Notebook

Notebook provides data not easily found elsewhere, background descriptions of important aspects of the energy system and reports on new developments. Contributions are invited.

On the Future Role of Gulf Oil in Meeting World Energy Demand

M. NAGY ELTONY

I. Introduction

The view that there will be a growing dependence on oil from the Gulf countries is shared by a great number of oil market analysts. This view is based on the fact that these countries account for a large share of global oil reserves. These energy analysts argue that, as world demand for oil continues to grow, driven largely by consumption growth in the developing countries coupled with constrained non-OPEC supplies, the end result will be that the call on Gulf oil will grow substantially.

While this view is plausible, there are factors which could undermine its validity. The purpose of this paper is to shed some light on the merit of this expected growing dependence upon Gulf oil, and to discuss the resulting implications for the economies of the Gulf countries. While this issue is important for international energy markets, it is vital for the GCC (Gulf Cooperation Council) countries. There is a belief within governments and na-

Dr. Eltony is Research Scientist with the Economics Studies Department of the Kuwait Institute for Scientific Research, P.O. Box 24885, Safat, 13109 Kuwait.

tional oil companies in GCC countries that oil prices will rise together with export volumes in the near future. Therefore, oil revenues are expected to be rising soon, which will help the budget deficit problems currently encountered by most GCC countries. This view also implies that the governments of these countries are failing to address the fundamental structural problems within their economies, in favour of continuing the status quo.

A brief historical review of the role of the Gulf and GCC countries in the global energy scene is presented in the next section. The basis for the hypothesis of rising dependence upon Gulf oil is then considered in section III. Section IV discusses factors that undermine the above hypothesis. Finally, Section V gives the conclusions.

II. The Role of Gulf Oil in World Energy Markets

Many factors account for the dominance of Gulf oil producers on world oil markets. Firstly, according to the latest issue of the *BP Statistical Review of World Energy*, Gulf countries account for about 65% of global proven oil reserves at the end of 1995. The amount of oil in place in these countries is thus clearly huge.

Secondly, as a result of its onshore location close to deep water, the size of the fields and their geological formation (where large volumes of crude oil are pressured by a layer of natural gas), the oil in place is extremely cheap to produce (Adelman and Shahi, 1989). Thirdly, the geographical location of the Gulf - between the growing markets of both the East and the West - provides excellent market opportunities for its oil producers.

It is in this context that the growing dependence of world markets on Gulf oil began in earnest after the Second World War. With the help of the Marshall Plan, Europe and the rest of the industrial nations experienced an economic boom of unprecedented dimensions, with the result that oil demand grew significantly at the same time as real oil prices declined. Rising demand required increasing supplies, and the advantage of low production costs from the Gulf provided the obvious source. Moreover, Gulf capacity could be brought on stream quickly as demand grew. For example, the loss of Iranian supplies following the 1951 nationalization of that country's oil industry was barely noticed, as new capacity from Kuwait and Iraq was already developed.

Over the years, two important facts emerged from the trends outlined above: Gulf oil dominated the world's export markets, and Gulf producers became the main inventory for the international oil industry. However, inter-fuel substitution and oil conservation were triggered by the higher crude oil prices brought about by the Arab oil embargo of 1973 (itself a consequence of the Arab-Israeli War). For the most part, this trend continued for years afterwards because of continued expectations of higher oil prices coupled with the security of supply issue, which became pervasive in many industrial nations. The tremendous increase in oil supplies from non-OPEC sources was a reflection of frantic searches for "secure" oil. Much of the resulting reduction in requirements from OPEC sources fell upon the Gulf countries, with Saudi Arabia in particular bearing most of the drop.

As oil prices plummeted in 1986, the demand for oil began to recover. This recovery was driven, in part, by the growing needs of newly developed countries, such as Korea, Singapore, Hong Kong, Taiwan, and Brazil. Nevertheless, supplies from non-OPEC sources remained strong, with the result that Gulf supplies grew moderately, and remained well below their peak levels of the 1970s.

III. The Next "Energy Crisis"

The view that the dependence on Gulf oil will grow in the future has been expressed in numerous sources (*e.g.*, IEA, 1995a,b; US Department of Energy, 1996; Lukman, 1996; World Energy Council, 1993; IIASA, 1996). For example, the IEA (1995a) estimates that the call on oil from the Gulf and Venezuela will rise from 20 million barrels per day (b/d) in 1991, to about 45 million b/d by the year 2010. On a similar note, the baseline forecast of the US

Department of Energy (1996) gives OPEC producers more than 55 million b/d by the year 2015.

