implementation in the context of the tax manoeuvre under the Brent 71 scenario

Source: Petromarket Research Group

	Combinations of units commissioned																	
Units																		
Vacuum distillation	+			+	+	+	+		+	+	+	+	+	+	+	+	+	+
Diesel fuel hydrotreating		+				+		+	+	+					+	+	+	
Isomerization			+				+	+	+			+	+		+	+		+
Reforming			+				+	+	+			+	+		+	+		+
Vacuum gas oil hydrocracking				+						+		+		+	+		+	+
Delayed coker					+						+		+	+		+	+	+
Criteria																		
NPV > 0	x	x	✓	x	x	x	✓	✓	✓	x	x	✓	✓	x	x	✓	x	✓
Eligibility for subsidy	x	x	✓	x	x	x	✓	✓	✓	x	x	✓	✓	x	✓	✓	x	✓

Note: the project with a maximum NPV value is highlighted in bright colour

For refineries owned by VIOC we see a different situation. Virtually all of them (with the exception of TANECO) can count on an offset on the petroleum excise tax at the start of the completing tax manoeuvre, regardless of whether they have an upgrading agreement with the Russian Ministry of Energy. Since excise tax refund is able to guarantee, at least, for most of them, a positive refining margin without implementing upgrades, the incentives for upgrade are not enhanced compared to the pre-reform situation, but at best remain the same. In addition, enterprises that receive an offset on the petroleum excise tax and at the same time are not bound by the terms of upgrading agreements have significantly more payback options for partial implementation of development programs than those that have entered into such agreements. Nothing prevents the owner of such refinery from radically curtailing the existing program, given the curtailed scenario pays off. This will not affect eligibility for excise tax refund.

Achinsk Refinery can be a good example here. It will receive excise tax refund only because its owner, Rosneft, is on the sanctions list. Under these conditions, all options for partial implementation of the refinery upgrading program (and there are as many as 14) pay off, including the most “unambitious” ones (see. Table 3.5).

Table 3.5

The payback of the Achinsk Refinery upgrading program and options for its partial implementation in the context of the tax manoeuvre under the Brent 71 scenario

Source: Petromarket Research Group

	Combination of units commissioned														
Units															
Vacuum distillation	+				+	+	+					+	+	+	+
Diesel fuel hydrotreating		+			+			+				+	+		+
Vacuum gas oil hydrocracking			+			+		+		+	+		+	+	+
Delayed coker				+			+		+	+		+	+	+	+
Criteria															
NPV > 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Eligibility for subsidy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note: the project with a maximum NPV value is highlighted in bright colour

If excise tax subsidies were provided to VIOC refineries only on the condition that they assume obligations to invest in the development of the enterprise at least RUB 60 billion over the period from January 1, 2016 to January 1, 2024, this would be a good incentive for a full-fledged upgrade. In particular, the introduction of such rule for the Achinsk Refinery would force it to either implement the existing program in full or to choose one of the 7 most comprehensive partial options (but not all the 14, as under the tax manoeuvre) (see Table 3.6).

Table 3.6

The payback of the Achinsk Refinery upgrading program and the options for its partial implementation under the Brent 71 scenario, if eligibility for excise tax refund is dependent on an investment of at least RUB 60 billion in the period from 01.01.2016 to 01.01.2024.

Source: Petromarket Research Group

	Combination of units being commissioned														
Units															
Vacuum distillation	+				+	+	+					+	+	+	+
Diesel fuel hydrotreating		+			+			+				+	+		+
Vacuum gas oil hydrocracking			+			+		+		+	+		+	+	+
Delayed coker				+			+		+	+		+	+	+	+
Criteria															
NPV > 0	✗	✗	✓	✗	✗	✓	✗	✓	✗	✓	✓	✗	✓	✓	✓
Eligibility for subsidy	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✓	✓

Note: the project with a maximum NPV value is highlighted in bright colour

3.3.3 What do consumers of petroleum products lose?

In short, there is not a single category of Russian consumers of petroleum products that would benefit from the tax manoeuvre. All of them will lose, with the exception of LPG consumers, whose market is not affected by the reform. At the same time, for some groups of consumers, rental subsidies will completely cease to be paid, for others they will noticeably decrease (see Diagram 3.15).

Among the latter, ship owners consuming dark bunker fuel will lose the most (89% of the subsidy level that this group could receive in 2024 under the 2017 tax conditions), and least of all, petrochemical enterprises purchasing straight-run gasoline (naphtha) and aromatics as raw materials (15%). Airlines will lose more than 32% when purchasing jet fuel. All these losses result from rising prices for petroleum products in the amount of cancelled export duties, as well as inflation, which depreciates the returnable excise taxes received by a particular group of consumers.

The tax manoeuvre will compensate (only partially) only two categories of consumers for the loss of duty subsidies:

- petrochemical enterprises - by increasing excise tax refund on naphtha (+RUB 3 406/t in nominal terms) and aromatic hydrocarbons (+RUB 1 858/t in nominal terms);
- Russian ship owners - by introducing in 2022 the excise tax which will remain stable over the years, for heavy bunker fuel in the amount of RUB 1 000/t.

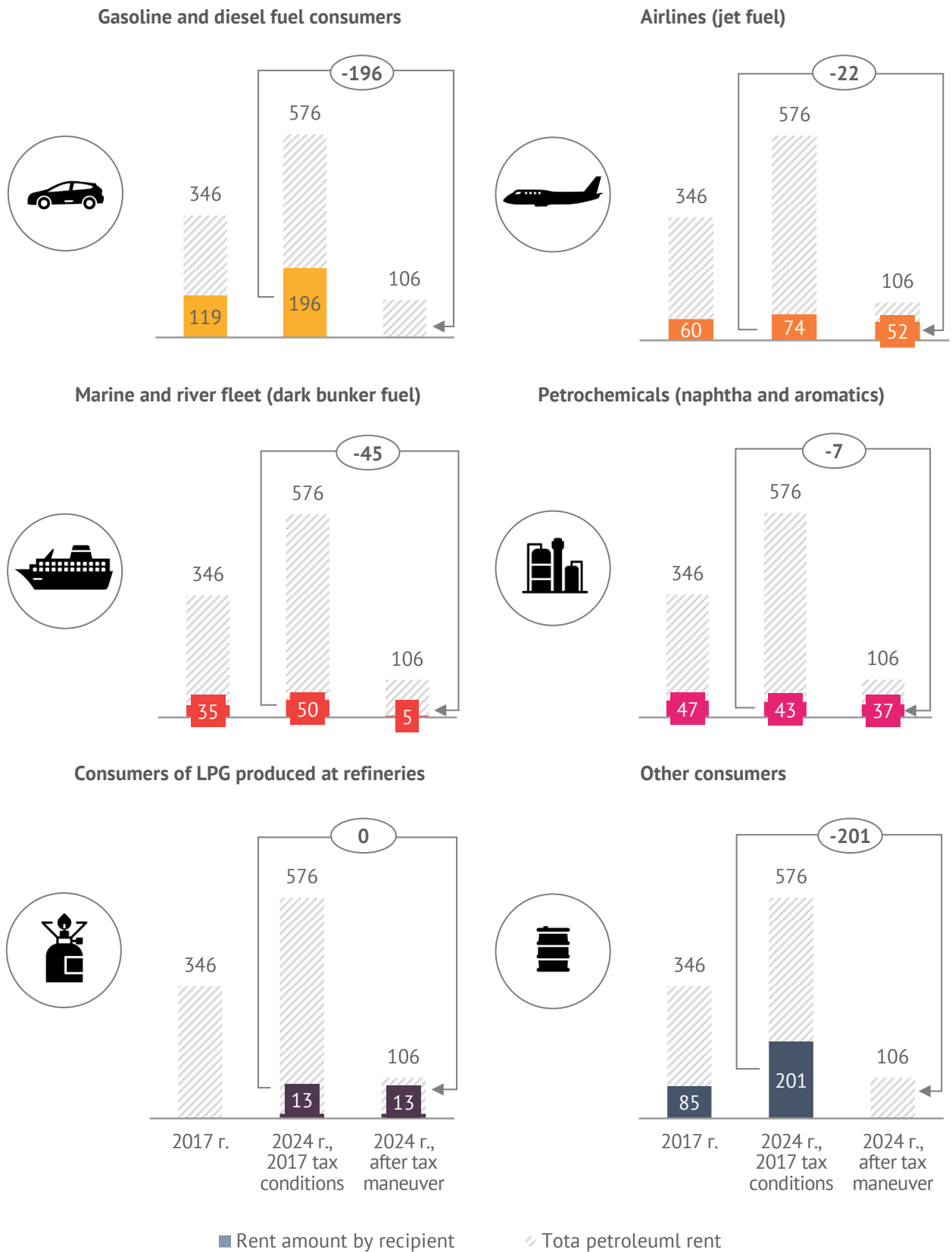
It would seem that the consumers of gasoline and diesel fuel would have to join these two categories, since the tax manoeuvre provides for lower prices for these products through the offsetting markup mechanism. This mechanism, according to the authors of the reform, should keep the selling prices of refineries within certain limits, preventing them from ‘breaking loose’ and reaching the export netback level, if the latter becomes too high. However, due to the specific features of the offsetting markup mechanism, the desired level of prices for gasoline and diesel fuel under the Brent 71 scenario can only be achieved in 2019 (for a detailed analysis of this mechanism, see Section 4.3). In 2020-2024, It will be more profitable for refineries to set prices for gasoline and diesel fuel on a par with export netbacks and to waive the offsetting markup rather than to receive it while keeping prices within specified limits (this conclusion is valid if we accept the hypothesis that pricing in the market of motor fuels in Russia will be free of state interference).

Diagram 3.16 shows the graphic results of factor analysis of changes in average wholesale prices for basic petroleum products in 2024 vs. 2017.