These views are also encountered in the Gulf region itself. For example, Saudi Arabia has been pursuing an oil strategy that encourages such a growing dependence. This is in recognition that expectations of stable supplies and moderate prices will increase the role of oil in the world energy mix, thereby reversing the earlier trend of declining oil consumption, which has been the pattern since 1973.

On the basis of these views, the conclusion of a growing dependence on Gulf oil seems very plausible. However, a few major conceptual problems plague this conclusion. Firstly, oil reserves are generally taken to be those quantities which geological and engineering information indicate with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions. This definition does not call for a fixed number of billions of barrels as a measure of the finite nature of the reserve base. Rather, the above definition considers oil reserves figures as the outcome of a dynamic process, whereby technology keeps pushing up recoverable reserves, as do changes in economic conditions. For example, oil reserves estimates worldwide went up by 30% in the 1980s, not because of major new oil discoveries, but as a result of technological innovations in oil recovery, such as enhanced and secondary oil recovery techniques, and horizontal drilling. Thus, those who think that non-OPEC oil reserves are about to be exhausted should think again. A good example of that is the UK North Sea oil field "Forties," where the expectation at the beginning of the 1980s was that it should be shut down by 1988 because it would then have become non-economical to produce. The Forties field is still producing today because technical innovations in oil recovery made it economically feasible to keep it operational. Moreover, other oil fields in the North Sea now being developed were previously considered uneconomical, even at the peak oil prices prevailing in 1979.

Secondly, after the oil price shocks of 1973 and 1979, the drive for conservation and inter-fuel substitution was triggered partly by higher oil prices, but above all by "expectations" of higher oil prices yet to come. Now, if oil shortages are expected to materialize in the future as non-OPEC oil runs out, would not these expectations provoke a reaction away from oil, at least in the industrial nations? The history of the oil industry is filled with such dramatic behavioral changes, where the pattern of consumption has changed drastically, and in a surprisingly short period of time. The studies cited above, which argue for a growing dependence on Gulf oil, apparently fail to consider the possibility of such behavioral changes occurring again.

Finally, unforeseen events – irregularities – happen everywhere, but it seems that in recent history the Middle East has seen more than its share of such events. The Islamic Revolution in Iran, the Iran-Iraq War, and the Gulf War were among the unforeseen events that have had serious effects on the world oil market. However, other events have also been important and have affected the world energy mix, such as the nuclear accidents at Three Mile Island and Chernobyl, the recognition of global warming as a potentially serious problem, and political changes in Russia and the Eastern European countries, among others. Nevertheless, it seems that many of the studies cited above do not make any allowance for such "irregularities." Such an omission is understandable, as it is very difficult to predict when an "irregular" event will begin to influence the market, or how long it will take before the irregularity significantly influences current trends. However, this neglect of the likely effects of such irregularities is crucial. If irregularities do occur, then the world will change and the future will be fundamentally different, for oil producers as well as for others.

The relevance of this argument comes from the fact that many of the studies cited above see nothing short of another "energy crisis". However, they then "overcome" this crisis simply by assuming that the world will call upon Gulf oil reserves, and that is the end of the story. The history of changes in the international oil market since the 1970s has been strongly influenced by such crises. In fact,

many predictions and forecasts have failed precisely because they did not account for irregularities.

Some growth in oil requirements from Gulf producers does appear plausible in the next five years. However, the rate of growth will probably be much less than many believe, as growing demand will be met by non-Gulf sources. As we go further into the future, the possibility that irregularities will occur increases, and the potential for behavioral changes is greater.

IV. Factors that Undermine the Hypothesis

IV.1 On the Supply Side of the Market

It seems unlikely that non-OPEC supplies will decline sharply in the near future. The pattern established in the 1960s suggests that non-OPEC oil supplies will remain strong. In recent years, the industry has witnessed major technological advances in offshore production practices (Masseron and Cueille, 1996). Currently, there is a whole range of new technologies, from horizontal drilling to 3-D seismic, that have substantially reduced the per-barrel costs of production. The worldwide per-barrel costs of exploration and development have also fallen in real terms, from US$ 16 in 1982 to only US$ 4 in 1994, according to some estimates (Davies, 1996). Furthermore, sub-sea completion and offshore loading technologies have significantly reduced lead times on offshore projects, which has dramatically transformed the economics of such projects. For example, the Foinaven offshore oil field, which is located West of Shetland (Scotland), is being developed for a fully built-up cost of about US$ 5/bbl, and with a lead time of less than three years (BP Exploration, 1994).

Also, over the last few decades, exploration and production in many developing nations was mainly done by state-owned oil companies. However, because these companies were relatively inefficient, many of them are now experiencing privatization, or at least restructuring. This trend is expected to improve the ability of these companies to discover and develop reserves, thereby further encouraging the rise in non-OPEC supplies (Adelman, 1996).

Furthermore, Gulf producers will not only face continuing supplies from non-OPEC sources, but also growing supplies from non-Gulf OPEC countries. For example, Venezuela, Nigeria, and Algeria are inviting foreign companies to assist in the development of their capacity and to explore for more oil and gas reserves. Thus, while there may be an increase in the demand for OPEC oil, much of it could also be met by non-Gulf OPEC countries.

Finally, Iran is adopting a progressive strategy to secure its market share, and has signed various lucrative agreements with almost all of its neighbours - the latest of these is with Turkey, whereby millions of barrels of oil products will be travelling North every year. Iran has also adopted a policy of attracting foreign companies to undertake the development of its upstream capacity, given its existing reserve base. In addition, Iraq is likely to start producing and exporting again very soon. When the full sanctions are lifted by the United Nations, Iraqi export volumes will most likely increase rapidly, given the country's financial and economic pressures. The Iraqi government has also indicated its willingness to involve foreign companies in oil production activities. The final result will be that exports from Iran and Iraq may well squeeze the call for oil from other Gulf countries, namely the GCC states, even though all of this increased production is technically an increase in Gulf supplies.

Over a longer time horizon, however, the development and discovery of new reserves, coupled with greater technological gains and breakthroughs in the field of alternative energy sources become increasingly likely and cast further doubts on the view of a growing dependence on Gulf oil. When all of the above factors are taken together, they give rise to serious doubts about the validity of the assertion of a rising dependence on Gulf oil.

IV.2 On the Demand Side of the Market

The demand for oil is a derived demand for

the services of energy-using equipment and appliances. Oil demand is thus driven by two major decisions of the consumer. The first is the equipment and appliance holding decision, and the second is the degree of usage of the resulting equipment and appliance stock. These two decisions are likely to be interdependent. For example, the use of a vehicle depends on its type, and the type of vehicle chosen depends on its expected use. In the short run, only utilization can be altered, and oil consumption is therefore driven by the stock of equipment and appliances.

Given the current stock of oil-using appliances and the fact that rising income is likely to lead to increases in this stock, the views that expect oil demand to rise over the next five to ten years seem reasonable. However, beyond that time horizon, the probability of significant changes in the technologies embodied in the equipment and appliance stock increases, which may change the pattern of oil demand.

These changes in consumption patterns may eventually occur because of the following factors:

a) As many developing countries progress through the energy transition away from biomass-based energy, the first fuels used are kerosene followed by liquid petroleum gases. However, the next stage in the preference ladder is for electricity and piped gas. Oil has an initial advantage because its use requires minimal investment in infrastructure (mostly as a result of its divisibility and transportability), coupled with a high energy content compared to that of other fuels. Therefore, in the early stages of industrialization, when investment is constrained, oil is the preferred fuel. However, as the networked fuels such as electricity and natural gas (which are cheaper once the infrastructure has been built) become the preferred fuels, the consumption of oil will decline. Thus, oil demand could very well decline as developing countries move beyond the early stages of industrialization.

b) During the 1980s, the majority of developing countries began to move away from a situation where oil prices were subsidized, to one where market prices were allowed to emerge. Although subsidies remain in place for specific products, it seems very likely that these will eventually be removed (Stevens, 1996). Furthermore, a new trend has been observed in many developing countries, namely that their governments have begun to raise significant revenues by imposing various forms of taxes on oil products (Schipper and Meyers, 1992). Much higher prices could begin to encourage consumers in developing countries to convert to other cheaper fuels, as so many consumers have done in the industrial nations. Such a trend could lead to reductions in oil demand (or, at least, at a slower expansion), as has happened in OECD countries. For example, the latest edition of the *BP Statistical Review of World Energy* reveals that fuel consumption in Western Europe rose from about 159 million tonnes in 1965 to a peak of about 270 million tonnes in 1973, to be followed by a significant decline to only 110 million tonnes in 1995.