Diagram 3.15

Petroleum royalty allocation between different categories of consumers in 2017 and 2024, under the Brent 71 scenario, RUB billion, in 2017 rubles

Source: Petromarket Research Group

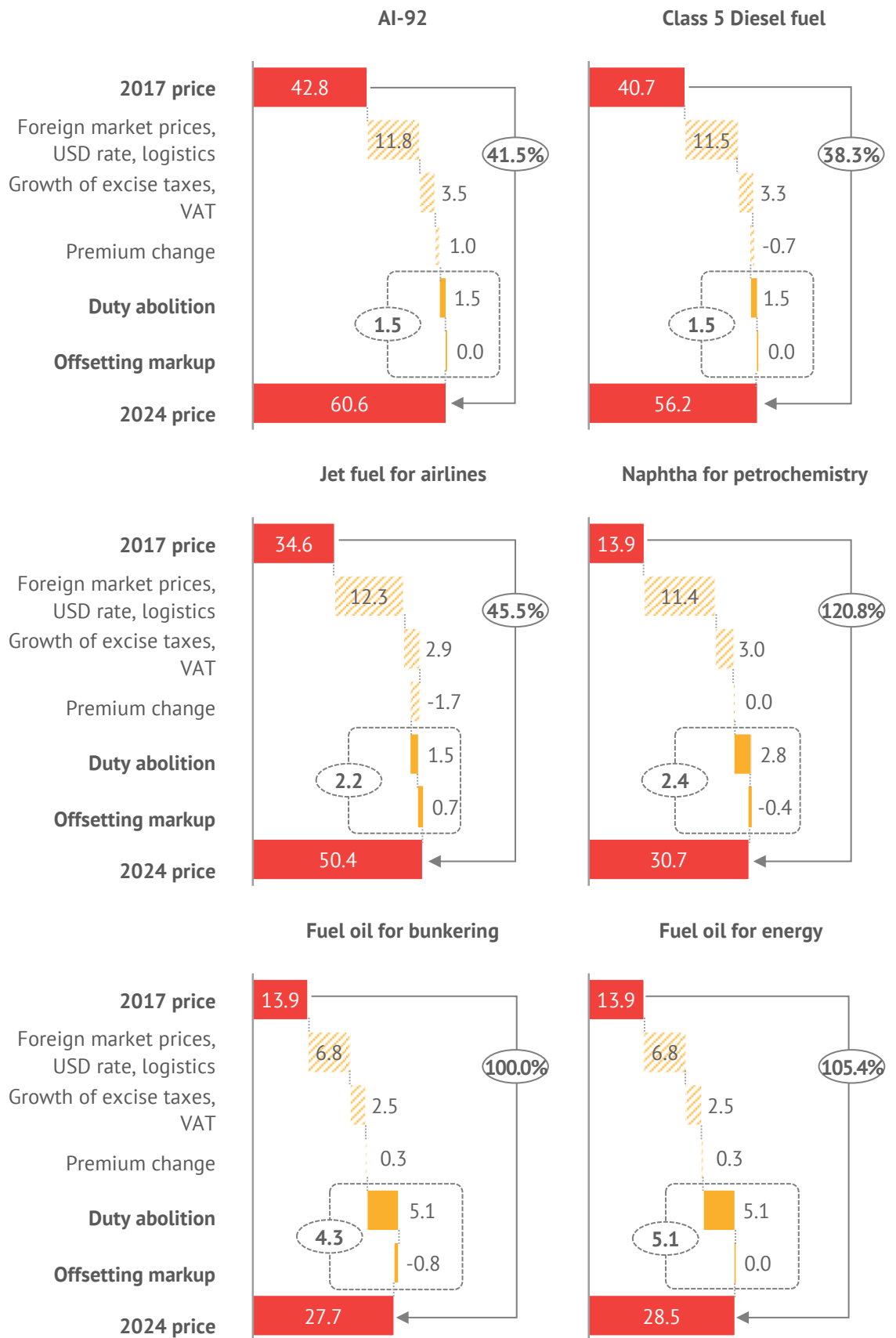


Note: the royalty amount transferred to the petrochemistry industry is calculated assuming that the quantity of naphtha, benzene, ortho- and paraxylene consumed by the industry as raw materials corresponds to the level of 2017

Diagram 3.16

Factor breakdown of changes in the prices for basic petroleum products in the context of the completed tax maneuver under the Brent 71 scenario, thou. RUB/t in 2017 rubles

Source: Petromarket Research Group



The diagram shows that the abolition of export duties is a growth factor for the prices for gasoline and diesel fuel by RUB 1,500/t in real terms (in 2017 rubles). This growth will not in any way be compensated by the offsetting markup (see above).

In the case of naphtha for petrochemistry and fuel oil used as bunker fuel/component of bunker fuel, the abolition of duties leads to an increase in prices by RUB 2,800 and 5,100/t, which is compensated by excise tax refund in the amount of RUB 0,400 and 0,800/t, respectively. Compensation for naphtha is smaller than for fuel oil, despite the fact that in nominal terms the increase in excise tax refund on naphtha is greater than the nominal value of the newly introduced excise tax on bunker oil. The reason is the depreciation of excise tax refund on naphtha, which was received by the petrochemistry industry in 2017, as a result of inflation. It is to this depreciated value that the compensating surcharge is added. The result of such calculation is a very modest increase in the total excise tax refund in 2017 prices (from RUB 9,170/t in 2017 to RUB 9,612/t in 2024).

A similar situation with the depreciation of excise tax refund is observed in the case of jet fuel for airlines - its nominal value in 2024 does not differ in any way from the value in 2017, and, therefore, in real terms, the size of the excise tax decreases.

If we leave the effects of the tax manoeuvre unaddressed, the greatest contribution to the increase in wholesale prices in Russia in 2024 is the increase in the price of petroleum products in foreign markets provided for under the Brent 71 scenario and largely realized in 2018 (see Appendix A). This is followed by the increase in indirect taxes (VAT and excise taxes). A less obvious factor in price dynamics is the change in the domestic market premium for petroleum products. In contrast to the former two, it manifests itself differently in the markets of various petroleum products. In the gasoline and fuel oil market, the domestic market premium is growing, while in the market of diesel fuel and jet fuel it is decreasing. In the latter three cases, the increase or decrease in the premium is explained, as expected, by the dynamics of surplus, the difference between production (supply) and demand. In the Russian market of diesel fuel and jet fuel, the surplus is increasing, while in the market of fuel oil it is decreasing (see Diagram 3.17). And only in the gasoline market, the behaviour of the premium looks strange; the product surplus and domestic market premium are growing simultaneously. In fact, there is no paradox. In 2017, gasoline in Russia, contrary to economic logic, was marketed at a significant discount to export netbacks - the average discount was RUB 975/t. The reason is the direct, albeit informal, pressure by regulatory bodies on petroleum producers to prevent price rises for such socially significant product as motor fuel. It is assumed that after the offsetting markup mechanism is introduced in 2019, pressure on producers will cease, and the domestic market will again become a premium market for petroleum companies.

Diagram 3.17

Supply to demand ratio of various petroleum products in the context of the completed tax manoeuvre under the Brent 71 scenario, million tons

Source: Petromarket Research Group



Note: A note shall be made of the dynamics of demand for gasoline, gas oil fuels and fuel oil in 2020: the demand for the former and the latter is falling; the demand for the second is growing. This is due to the following circumstances: in the case of gasoline, a rise in product prices as a result of a failure in the offsetting markup mechanism; in the case of gas oil fuels and fuel oil, IMO restrictions on sulphur content in bunker fuel, which causes a drop in the demand for fuel oil and an increase in the demand for a replacing alternative: gas oil fuels

After explaining the change in premiums in the domestic market of petroleum products through the surplus dynamics, an explanation of this very dynamics is required:

- The growth of refining capacity and the upgrading of Russian refineries entail an increase in the output of gasoline, diesel fuel and jet fuel (by 21, 22 and 32% compared to 2017, or by 8.2, 21.2 and 3.6 million tons, respectively).
- A consequence of the same refinery upgrading is a significantly reduced output of fuel oil. In addition, some simple refineries (Novoshakhtinsky Refinery, KrasnodarEcoNeft, and some mini refineries) that previously supplied significant quantities of this product to the market are shutting down. As a result, the output of fuel oil decreases by 31%, or 18.4 million tons.
- Rising prices for petroleum products during the tax manoeuvre has a negative impact on demand. If it were not for the rise in prices, according to the premises under the Brent 71 scenario, the demand for gasoline would have increased in 2024 from 36.2 million tons in 2017 to 41.0 million tons in 2024 (+ 13%), for diesel fuel, from 44.6 million tons to 55.4 million tons (+ 24%), for jet fuel, from 9.7 million tons to 14.8 million tons (+ 53%).

4. COMPLETION OF THE TAX MANOEUVRE: WHAT'S NEXT?

And now it is time to take another look at the problems that were brought about by the export duty system and which it has been unable to solve, despite all improvements to it (see Section 2). The tax manoeuvre eliminates this system replacing duty-related subsidies to petroleum refineries and petroleum product consumers with other mechanisms of support that are expected to be effective. A question arises: is the tax manoeuvre going to be a solution to the above problems? And the answer is: in part only.

This tax manoeuvre rationally restricts the number of Russian petroleum product producers and consumers eligible for support from the state and effectively solves the task of cutting of the subsidies to the economies of friendly nations. These are undoubtedly the benefits of the reform. There are, however, also some drawbacks which lead to believe that this tax manoeuvre is most likely not the last.

4.1. Simple refining: life after death

The reform is failing to carry out its mission of causing simple refineries that have no upgrade potential and are unable to supply the domestic market with high quality products to leave the market. It quite reasonably bars them from subsidies, but this proves to be not enough. Some of the refineries no longer eligible for subsidies may be able to generate profit through subsidised sale of motor fuels exempt from excise taxes (see 3.3). As a result, “poor quality” refineries are going to cause both the federal budget to incur losses (in 2024 the Russian budget’s foregone income resulting from surrogate gasoline and diesel fuel exempt from excise tax, produced by simple refineries replacing excisable high quality fuels in the market may total 7.5 billion rubles in the actual 2017 prices for gasoline and 21.3 billion rubles for diesel fuel) and the producers of high quality motor fuels (who are losing about 0.7 potential million tons in the gasoline market and 3.1 million tons in the diesel fuel market through the fault of “poor quality” refineries), as well as damage the environment. The reform offers no solutions to tackle this problem.

This, however, does not mean that no solutions exist. One option would be to introduce an excise duty for all petroleum supplied to the domestic market (similarly to the way this was done in respect of gasoline and diesel fuel) in the amount of about 4,000 Rbs/ton (in the actual 2017 prices), with excise tax refund to all refineries except the “poor quality” ones. This would lead to a notable inflation of the feedstock prices exclusively for “poor quality” refineries. Being unable to raise domestic market prices for their products – as these prices are restricted by the “quality” refineries’ product

prices that are not going to be affected by the innovations – such refineries would become loss-making ones and eventually close down.

4.2. Looking for optimal subsidizing schemes for petroleum refining industry

The tax manoeuvre provides no solution as far as optimal subsidies to petroleum refineries are concerned. It, moreover, probably does not set finding this solution as a task. What the reform does do is simply bar the more questionable refineries from subsidies, and for all the rest it simply pegs it to the pre-reform rate per 1 ton of processed material¹⁵ (for the vast majority of refineries) or it increases it by means of regional multiplying coefficients (for several refineries with the worst export logistics). What raises doubts, however, is whether this level of subsidy support corresponds to the goals and objectives of the reform.

And from the regulatory authorities' and the expert community's debates surrounding the reform it appears that the key purpose of the tax manoeuvre in question, is to ensure a reliable supply of the domestic market with petroleum products, primarily with gasoline (mitigating the demand for which puts a great strain on the country's petroleum refining industry, at a minimum utilization level). This purpose would appear rather natural if we are to size up the reform from the angle of how it benefits the state budget because the lower the throughput, the less budgetary funds will be required to maintain it. However, as 3.3.2 demonstrates, this purpose fails to be attained: upon the completion of the reform in 2024 the annual petroleum refinery production under the rather realistic Brent 71 scenario will go up to 304 million tons, and the gasoline surplus will rise to 10 million tons, which clearly exceeds the required baseline (appr. 3 million tons).

This situation is a source of serious risks for the Russian petroleum refining industry because it suggests further manoeuvres will be needed to achieve a reduction of the subsidies granted to petroleum refineries. Risks are all the greater considering that the refinery production growth expected in the coming years (see Diagram 3.13 in clause 3.3.2), will automatically entail an increase in the state support of the petroleum refining industry out of the budget. And this may in turn compel the financial authorities to revise the refinery support mechanism, or at least, some of its parameters, even before the tax manoeuvre is completed.

To assess the risks related to potential optimization of subsidies to refineries, we at the very least need well-founded answers to the following questions: what would be the optimal level and how far can subsidies be reduced, will the optimal subsidies retain the positive dependence on the

¹⁵ Or more correctly, the subsidy amount per 1 ton of petroleum may increase if refineries choose to increase the oil refining depth, which situation is identical to what we had prior to the reform.

petroleum prices, will regional multiplying coefficients be adversely affected as a result of this optimization.

To find answers to these and many other questions, a comprehensive analysis of the impact of budgetary subsidies on the Russian petroleum refining industry was carried out by way of performing a series of calculations using MRPPM (for description see Appendix B). The calculations assumed that the actual petroleum excise tax refund mechanism (the mechanism for granting excise tax refund), while the excise tax amount will be calculated using the following formula:

$$A_{\text{petroleum}} = BA_{\text{petroleum}} \times S_{\text{prod}} \times K_{\text{reg}},$$

where $BA_{\text{petroleum}}$ stands for a parameter hereinafter referred to as “basic excise rate”; S_{prod} is the sum total $[(1 - K_{\text{prod}}) \times V_{\text{prod}}]$ of all products; K_{prod} is the ratio of the petroleum product duty to the petroleum duty in 2018, V_{prod} is product yield; K_{reg} is regional multiplying coefficient.

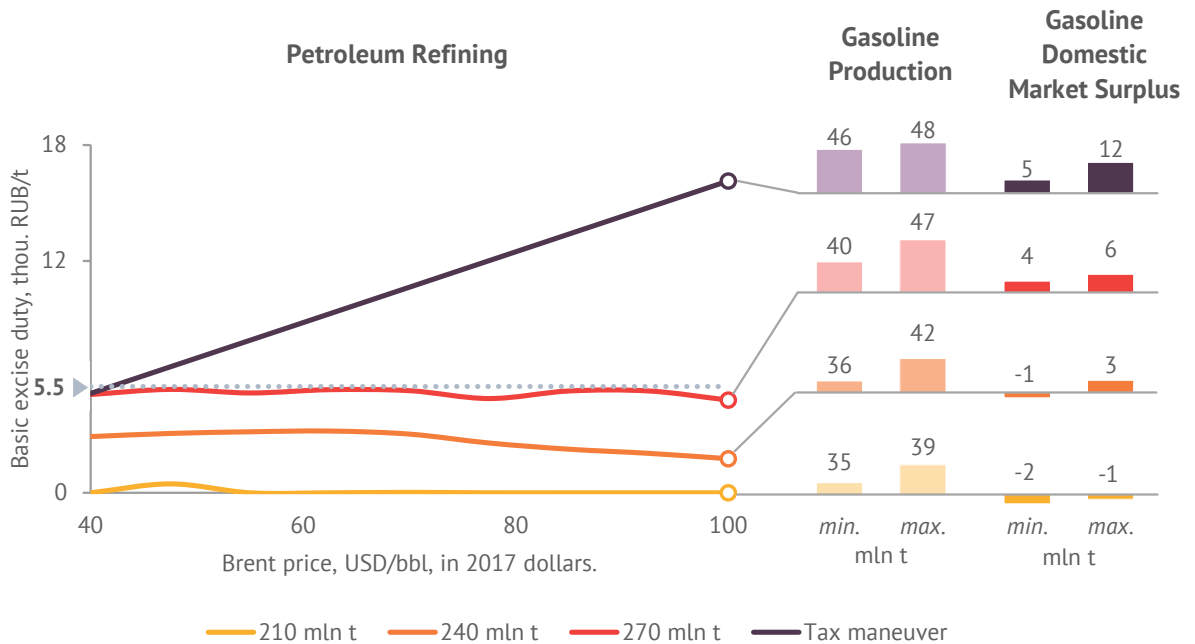
This formula is fully identical with the one used in the tax manoeuvre with the sole difference being that in model calculations the $BA_{\text{petroleum}}$ basic excise tax rate was treated as an adjustable parameter, while under the tax manoeuvre it equals the export duty on oil in rubles calculated based on the 2018 regulations.

Diagram 4.1 shows some of the findings of the analysis performed, namely, what should be the value of the basic excise tax rate on oil in Russia in 2024 to ensure an annual refinery production of 210, 240 and 270 million tons and what gasoline production and surplus rates correspond to each of these targets. The calculations were made based on the assumption that all refinery upgrading programmes existing as of 01.01.2018 and intended for the period between 2018 and 2024 will be accomplished in full. All regional multiplying coefficients were taken to be equal to 1. For comparison, the same diagrams show the dependence of BA petroleum value in the tax manoeuvre on the petroleum prices.

Diagram 4.1

Correlation between the petroleum prices and the BApetroleum basic excise tax (in nominal terms), essential for maintaining the petroleum production level at the established level in 2024 (with regional multiplying coefficients equalling 1)

Source: Petromarket Research Group



Note: the negligible relationship between the Brent prices and the basic excise tax ensuring a fixed refinery production in 2024 is due to the currently negligible relationship between the dollar exchange rate and the Brent prices in Russia. It became such in February 2017 when the RF Ministry of Finance introduced a new "budget rule" pattern. This pattern provides for the retaining of extra oil and gas income into the federal budget if the oil price passes the 40 USD/bbl threshold, and for the Bank of Russia to conduct transactions in purchasing relevant quantities of foreign currency on the exchange market. If it was a case of a negative relationship between the exchange rate and the Brent prices (like it was prior to February 2017), we could see a positive relationship between the basic excise tax and the oil prices.

The following comments are required to clarify Diagram 4.1:

- Subsidy options ensuring annual refinery production of 270 million tons and more may be considered quite acceptable in terms of guaranteed supply of the domestic market with gasoline (these options provide for an annual fuel surplus in Russia of 3 million tons or more) and that all the local backbone enterprises are kept afloat (the closure of any of those would be fraught with serious social and economic implications – see Sub-Section 3.2¹⁶). Refinery production below that level would result in equilibrating the gasoline market, and with an annual refinery production of anywhere below 240 million tons it would lead to another problem: that of retaining the profitability of all refineries that act as local backbone enterprises.
- The subsidy option under which the basic excise tax rate is pegged at 5500 RUB/t ensures an acceptable annual refinery production of 270

¹⁶ Novoshakhtinsky Refinery is no longer on the list of protected backbone enterprises, since there is no way it could be eligible for a subsidy and without such becomes invariably a loss-making facility

million tons (or slightly more than that) – depending on the Brent prices – will hereinafter be referred to as “contingent target”

- The difference between the basic excise taxes under the tax manoeuvre and under the “contingent target” option subsidies demonstrates an upward trend: with Brent prices at 40 USD/bbl (as of 2017) the difference is close to none, under the Brent 71 scenario it is approximately 5 000 RUB/t, and with Brent prices at 100 USD/bbl, it is over 10 000 RUB/t.

Calculations show that transition to the “contingent target” option in the Brent 71 scenario would have helped the government in 2024 to collect an extra (i.e. in the excess of amount to be collected under the tax manoeuvre) 743 billion rubles (in 2017 prices) in oil royalties from the petroleum refining industry. 52 billion from that amount are collected on account of abolishing regional multiplying coefficients (none of the refineries granted regional preferences by this tax manoeuvre find themselves running at a loss as a result of the abolition of such), 643 billion – on account of reducing the basic excise tax rate, 48 billion – on account of reduced refinery production). This is undoubtedly an incentive for the fiscal authorities to optimise the subsidy system to refineries, considering that under the “contingent target” scenario the 2024 refinery production will be 277 million tons and the gasoline surplus will be 7 million tons, which is significantly above the minimum acceptable level.