c) Concerns over the environment are an obvious additional source of significant changes in oil consumption patterns. However, it is difficult to project how environmental concerns will affect future oil demand. This is because any environmental policy which might influence oil demand in the future will not succeed without significant costs to consumers and governments. Currently, the concern over urban pollution from automobiles and CO_2 emissions are at the top of the policy agenda for the environment. It is very reasonable to argue that in the future, gasoline and diesel engines, which currently dominate the vehicle stock, could decline and be replaced by alternative forms of propulsion, such as electric or liquefied natural gas (LNG) vehicles, or by greater use of public transit. For example, in 1996, the government of Canada decided to replace its entire fleet of (gasoline and diesel) vehicles by electric and LNG cars. On a similar note, the entire fleet of taxis in Tokyo (Japan) uses only LNG, and there are plans to expand this policy to all other major Japanese cities. If oil is pushed out of road transportation, as electric and LNG cars become more

economical to buy, the growth in overall oil demand would be severely dampened, and the trend might even be reversed.

d) There is a growing demand for alternative forms of energy. Here, technical innovations and breakthroughs are the name of the game. In particular, the costs of renewable forms of energy appear to be declining. For example, some estimates suggest that the cost of wind turbine electricity in California fell from 24¢/kWh in 1985, to 9¢ in 1991, and to only 6¢ by 1995 (Anderson and Ahmed, 1995). Additional technological breakthroughs in alternative energy forms (such as photovoltaics, hydrogen cells, super conductors, and gas-to-gasoline conversion) would further reduce the importance of oil in the overall energy mix.

All of the above factors suggest that oil demand may begin a structural decline in the coming years.

IV.3 Other Factors

The general perception outside the Middle East region is that the area is politically unstable. As the Director of the International Energy Agency puts it: "... it is a region know for its political fragility" (Scott, 1994, p.11). Recent events in the region, and in the Gulf countries in particular, lend support to this evaluation, as noted earlier. However, this view has the serious implication that, since the area is unstable, then there is a good probability that the flow of oil supplies from the region may be interrupted. Indeed, it has been suggested that the motivation to develop non-OPEC supplies was largely caused by the fear of supply interruptions by Gulf producers (Tempest, 1996).

The potential for a supply interruption in the region remains non-trivial. The recent incidents in Northern Iraq, the newly elected government in Israel and the consequences for the peace process, the recent events in Bahrain, the terrorist attacks in Saudi Arabia, the political unrest in Algeria, all provide vivid images of this potential for upheaval. While there are hopeful signs for stability in the region, they generally go unnoticed internationally. A perfect example of this is Kuwait, where the growing role of democracy has not received much coverage in Western media, despite the fact that it is a step in the right direction and offers a sign of hope for the future of the region.

V. Conclusions: What Can Be Done?

The proffered answer to this question has two main dimensions, an internal one and an external one.

V.1 The Internal Dimension

The GCC countries should restructure and diversify their economies as much as possible and as quickly as possible. This should be at the top of their economic development plans. In the meantime, GCC countries must not spend beyond their available revenues and thus aim to balance their budgets as soon as possible. They must also invest in the development of their national human resources and open doors for the private sector to play a more significant role in the economy.

V.2 The External Dimension

Economic logic argues that in a rational world, low-cost reserves should be developed and produced first. Since 1973, political factors have led to the opposite being the case. The result is well known: the development and production of higher-cost non-OPEC supplies, which have succeeded in limiting OPEC's control of the market. For the GCC countries to realize the full advantages of their huge oil reserves, they must act now rather than later, by replacing the production from non-OPEC sources while world oil demand continues to grow. The Saudi policy of stability of supply coupled with oil price moderation is definitely a step in the right direction, and its fruits are already apparent. Other steps, however, should follow. The recent events in Northern Iraq prove that the international oil market is still very sensitive to such incidents, as the spot price of all crudes jumped by at least US$ 2 in a single day. Since the GCC countries own the largest crude oil reserves, they need to di-

vert the investment into developing further capacity from non-GCC sources. Many forms of cooperation and joint ventures between developing countries and international oil companies are emerging in international financial markets. GCC national oil companies could join forces with these international oil companies to develop their known reserves, even within the limits of the existing infrastructure. For example, were GCC countries to operate at the reserve-to-production ratio currently observed in non-OPEC countries, their combined production rate would reach 55 million b/d.