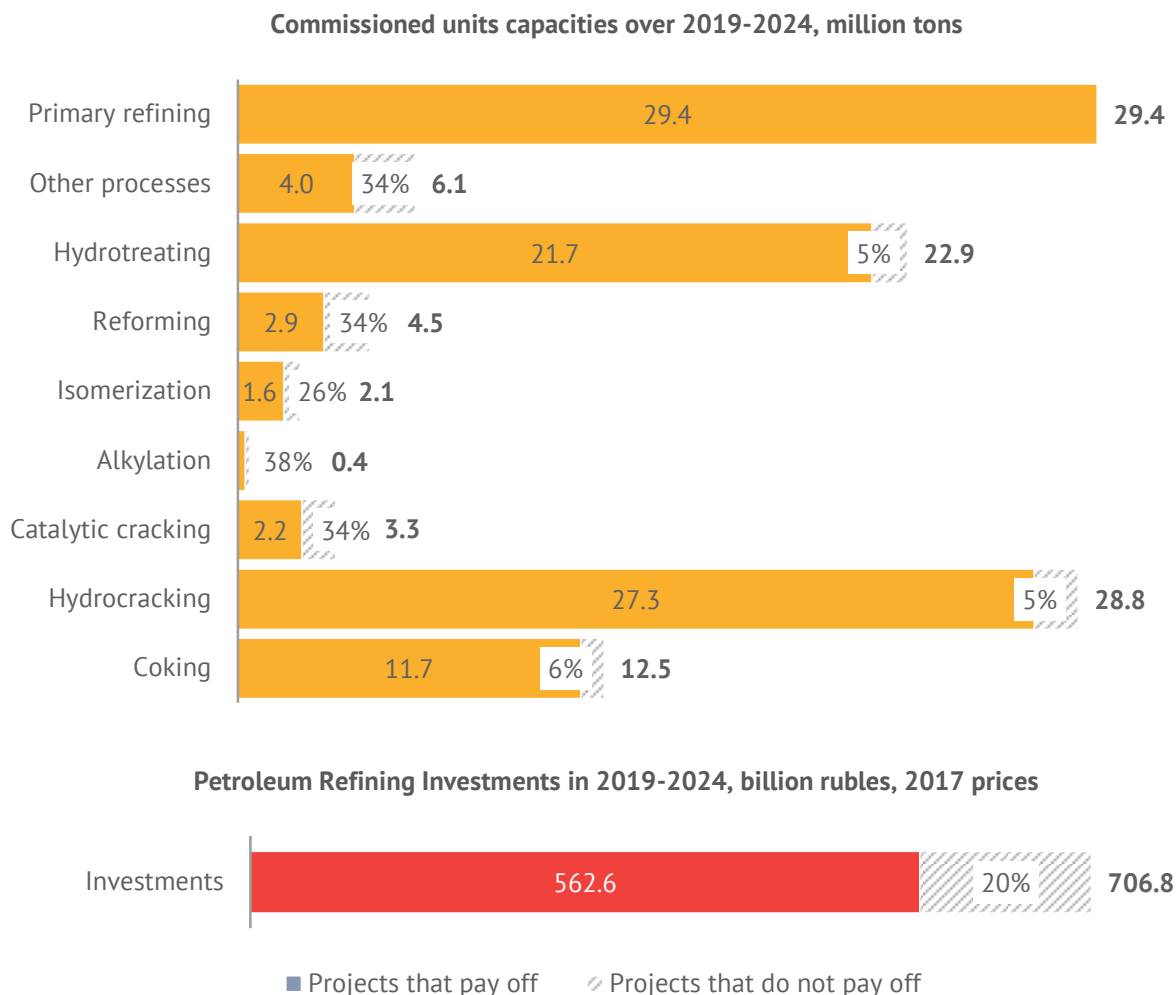
As was stated above, all calculations shown here were based on the assumption that the projects for commissioning new refining facilities planned in the upgrading programmes covering all of Russia’s refineries are going to be implemented in full. Yet the implementation of the “contingent target” option under the Brent 71 scenario providing for double (compared to what is provided under the tax manoeuvre) reduction of the basic excise tax rate, will have such an impact on the refineries’ investment programmes that in 2024 the gasoline surplus will be below not only the 7 million tons threshold, but also the minimum acceptable threshold? To test this, the paying-off capacity of projects in commissioning new units upon reduction of the basic excise tax rate over the period of 2019-2024 down to 5,500 rubles while abolishing regional multiplying coefficients has been analysed (see Diagram 4.2).

It is seen from the diagram that 144.2 billion rubles of investments, or 20% of the total investments provided in all refinery upgrading programmes, remain stranded. This is more than in case of subsidies under the tax manoeuvre (5% of investments do not pay off), but less than if duties are abolished without compensations – 32%).

Diagram 4.2

The ratio of paying off to non-paying off refinery development projects ratio in the context of tax manoeuvre completion, adjusted for the BApetroleum basic excise tax for 2019-2024 of 5 500 RUB/t in face value and regional multiplying coefficients equalling 1 (under Brent 71 scenario)

Source: Petromarket Research Group

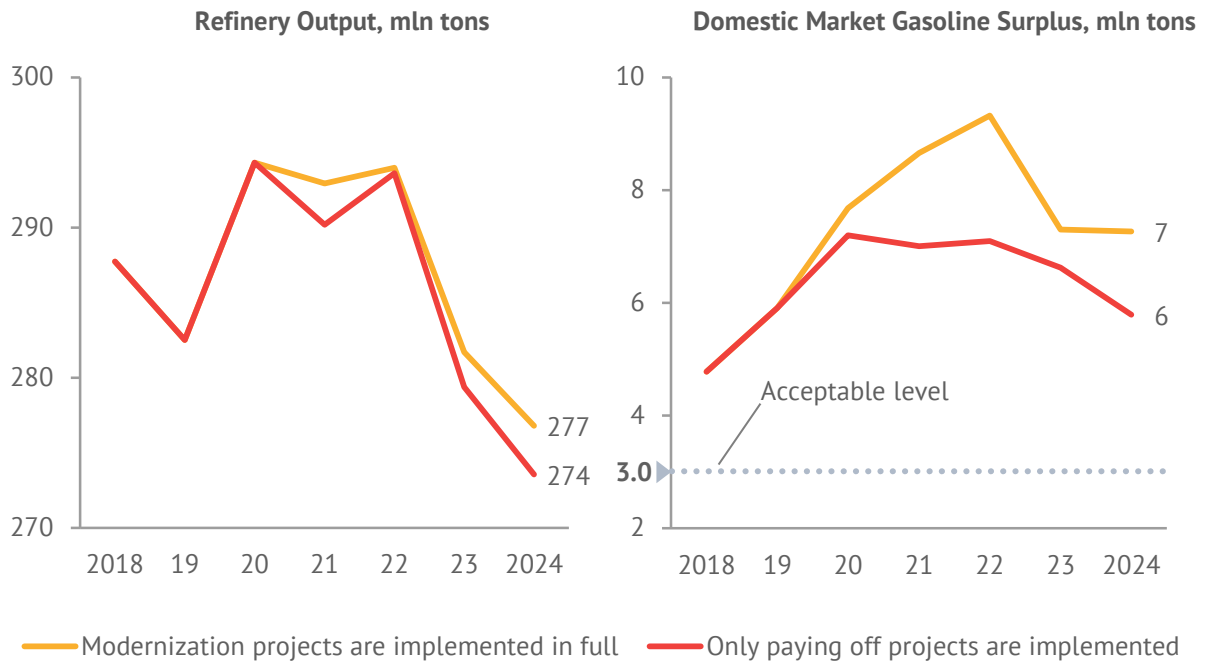


As can be seen from Diagram 4.3, even when the excise refund is reduced down to the “contingent target” level and the regional multiplying coefficients are abolished, and moreover upon the condition that not all of the refineries undergo upgrading, but only paying off ones, refinery production in Russia is going to stay at levels ensuring sufficient gasoline surplus in the domestic market. At that all the refineries that act as backbone enterprises in towns keep up the positive margin. This vast resource for subsidy reduction (double reduction under Brent 71 scenario!) will most likely impel the financial authorities to optimize state support to refineries.

Diagram 4.3

Refinery Production and Gasoline Surplus Amount in Russia upon completion of the tax manoeuvre, adjusted for BApetroleum basic excise tax for 2019-2024 of 5,500 RUB/t in face value and regional multiplying coefficients equalling 1 (under Brent 71 scenario)

Source: Petromarket Research Group



It is again important to stress here that all the considerations given above will only be valid if the minimum subsidy amount at which Russia's petroleum refining industry is capable of guaranteeing that the domestic market's demand for petroleum products is taken as the optimal subsidy amount. It cannot, however, be ruled out that the regulator may have different ideas about what subsidies to the refining industry are optimal. At any rate, the tax manoeuvre sends somewhat controversial signals in this regard. For example, if we proceed from the above concept of what subsidies are optimal, then supporting refineries that are chiefly or exclusively export oriented due to their actual location would be pointless. However, as shown in Sub-Section 3.3, the reform successfully stimulates the development of precisely independent petroleum refineries many of which are export oriented (Afipsky, Ilsky and some others). By making it possible for them to get an excise refund through entering into ironclad upgrading agreements with the Ministry of Energy, the tax manoeuvre gives them a chance to make it. Strangely enough, the regulator tends to stimulate the development of independent refiners more, whereas refineries owned by major vertically integrated petroleum companies are eligible for budget subsidies regardless of whether they are upgraded or not. This strategy ensures no investments are required to achieve a high margin, which to an extent discourages their development. And that is despite the refineries owned by major vertically integrated petroleum companies being chiefly domestic market oriented.

Strictly speaking, export of petroleum products is not a bad thing in itself. The state may even choose to subsidize loss-making export, if the purpose of such policy is clear. When the purpose is explicitly stated, it becomes clear whether the logic of the tax reform is congruous with it. The tax manoeuvre to be launched on January 1, 2019 can hardly be described as transparent. To sum it up, the three pivotal issues requiring solutions prior to the reform (see Section 2), are not provided with such by the tax manoeuvre:

- What refinery production volumes should be deemed optimal and how can subsidies stimulate the petroleum refining industry keep to that optimal volume?
- What should be the optimal scope of refinery upgrading and how can it be achieved through subsidies?
- Shall the period during which the subsidy will be paid to a refinery be limited?

All of these issues that are not given exhaustive answers (at least, publicly) make the uncertain future of this tax manoeuvre all the more vague causing to expect further adjustments of the taxation system on the part of the regulator. The refining industry is clearly in need of greater clarity as far as the focus of the regulator is concerned, what the final priorities and objectives are, and what strategy it suggests for aligning the interests of the sector with those of the state.

4.3. Strengths and failures of the offsetting markup

As was mentioned in Sub-section 3.1, the offsetting markup to the refundable excise oil tax is an additional tax deduction intended to drive down gasoline and diesel fuel prices in the Russian domestic market. The deduction represents compensation on the part of the state to a refinery for the losses it incurs as a result of keeping its prices below the prices for export alternatives. The eligibility requirements for the markup are these:

- It is granted only to refineries eligible for petroleum excise tax refund (the eligibility requirements can be found in Sub-Section 3.1);
- A refinery will only be eligible for the offsetting markup only if both the average wholesale gasoline AI-92 and the average wholesale diesel fuel prices in Russia¹⁷ are no more than 10% above the statutory (reference) average wholesale prices. The reference prices for gasoline AI-92 and diesel fuel are stipulated by the Federal Law 301-FZ On Amending Part II of the RF Tax Code, dated 03.08.2018, for the period between 2019 and

¹⁷ A normative calculation technique for average wholesale prices is currently lacking. To ensure greater certainty this analysis assumes that it is the wholesale prices across Russia's regions that are being averaged out or, in other words, price at the refinery's gate plus the delivery costs.

2021, and are the following: AI-92 – 56 000, 58 800, 61 740. RUB/t, diesel fuel – 50 000, 52 500, 55 125 RUB/t respectively (these reference prices are suggested for change, see below).

The offsetting markup (*OM*) is calculated using this formula:

$$OM = ((GP_{exp} - Gp_{dom}) \times GV + (DFP_{dom} - DFP_{exp}) \times DFV) \times K_{comp},$$

where

GP_{exp} and *DFP_{exp}* – the average for the tax period export prices for gasoline AI-92 and Tier 5 diesel fuel respectively (calculated for sea export of petroleum products via the North Western Federal District ports as NWE market prices net of sea transportation costs, transshipment costs and export duty upon which the excise tax and VAT are charged, based on the regulations applicable to domestic market prices);

Gp_{dom} and *DFP_{dom}* – the respective gasoline AI-92 and diesel fuel reference prices in the domestic market;

GV and *DFV* are the supply volumes of Tier 5 gasoline (octane grade 92 and above) and of Tier 5 diesel fuel respectively from the refinery to the domestic market;

K_{comp} is the compensation factor of 0.6 in 2019 and in 0.5 in 2020 and 2021.

For the sake of simplicity we will hereinafter use the term "offsetting markup" on gasoline or diesel fuel to refer to difference between the export price of the product and its reference price, multiplied by compensation factor.

It shall be noted straight away that the offsetting mechanism has 3 significant drawbacks. Two of those are immediately obvious:

- The principle of command responsibility that the regulator applies to the offsetting markup payment to refineries. Even if a certain refinery sells its products with delivery throughout the country included at prices not more than 10% above the reference, this cannot guarantee that it will be eligible for an extra tax deduction – the decision on it will be made based on the results of the country's average wholesale prices evaluation and not the prices of a specific refinery.
- Refineries are only eligible for the offsetting markup when the average wholesale prices for both gasoline AI-92 and diesel fuel are no more than 10% above the reference prices. For one thing, this factor contributes to command responsibility. And for another, it is in itself a drawback, even without the issue of command responsibility there: if a refinery, for example, manages to keep down their prices in the gasoline market but, for some reason, fail to do that for diesel fuel, it will not be eligible for the offsetting markup.

The third drawback is not so obvious even though under certain conditions it renders the offsetting markup mechanism inefficient. The drawback basically consists in the offsetting markup being useless for preventing a sharp motor fuel price rise in the domestic market. Under free market pricing, i.e. lack of direct interference of the state, offsetting markup mechanism, can keep the domestic market prices down only within the strictly defined Brent price range. Diagram 4.4 shows an example of how the offsetting markup will function in the gasoline market in 2019 upon the assumption that the USD nominal exchange rate will be 67 RUB/USD all across the range of oil prices. As you can see, the operating range of the offsetting markup is between 55 and 76 USD/bbl. With Brent prices below 55 USD/bbl the mechanism does not enter into effect because under that scenario the reference price is higher than the export price and with Brent prices of over 76 USD/bbl it becomes more profitable for a refinery to refuse a compensation represented by the markup and to start selling gasoline in the domestic market at prices higher than its export price.

Similar analysis carried out for diesel fuel shows that the offsetting markup for 2019 only works if Brent prices range between 61 and 80 USD/bbl meaning that this range is shifted to the right compared to the range for gasoline. But taking into account that the offsetting markup can only be obtained provided average wholesale prices for both gasoline AI-92 and diesel fuel are not more than 10% above the reference prices, the resulting Brent price range within which the mechanism is functional is 55-76 USD/bbl.

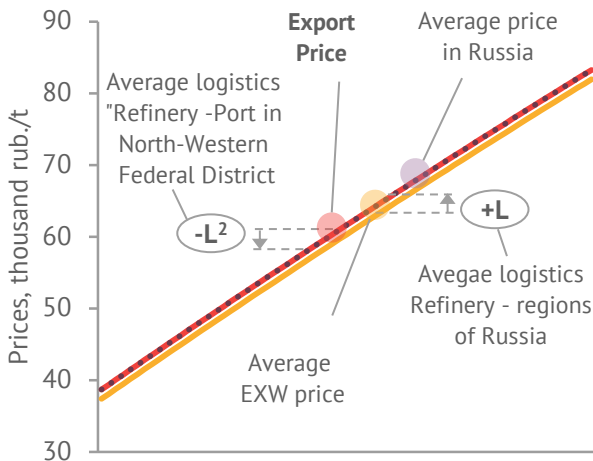
The key parameter for assessment of the offsetting mechanism efficiency is the upper limit of the Brent price range within which the mechanism functions properly (hereinafter – operating range). At Brent prices above the upper limit of the operating range the offsetting mechanism is not functional.

Diagram 4.4

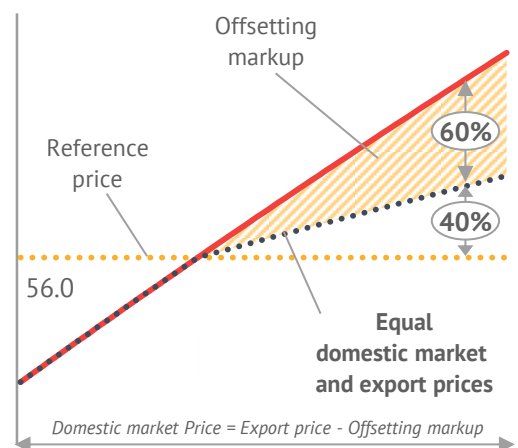
The impact of the offsetting mechanism on gasoline AI-92 pricing on pricing in the domestic market in 2019 (no government interference with prices, dollar rate at 67 RUB/USD and not tied to petroleum prices)

Source: Petromarket Research Group

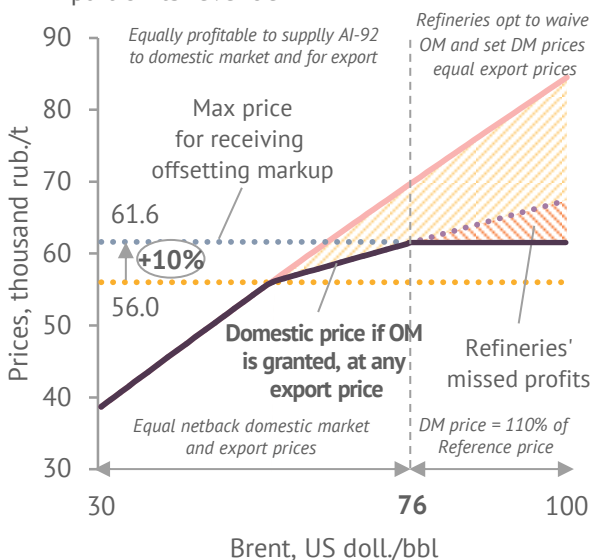
1 Without the offsetting markup (OM) the average wholesale price across Russia would be on a par with the export price following the principle of parity.¹



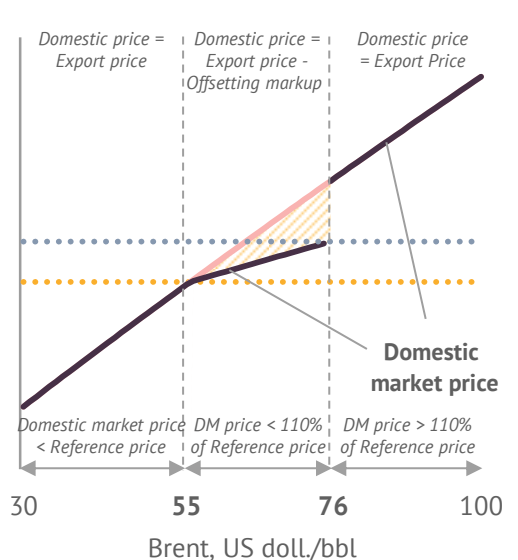
2 Upon introduction of the offsetting markup the parity price in the domestic and international markets will go down in proportion to that markup amount.



3 A refinery is eligible for the OM only if the domestic market prices are no more than 10% above the reference prices. Yet with Brent prices of over 76 USD/bbl, to be eligible for the markups a refinery would need to keep domestic market prices below the parity with export prices thus losing part of its revenue



4 With Brent prices of over 76 USD/bbl refineries will find it more profitable to waive the offsetting markup and to set the prices on a par with export prices. The offsetting mechanism is functional within the Brent price range of 55-76 USD/bbl.



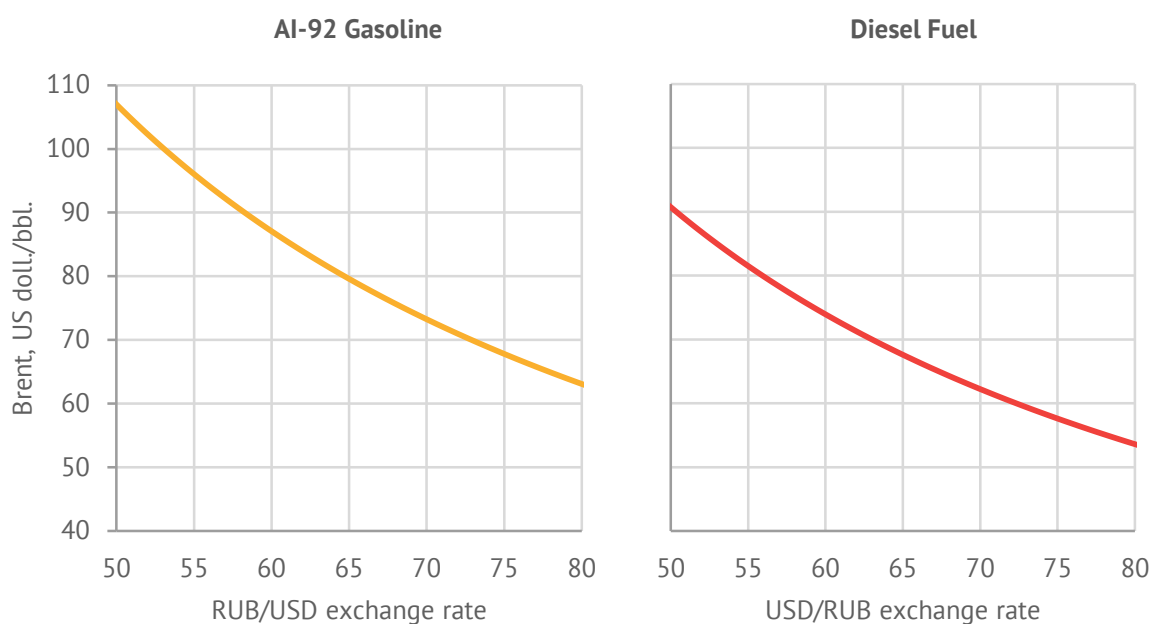
1. Here and elsewhere in this sub-section, unless indicated otherwise, it is suggested that there is no domestic market premium against the world one.
 2. For the sake of simplicity the equivalence of an average refinery-Northwestern Federal District port logistics and an average refinery-RF region logistics. In reality, the former option is about 1,000 rubles (VAT inclusive) more expensive than the latter.