GCC countries should also play a more active role in worldwide decisions relating to environmental concerns. Of particular importance are policies for emission controls, and road and gasoline taxes. Moreover, they need to monitor and evaluate the likely impacts of new developments in all areas of alternative energy sources.

In summary, using available information in conjunction with reasonable assumptions, this paper has challenged the view that a growing dependence on Gulf oil is inevitable. The aim was to point out to GCC countries the danger of relying solely on these views in shaping their economic policies and in setting their oil market strategies. They may run the ultimate risk of being left with huge oil reserves that no one wants.

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On the Economics of the Russian Oil Sector

EUGENE M. KHARTUKOV

The author is General Director, International Center for Petroleum Business Studies (ICPBS), Moscow; Head, World Energy Analysis & Forecasting Group (GAPMER); and professor of Management and Marketing at the Moscow State University of International Relations (MGIMO), Ministry of Foreign Affairs of the Russian Federation.

Over the last several years, the economics of the Russian oil sector has experienced considerable change, which basically reflects the consequences of the rapid pace of general price inflation, the hasty privatization of the country's core industry, and the radical transformation of the sector's taxation regime.

Upstream Economics

All-out price liberalization, launched by the Russian government at the start of 1992, did not apply to the national oil industry whose domestic prices remained tangibly restrained until mid-1993, then to be officially deregulated in March 1995. Consequently, the unleashed sky-rocketing inflation of freed input costs has eaten into the already diminishing profit margins of Russian oil producers which, contrary to widely-held views, never enjoyed low oil production costs. Most of the domestic producers that sprang out of state-run oil-producing associations have inherited a heavy financial burden linked to supporting the expensive social infrastructure of "oil cities" built during the Soviet era in remote oil-producing areas of West Siberia and Timan-Pechora. Although those "civilized" oil developments cost one-third to one-half more than comparable operations in other jurisdictions, few Russian oil majors have managed to shed that burdensome legacy by handing off their social responsibilities to municipal authorities.

Furthermore, by Summer 1993, the freed domestic prices of oil products reached their equilibrium levels and started to scrape the ceiling of consumers' purchasing power. This could not but translate into growing into growing downward pressure on crude oil prices, which, if measured in real terms, had leveled off below what they were prior to the most recent price reforms (Khartukov, 1995, pp.1-8).

Jammed between the soaring production costs and depressed oil market prices, the once prospering industry has faced a severe financial crunch, which should have been met by an easing of its tax treatment. However, as the *perestroika*-triggered recession quickly deepened and the Russian state budget became critically dependent on a few relatively stable sectors of the dilapidated economy, the oil industry's tax treatment became even more severe.

While at the threshold of the 1990s, the generously subsidized oil producers had only to pay symbolic charges for the state-owned tangible assets that they used (not to mention their complimentary use of the land and subsoil), since 1992 oil-producing enterprises have become subject to an ever-increasing number of taxes, duties, and levies, which have soaked up to two-thirds of an average oil producer's revenues (see Table 1). The most burdensome among these new kinds of *fiscalité* have been profit-insensitive (output-related) excise duties, contributions for mineral reserves replacement, royalties, and deductions to the industry's centralized investment fund and to the short-lived price control fund.

The *excise duties* on crude oil, first introduced in November 1992 at an average rate of 18%, were included in wholesale enterprise prices and levied at differentiated rates, which varied from nil to 30% for individually defined oil producers. In July 1993, the duty rates were increased by approximately one-third (to a range of 0 to 42%), with the standard rate being raised to 24%. Then, from 1 May 1994, the duty was set for the first time in absolute terms: at Rbl 14,750/t (US$8.2/t) on average, and between zero and Rbl 36,000/t (US$20/t) for individual producers. To take into consideration any depreciation of the rouble, this rate was subject to monthly indexation in line with the Rbl/US$ exchange rate. In June 1995, the general (but now also maximum) duty rate was raised to Rbl 53,040/t (US$11.3/t), with the weighted average of its differentiated rates reaching Rbl 41,400/t (US$8.8/t).[1]

Later, in a bid to make up for phasing out export tariffs on Russian crude oil (see below), the excise duty as abruptly raised to an average of Rbl 55,000/t (US$11.2/t) in April 1996, and gradually increased (in line with inflation and the depreciation of the rouble) to Rbl 56,500 (US$11.2/t) last June. Furthermore, in conformity with agreements reached between the International Monetary Fund and the Russian Federation on the former's loan of US$ 10 billion, this surcharge has been increased to Rbl 70,000/t (US$13.6/t) as of 1 July. Besides, in August 1996, crude oil destined for export markets was subjected to a new differentiated excise duty, which was to be collected by the State Customs Committee (which, unlike the State Tax Service, is known for its draconian methods directed at tax evaders). The export-related excise tax rate was made to vary between Rbl 51,650 ($US9.9/t) and Rbl 82,540 ($US15.9/t), and indexed to the monthly inflation rate.