As can be seen from Diagram 4.4 the top values of the price range was calculated with the dollar rate taken as 67 RUB/USD. But the task can be even more general: to define the top of the operating range (hereinafter – Brent critical price) tied to dollar exchange rate which affects the export ruble price. The outcome of this solution for gasoline and diesel fuel is shown in Diagram 4.5. As can be seen in the diagram, the lower the exchange rate of the ruble, the lower - all else being equal - the Brent prices upon reaching which the offsetting mechanism stops functioning.

Diagram 4.5

Brent critical price - Dollar Rate relationship

Source: Petromarket Research Group



Another important factor affecting the evaluation of the operating range for the offsetting mechanism in case of diesel fuel. The above range was cited for the assumption that it is summer diesel fuel. Because for summer diesel fuel there is a proper export alternative calculated based on summer diesel fuel quotations in Europe. However, the Russian market also offers winter and inter-season diesel fuels which are more expensive than summer diesel fuel. The domestic market prices for these fuel grades are calculated using the formula: “export alternative for summer diesel fuel + quality bonus”. But the offsetting markup is evaluated based on the export alternative with no bonuses. If we are to look at the 2017 situation, the bonus on the summer diesel fuel prices in the winter seasonal market was on average 4,000 RUB/t. With this bonus amount, the upper limit of the Brent price range within which the offsetting mechanism is functional in the winter diesel fuel market significantly shifts down compared to the situation for summer diesel fuel – from 80 to 65 USD/bbl, with an exchange rate of 67 RUB/USD.

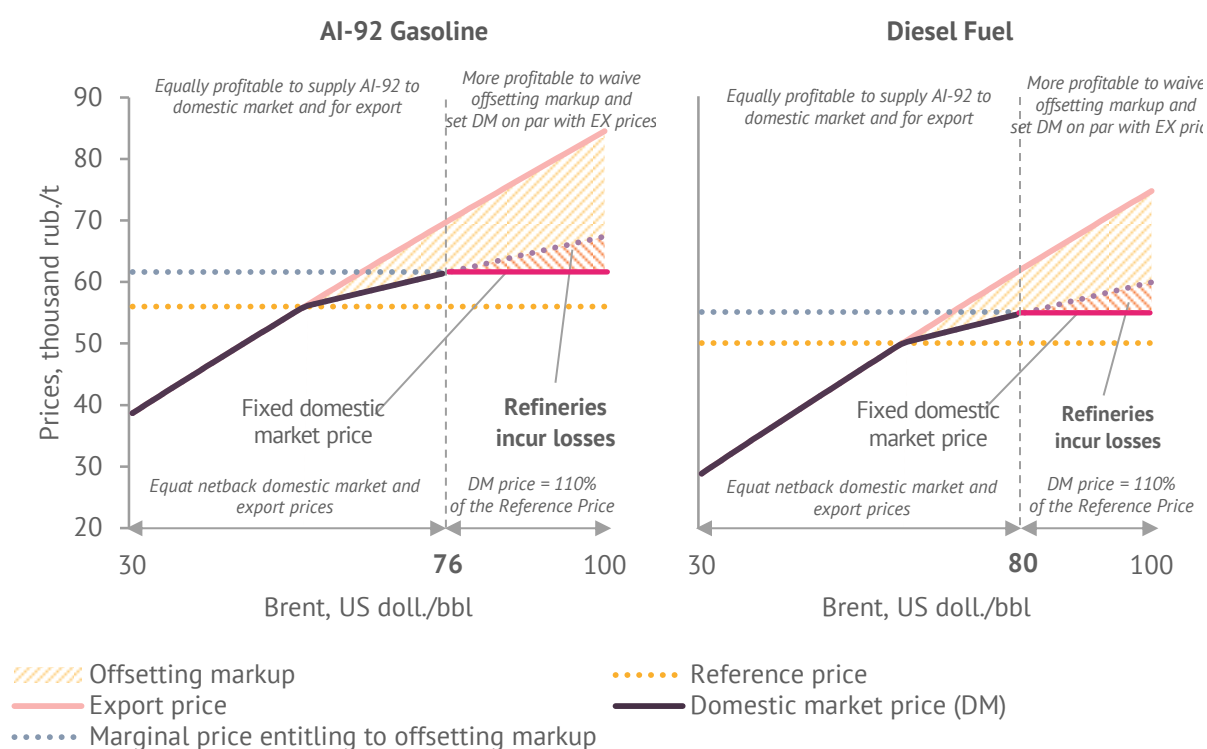
Similar downward shift of the critical price will surface if calculations are made taking into account the natural premium of the domestic gasoline and summer diesel fuel compared to gasoline and fuel for export.

It is quite clear that the indicated drawbacks of the offsetting mechanism can be rectified if free market pricing is abolished. If the state will, in some way or another, force petroleum producers to keep prices below the reference level plus 10%, then the offsetting markup will transform into a kind of conceptual instrument. It will serve not so much to keep prices down as to compensate, whether partially or in full, refineries for the losses resulting from motor fuels trade at prices below the market rates (see Diagram 4.6).

Diagram 4.6

The impact of the offsetting mechanism on pricing in the domestic gasoline AI-92 gasoline and diesel fuel market in 2019 (under government's interference and the dollar exchange rate – 67 RUB/USD)

Source: Petromarket Research Group



Additionally, it stands to note that the offsetting mechanism, as it was established by the federal law 301-FZ of 03.08.2018 On Amending Part II of the RF Tax Code (hereinafter – the existing offsetting mechanism), will by all appearances not be introduced. It is at any rate suggested that its parameters are revised in respect of 2019: the meeting On Development of the Oil Sector and Petroleum Production Incentives, held by the Russian PM on September 18 with the participation of the oil sector and the relevant ministries and agencies representatives lead to a resolution on the reduction of reference prices for AI-92 from 56 000 to 50 400 RUB/t and for diesel fuel from 50 000 to 45 000 RUB/t being adopted.

The launch of the offsetting mechanism equipped with new parameters (hereinafter referred to as prospective offsetting mechanism), all else being equal, will result in a rise in the offsetting markup, and consequently to

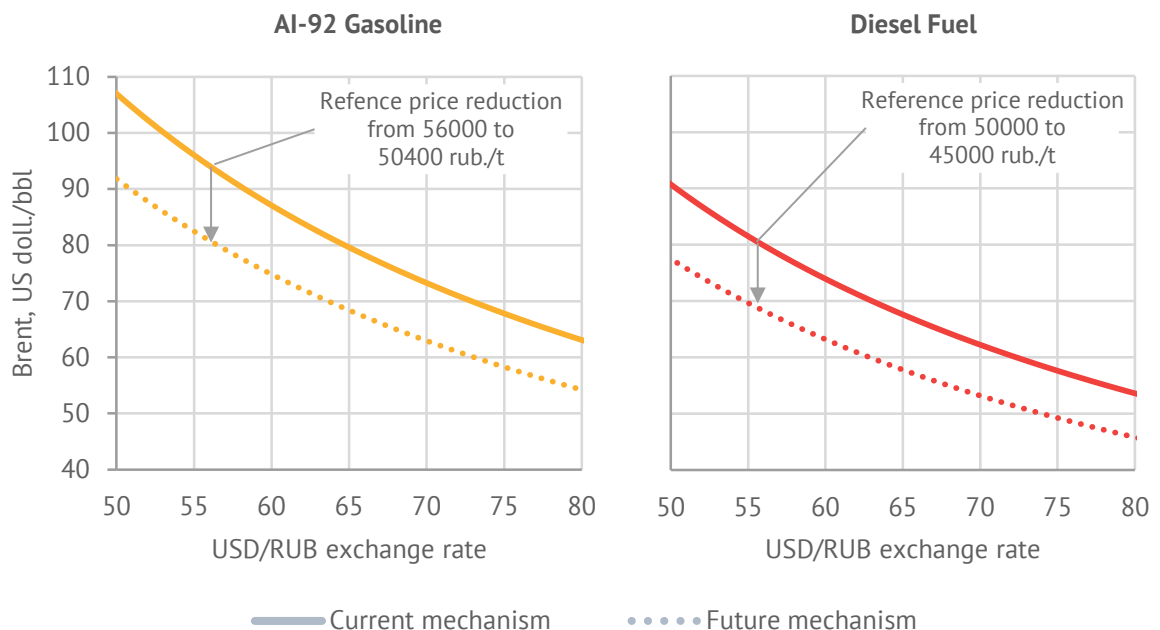
growing costs for the state related to its payment. These additional costs are expected to be for 50% compensated on account of the oil royalty increase¹⁸.

These changes in the offsetting mechanism's parameters will by no means affect its point. Similarly to the way it currently is, the future mechanism will only function properly within a strictly defined range of Brent prices. When Brent prices are below this range, the offsetting mechanism is simply not activated, and when the prices go in excess of that range, it either stops functioning (under free market pricing in the domestic market), or will function as a mechanism for partially compensating refineries for lost revenue resulting from sale of motor fuels at prices below market rates (under state coercion of producers to keep prices down). The Brent critical price - dollar rate curve for the case of AI-92 gasoline and diesel fuel in the prospective offsetting mechanism is shown in Diagram 4.7.

Diagram 4.7

The Brent critical price - Dollar Exchange Rate curve for current and prospective offsetting mechanisms

Source: Petromarket Research Group



The differences between the current mechanism and the future one are the following:

- The range of Brent prices within which the offsetting mechanism is functional changes, and the top of this range (the critical price under the future mechanism is expected to shift down to lower price values (see example in Diagram 4.7);

¹⁸ It is currently suggested that a special summand tied to oil prices and dollar exchange rate and adjustable to changes in the offsetting markup amounts be introduced into the royalty calculation formula.

- Within the operating range of the offsetting markup the planned mechanism ensures a larger gap between export and domestic motor fuel prices than the existing one does (see example in Diagram 4.8);
- In the context of the government's interference in the domestic market pricing refineries' revenue losses increase when Brent prices are in excess of the critical price (see example in Table 4.9);
- The state shifts a share of costs associated with gasoline and diesel fuel price pegging onto the refining industry's shoulders.

To sum up the above, it is to be noted that the offsetting markups' mechanism whatever the values of its key parameters (the compensation factor, the base price and the admissible deviation), is capable of keeping down wholesale gasoline and diesel fuel prices within a strictly defined Brent price range. These features of the mechanism prevent it from being deemed a universally applicable motor fuel price control instrument. For example, if the offsetting mechanism containing parameters specified in the federal law 301-FZ On Amending Part II of the RF Tax Code for the year 2019 was introduced this year, say in September 2018, when the Brent prices held at 79 USD/m³, and the dollar rate almost reached 68 RUB/USD, it would not have helped to keep in check the motor fuel price rise up to the export price level. In a situation like this, should the regulator deem that the need to keep down gasoline and diesel fuel prices at a socially desirable level is more important than the need to observe economic freedoms, it will start looking for ways to coerce petroleum companies to sell motor fuels at prices below market rates. This decision could result in a partial loss of the revenue, or in the regulator tampering with the offsetting markups' mechanism, to adjust it towards greater suitability for solving the current crisis. This is, however, less likely, because the state would have to compensate excessive losses to refiners.

Diagram 4.8

Comparison of current and prospective offsetting mechanisms' impact on AI-92 gasoline and diesel fuel prices in 2019 at Brent prices of 66 USD/bbl (free market pricing, dollar exchange rate of 67 RUB/USD)

Source: Petromarket Research Group

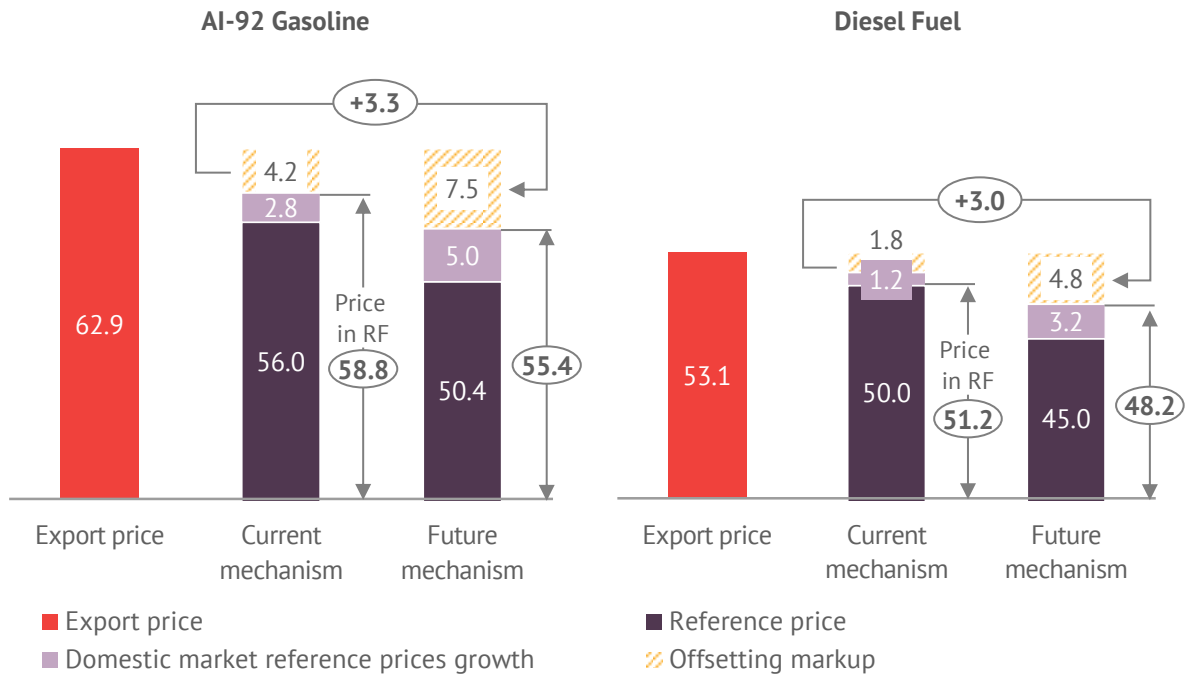
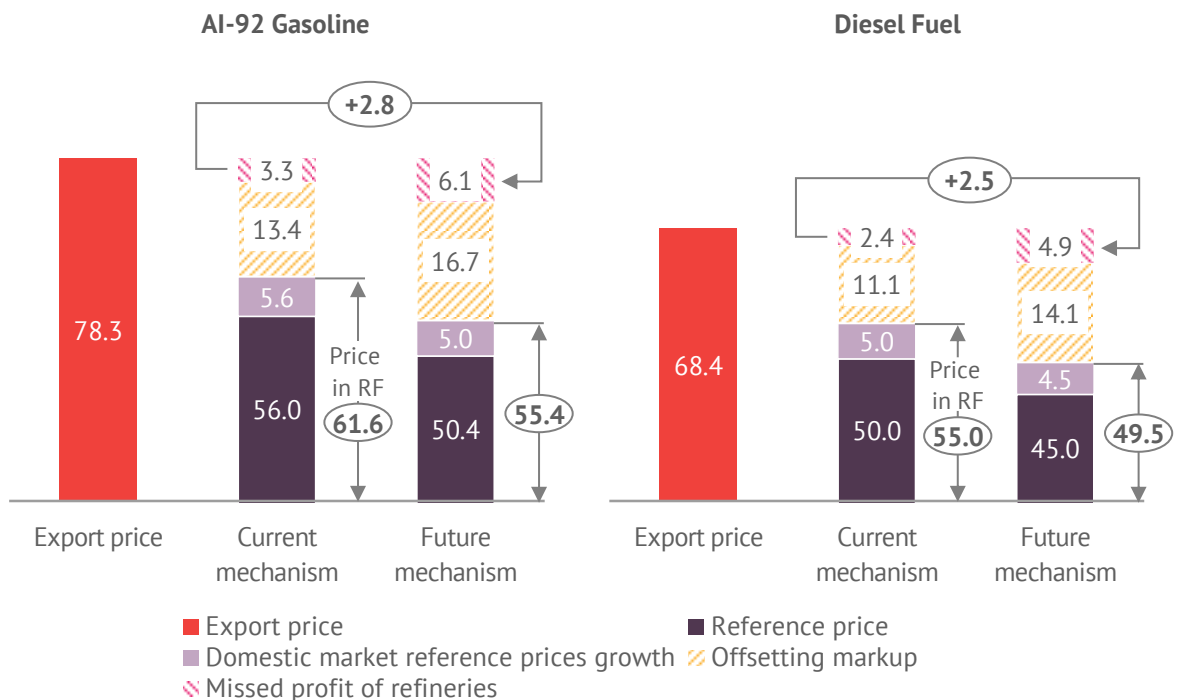


Table 4.9

Comparison of current and prospective offsetting mechanisms' impact on AI-92 gasoline and diesel fuel prices in 2019 at Brent prices of 90 USD/bbl (under the government's interference and dollar exchange rate of 67 RUB/USD)

Source: Petromarket Research Group



APPENDIX A. SETTLEMENT TERMS UNDER SCENARIO

Table A.1

Key parameters of the settlement terms under the scenario presented in the analysis

Source: Petromarket Research Group

	Actual	Brent 71 scenario						
	2017	2018	2019	2020	2021	2022	2023	2024
Dated Brent price, in 2017 dollars, USD/bbl	54.3	70.6	71	71	71	71	71	71
Price spread Urals CIF Rotterdam and Dated Brent in 2017 dollars, USD/bbl	-1.36	-1.61	-1.61	-1.61	-1.61	-1.61	-1.61	-1.61
USD exchange rate in 2017 dollars, RUB/USD	58.30	61.16	64.8	64.8	64.8	64.8	64.8	64.8
Consumer Price Index in Russia, % on previous year	2.52%	3.4%	4%	4%	4%	4%	4%	4%
Consumer Price Index in US, % on previous year	2.11%	2%	2%	2%	2%	2%	2%	2%
Nominal value of Dated Brent, USD/bbl	54.3	72	73.9	75.3	76.9	78.4	80.0	81.6
Nominal price spread between Urals CIF Rotterdam and Dated Brent, USD/bbl	-1.36	-1.65	-1.68	-1.71	-1.75	-1.78	-1.82	-1.85
Nominal USD exchange rate, RUB/USD	58.30	62.00	67.00	68.31	69.65	71.02	72.41	73.83
Nominal reference price of gasoline AI-92 for the purpose of the offsetting markup calculation, RUB/t			56000	58800	61740	64827	68068	71472
Nominal reference price of Tier 5 diesel fuel for the purpose of the offsetting markup calculation, RUB/t			50000	52500	55130	57886	60781	63820
Import duty on petroleum products, % of the cost of product at RF frontier	5%	5%	5%	5%	5%	5%	5%	5%

APPENDIX B. OUTLINE DESCRIPTION OF MRPPM (INTEGRATED MODEL OF THE RUSSIAN PETROLEUM PRODUCT MODEL)

An integrated mathematical model of the Russian petroleum product market, MRPPM, was designed by Petromarket Research Group to analyse the response of that market to possible changes within it.

The model imitates the operation of the market mechanism which drives the demand, supply and the prices for petroleum products towards certain equilibrium. That equilibrium may change depending on changes of external conditions which include:

- the Russian petroleum and petroleum products in international markets (impacting the domestic market prices and, by extension, the petroleum product demand and supply and the petroleum refining economy);
- inflation and the exchange rates (impacting the petroleum refining economy and the petroleum product supply);
- macroeconomic and demographic parameters defining the situation with the petroleum product consumption (impacting the demand);
- the petroleum industry tax and customs tariff regulation parameters – the oil and petroleum product export duties, the duty on imported products, the VAT, the excise duties, etc. (impacting the domestic market prices, the petroleum product demand and supply, and the petroleum refining economy).

MRPPM includes the following specific models:

- petroleum product demand patterns introducing functional relationships between the demanded quantity and macroeconomic parameters and prices, both current and future;
- refinery models (linear programming models or LP models) simulating the operation of refineries: each refinery maximizes EBITDA with set product and processed raw materials prices taking into account:
 - current and future refining technologies (feedstock composition and quality, process unit capacities and material balances, products flows between process units, quality description of semi-processed products intended for commodity output blending);
 - current and future operating costs of refineries;

- limitations on the output of specific products (i.e., base limitation on gasoline production).