The *contributions for mineral reserves replacement*, which were introduced in February 1993 and are paid by all subsoil users to make up for centralized geophysical and geological expenditures, were fixed in the case of crude oil and condensate at 10% of gross revenues from their sale. Initially, the rate was applied to wholesale enterprise prices (before imposition of excise taxes), regardless of whether the output was sold on the domestic market or exported. Since the beginning of 1995, however, the calculated (netbacked) field-gate price has been used for determining the tax base for this compensation charge in the case of exports.

The same tax base is used for calculating *royalties* on extracted and exported hydrocarbons which, if sold domestically, are also taxed in relation to their wholesale enterprise (*i.e.*, producer) prices, excluding excise tax. The rate of royalty, which has been a feature of Russia's oil taxation system since October 1992 and is deductible from taxable profit as production expenses, may be fixed at between 6% and 16%, but was usually negotiated at about 8% between 1992 and 1994, 9% in 1995, and 10% in 1996.

The *investment fund deductions* were designed for the intra sectoral redistribution of differential rent and, until their elimination at

1/ *Russia Oil & Gas Monitor* (1995) Vol. 1, No. 3, p. 19.

Table 1: Estimated Breakdown of the Average Producer Price for Crude Oil in Russia, 1992-96 (Roubles per tonne)

Price Component	1992		1993		1994[1]		1995[1]		1996[1]	
	Rbl/t	%	Rbl/t	%	Rbl/t	%	Rbl/t	%	Rbl/t	%
Total[2]	2,570	100.0	30,430	100.0	75,000	100.0	255,000	100.0	334,000	100.0
Production Cost[3]	1,120	43.6	9,560	31.4	29,600	39.5	150,000	58.8	182,000	54.5
Gross Profit	1,450	56.4	20,870	68.6	45,400	60.5	105,000	41.2	152,000	45.5
Fiscal Charges & Payments	1,777	69.1	20,176	66.3	46,610	62.1	95,300	37.4	131,950	39.5
PCF Deductions[4]	267	10.4	954	3.1	-	-	-	-	-	-
Excise Duty	463	18.0	6,390	21.0	14,750	19.7	41,400	16.0	56,650	17.0
MRR Contributions[5]	211	8.2	2,313	7.6	6,025	8.0	21,360	8.4	27,730	8.3
Royalty	169	6.6	1,850	6.1	4,820	6.4	19,220	7.5	27,700	8.3
IIF Deductions[6]	590	23.0	6,476	21.3	16,870	22.5	[7]	-	-	-
Profit Tax	0	0.0	598	2.0	0	0.0	2,420	0.9	4,820	1.4
Others[8]	77	3.0	1,595	5.2	4,145	5.5	10,900	4.3	15,050	4.5
Net Profit	-327	-12.7	694	2.3	-1,210	-1.6	9,700	3.8	20,050	6.0

1/ June average; 2/ Wholesale enterprise price, ex field gate (excluding value added and special taxes);. 3/ Exploration, development and lifting costs (depreciation and current expenses); 4/ Deductions to the Price Control Fund (PCF); 5/ Contributions for Mineral Reserves Replacement (MRR); 6/ Deductions to the Industry Investment Fund (IIF); 7/ Since 1995, assigned to capital costs; 8/ Excess-wage tax (until 1996), road-use tax, property (assets) tax, environmental levies, land tax, and other local taxes.

the end of 1994, represented the largest immediate withdrawal from oil producers' revenues—an average of 28% of gross proceeds (excluding excise tax). Differentiated between 5% and 40% for individual producers and supposedly returned to the industry in the form of the "life-giving rain" of centralized investments, those deductions, however, tended to vanish in bottomless government coffers as the state had ceased to finance the industry by 1993.

As the state-controlled oil prices were allowed to rise, beginning 18 May 1992, a punitive price-capping mechanism was also introduced. Revenues from sales of crude oil above fixed (and periodically revised) price levels were confiscated or heavily taxed to fill a specially-established Price Control Fund (PCF). However, within several months, under conditions of rampant over-production, *PCF deductions* became redundant and, on 1 July 1993, this system of indirect control of crude oil prices was officially abandoned.

Finally, the general *tax on profit* (or profit tax), introduced initially at 32%, was raised at the start of 1994 to a maximum 38% of "balance" (operating) profit. Technically speaking, the formerly invisible 32% tax was replaced by a two-part levy: its federal part was set at 13%, while regional authorities were allowed to impose an additional tax of up to 25%.[2] By then however, the only profit-related levy had virtually lost its feeding base. Under the pressure of ever-increasing taxation, the core sector of Russia's economy has turned into the main tax-paying, but hardly profitable, business—surviving on marginal and at times even negative after-tax returns. According to official data, in 1994 the after-tax profitability (the profit-to-cost ratio) of the country's oil-producing industry dropped to a meager 7%, compared to the 50% enjoyed by Russian crude producers at the beginning of 1992, in the aftermath of the sharp increase in state-controlled prices. Even so, this economic indicator hides the fact that, for the first three quarters of 1994 (during which domestic oil prices remained relatively stable), two-thirds of national oil-producing enterprises had red-inked account books.[3]

2/ Effective 1 January 1993, the ceiling for the "regional" part of the tax was lowered to 22%.

3/ See *Delovoy Mir (Business World)*, 10-16 July,

Although the total state take in the oilmen's revenues had quickly risen within a few years from an average of 15% at the beginning of the 1990s to an exorbitant 60-70% and, in some instances, reportedly exceeded 80%, tax-collecting authorities could not stop inventing and imposing new levies. While at the end of 1993 Russian oil producers could distinguish 28 various fiscal charges levied at different administrative levels, by March 1995 this number had increased to 46, comprising 18 federal, 5 regional, and 23 local taxes and duties. Local taxation authorities were especially innovative. Thus, some of them introduced taxes for supporting municipal militia (police) and for sponsoring local soccer teams!

Latterly, due to the elimination of centralized deductions to the industry investment fund (as of the beginning of 1995) and the gradual reappraisal of the depreciated assets of oil companies (beginning in 1996), the economic pattern of Russia's upstream oil sector has been formally modified. However, this has not really increased the sector's marginal profitability, but reflects the consequences of accounting innovations.

Downstream Margins

Further downstream, several sizeable indirect taxes and distribution surcharges are added to make up retail prices for oil products. It is noteworthy that, starting from 1993, it has been repeatedly stated that oil product taxation has exceeded all conceivable limits as numerous taxes sponge up to 70-75% of Russia's retail product prices, especially those of gasoline. Although tailored to capture the imagination of tax-shy Russian citizens, such statements cannot, however, stand up to professional scrutiny. Table 2 indicates that, even after the recent twofold increase in the gasoline excise tax, all of the applied indirect taxes jointly "absorbed" up to one-third of the average ex-pump price for Russian regular mogas, a far cry from Western European standards, where indirect taxation snips as much as 65% to 80% of retail gasoline proceeds.

1995, p.8.

As a rule, gasoline sales ensure the highest refinery margins—currently up to 15% in relation to production costs. This is achieved at the expense of furnace fuel oil (*mazut*), which accounts for 35-40% of Russian refinery output, and is often sold at break-even prices. Understandably, the taxation of motor gasoline is more intensive and the breakdown, shown in Table 2, of retail proceeds from a tonne of one of its widely-used grade can be considered the most illustrative of Russia's oil product prices.

In particular, the *gasoline excise tax*, introduced in April 1994 at an initial rate of 10% of its ex-refinery sales (including excise taxes), was raised a year later to 20%, and is applicable to both domestic and export sales. In addition, as of the beginning of 1992, the general *value-added tax* (VAT) was imposed at 28% of "excised" refinery proceeds; this rate was lowered to 20%, as of 1 January 1993. This value-added tax was supplemented, at the beginning of 1994, by a 3% *special tax* (ST), which has the same tax base but whose revenues are aimed at supporting vital branches of the national economy (such as agriculture and the coal industry). Effective 1 April 1995, Parliament reduced the rate of ST to 1.5%, and had phased it out completely by the beginning of 1996.