Currently MRPPM is applicable to the markets of 21 types of commodity (gasoline by grades, diesel fuel, middle distillates, jet kerosene, industrial oils, naphtha, vacuum gas oil, tar, bitumen, coke and other products) and simulates the operation of 84 Russian refineries (32 major refineries, 49 mini refineries, 3 gas processing plants).

In addition to the conditions set in the scenario, the following are pre-set in the model:

- current and future petroleum and petroleum products supply logistics to the domestic market and for export (the routes, the transportation costs) for each refinery. Possible export destinations for petroleum products include the global petroleum trade hubs (the Euro-Mediterranean region, the North Western Europe and Singapore). The petroleum product supply logistics for the domestic market varies across the 85 regions differing by wholesale petroleum product prices. In total, the model contains over 900 raw material supply routes and over 3,000 petroleum product supply routes;
- current and future refinery production limitations on the capacities of transportation systems for export destinations;
- current and future product quality requirements and limitations on output (i.e. base limitations on gasoline production) at refineries.

Calculations under MRPPM are about achieving market equilibrium under the scenario conditions. The following are defined by equilibrium:

- wholesale prices for each petroleum product in each regional market;
- the quantity demanded in the domestic market for each petroleum product;
- the situation at each refinery (utilization level, petroleum product output and their supply from the export and regional markets' perspective).

MRPPM is a rather bulky and complex instrument. Still, its internal logic can be generally illustrated thus (see Diagram B.1).

Let us examine a scenario providing for abolition of export duties and assume that prior to their abolition the domestic market is in equilibrium: with fixed price, macroeconomic and tax terms the market mechanism will prop up the prices, and keep the demand and the pattern of satisfying in with supplies from Russian refineries stable. Once export duties on oil and petroleum products are annulled, the equilibrium will be upset. The export netback prices and the domestic market feedstock and petroleum product prices will rise by the abolished duty rate amount. At the same time, all Russian refineries will be deprived of duty-related subsidies, and which will

turn some of them into loss-making enterprises (having a negative EBITDA) bound to close down.

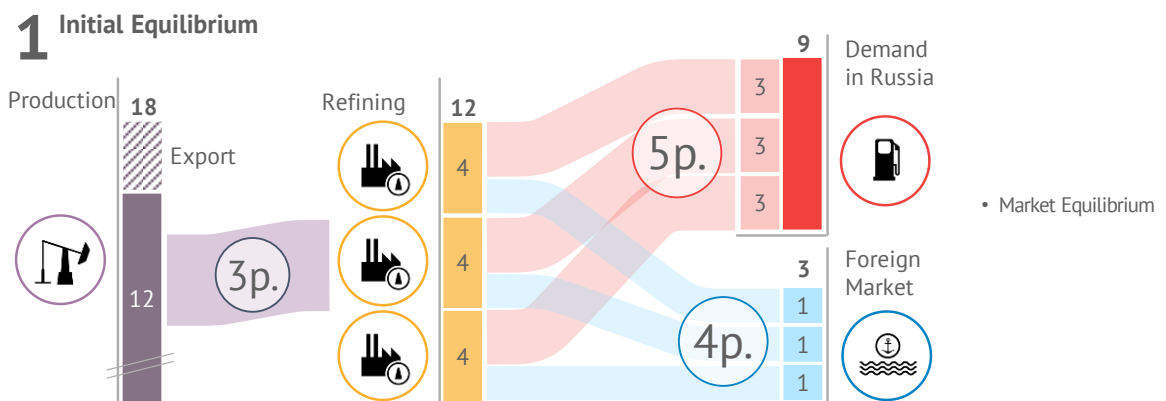
But the closure of refineries means dropping demand for petroleum products which may lead to a shortage of some of them either in general in the domestic market, or in isolated regions. As a result, prices for products in short supply will begin to grow in the domestic market and will continue to do so until they reach a level at which there will no longer be a shortage. The end of the shortage is inevitable because rising prices simultaneously bring down the demand for a product and serve as an incentive for increasing its supply. At the very least, prices will reach the CIF parity, with the shortage guaranteed to be compensated for by supplies from abroad. It is also quite possible that the rising prices for products in short supply will result in some of Russia's refineries that had to close down earlier starting to make profit again, and those will resume their petroleum refining operations. If the growing supplies from the re-opened refineries will make up for the shortage with a vengeance, this will lead to reverse movement of prices, capable of boosting the demand and, most importantly, leave some of the re-opened refineries with no other choice but to close down again. This will once again propel an upward movement of prices.

This pattern will repeat itself on and on and on until a price level is found at which fluctuations in demand and supply will be no more. And that would be that newfound equilibrium resulting from the abolition of export duties.

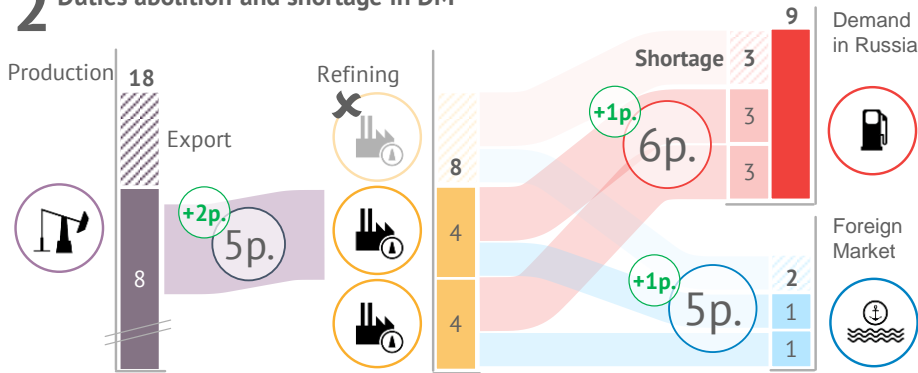
Diagram B.1

Logic of MRPPM operation

Source: Petromarket Research Group

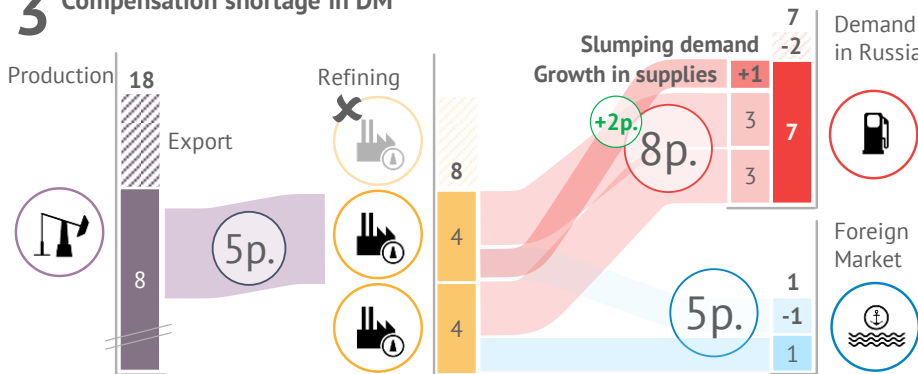


2 Duties abolition and shortage in DM



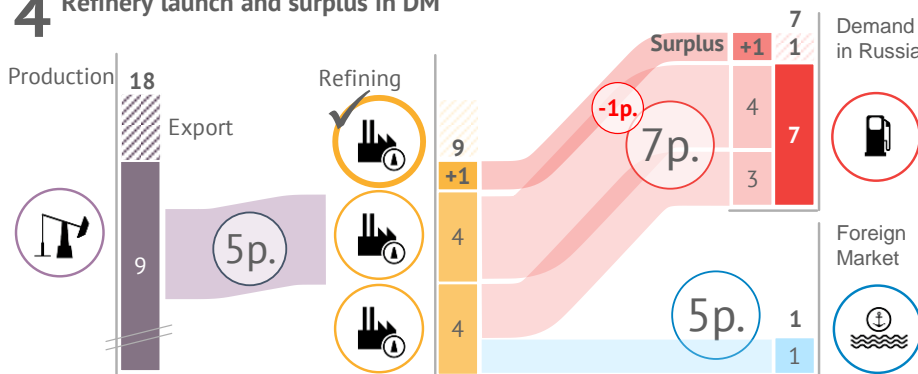
- Upon duties abolition petroleum and petroleum product prices rise by the abolished duty amount
- One of the refineries becomes loss-making in this situation and closes down.
- Petroleum product shortage in domestic market.

3 Compensation shortage in DM



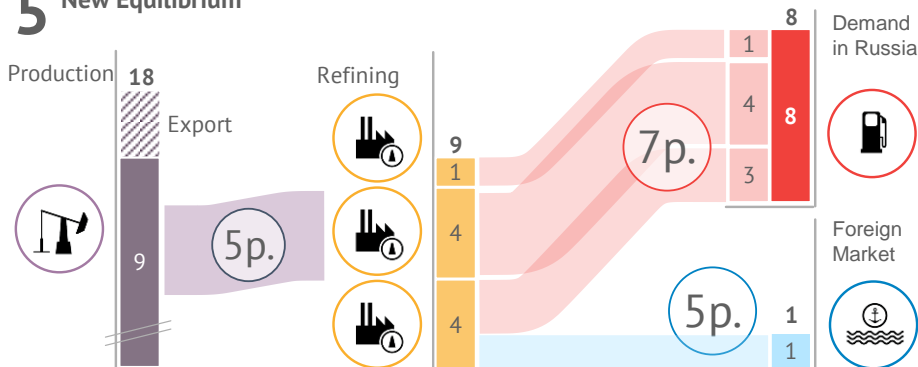
- Resulting shortage causes a price rise in excess of the abolished duty amount.
- Price rise pushes down demand, forcing one of the "surviving" refineries to switch from export to supplying domestic market, while the refinery that had previously shut down becomes profit-making.

4 Refinery launch and surplus in DM



- A refinery that had previously shut down re-opens, albeit operating at a reduced output, supplying it entirely to the domestic market.
- Surplus of products in the domestic market.

5 New Equilibrium



- Resulting surplus causes a reduction in product prices.
- Price reduction causes rise in demand, but without affecting refineries' strategies as far as product supplies to domestic market and for export are concerned.
- Equilibrium achieved.



PETROMARKET
RESEARCH GROUP

Bldg. 75, Block 11, Suite 300, Friedrich Engels Street,
Moscow 105082, Russia

Telephone and fax: +7 (495) 308-04-45

pm@petromarket.ru

www.petromarket.ru