Although VAT is applied only to sales within the Commonwealth of Independent States (CIS), this is not the case with the *sales tax on motor fuels and lubes* (STMFL). Indeed, since the beginning of 1993, this tax has been levied at 25% of sales proceeds (excluding VAT and ST), even if the taxable gasoline, diesel fuel, lube oils, compressed and liquefied gases are exported outside the CIS.

Due to general mismanagement and the breakup of former centralized, state-run supply channels, oil product distribution costs in Russia are relatively high and, as a rule, exceed 20% of retail product prices. As for distribution surcharges, which were limited by local authorities until March 1995 (but often set by distributors at higher rates), they ordinarily account for one-fourth to one-half of retail product prices in the European part of Russia but can, in fact, as much as treble prices to consumers in some remote, poorly supplied areas of the North and Far East.

Table 2: Estimated Breakdown of the Average Ex-Pump Price for Regular Automotive (A-76) Gasoline in Russia, 1992-96 (Thousand Roubles per tonne)

Price Component	1992		1993[1]		1994[1]		1995[1]		1996[1]	
	Rbl/t (000s)	%	Rbl/t (000s)	%	Rbl/t (000s)	%	Rbl/t (000s)	%	Rbl/t (000s)	%
Crude Oil Producer Price	2.6	25.6	22.5	25.3	75.0	20.6	255.0	16.0	334.0	16.0
Crude Oil Delivery Cost	0.1	1.4	0.9	1.0	5.0	1.4	24.5	1.5	52.5	2.5
Refiner's Acquisition Cost	2.7	27.0	23.4	26.3	80.0	22.0	279.5	17.3	386.5	18.5
Crude Processing Cost[2]	2.2	21.7	18.7	20.9	72.8	20.0	251.6	15.6	347.0	16.6
Refiner's Gross Profit	0.7	6.7	4.7	5.3	17.2	4.7	57.0	3.5	67.5	3.2
Direct Taxes[3]	0.3	2.6	2.1	2.4	8.2	2.3	29.9	1.8	33.1	1.6
Refiner's Net Profit	0.4	4.1	2.6	2.9	9.0	2.5	27.1	1.7	34.4	1.6
Ex-Refinery Price	5.6	55.4	46.9	52.4	170.0	46.7	588.1	36.4	801.0	38.3
Gasoline Excise Tax	-	-	-	-	18.9	5.1	147.0	9.1	200.2	9.6
Value-Added Tax	1.6	15.5	9.4	10.5	37.8	10.3	147.0	9.1	200.2	9.6
Special Tax	-	-	-	-	5.7	1.5	11.0	0.7	-	-
Sales Tax on Motor Fuels and Lubes	-	-	11.7	13.1	47.2	12.8	183.8	11.4	250.3	11.9
Wholesale Distribution Surcharge	2.7	27.0	19.7	22.0	81.3	22.1	508.8	31.4	600.7	28.7
Wholesale Industry Price	9.8	98.0	87.6	98.0	360.9	98.0	1585.7	98.0	2052.4	98.0
Retail Trade Surcharge	0.2	2.0	1.8	2.0	7.2	2.0	31.7	2.0	41.1	2.0
Total	10.0	100.0	89.4	100.0	368.1	100.0	1617.4	100.0	2093.5	100.0
Ditto, Rbl/liter	7.7		68.8		283.3		1245.0		1611.2	

(1) June average. (2) Related to gasoline production. (3) Taxes not included in production expenses (profit tax, property tax, land tax, road-use tax, etc.)

Refinery margins, caught as they are between the ever rising crude acquisition costs and the depressed ex-refinery prices, have thus tended to shrink and, on average, have rarely exceeded 5% and often dropped to 1% of gross product proceeds, according to Schmidt (1995, p.45). In other words, the profitability of Russia's refining industry was well below the official 10-to-20% profit-to-cost ceilings that had been applied to cap refinery prices as of September 1992, and abolished by the government in March 1995. Not surprisingly, given its concern for the miserable state of the national refining industry, the Russian government publicized in mid-1995 its intention to slash excise taxes, offer tax exemptions, and alter fiscal policies generally to reflect refiners' production costs in tax calculations and "make product exports profitable."[4] The intended tax relief has indeed materialized in the form of a presidential decree, which abolished export duties for Russian oil products, effective 1 December 1995.

4/ See *Weekly Petroleum Argus*, 31 July, 1995, p.5)

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