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INFLUENCE OF CONFLICT-GENIC FACTORS ON THE NATURE OF THE INTERNATIONAL OIL MARKET (Part 2)

Alexander Anatolyevich Natrus

State budgetary educational institution «Lyceum of Information Technologies of the Yenakiyevo city district», 286402, Donetsk People's Republic, Yenakiyevo, Yenakiyevo, ul. 60 years of the USSR, 31, https://lic-lit-enakievo-r897.gosweb.gosuslugi.ru/

Abstract. This study examines the influence of conflict-genic factors on the international oil market, focusing on geopolitical tensions, economic dependencies, and civilizational disparities in energy resource distribution. The research highlights how geopolitical conflicts (e.g., wars, sanctions) and economic policies (e.g., petrodollar dominance) shape oil price volatility and global energy security. A civilizational approach is introduced to analyze competition between North American, Chinese, Islamic, and other civilizations for control over oil reserves. The study employs statistical analysis, historical-logical methods, and economic modeling to assess the impact of military interventions (e.g., U.S. invasion of Iraq) and energy diversification strategies. Findings suggest that oil market instability stems from deeper geopolitical and civilizational rivalries, necessitating multilateral cooperation and technological innovations (e.g., renewables, nuclear energy) to mitigate conflicts.

Keywords: oil market, geopolitical conflicts, energy security, petrodollar, civilizational competition, economic sanctions, renewable energy, military interventions.

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ВАК 5.2.5. Мировая экономика

ВЛИЯНИЕ КОНФЛИКТОГЕННЫХ ФАКТОРОВ НА ХАРАКТЕР МЕЖДУНАРОДНОГО РЫНКА НЕФТИ (Часть 2)

Александр Анатольевич Натрус

Государственное бюджетное общеобразовательное учреждение «Лицей информационных технологий городского округа Енакиево», 286402, Донецкая Народная Республика, г.о. Енакиево, г. Енакиево, ул. 60 лет СССР, д.31, https://lic-lit-enakievo-r897.gosweb.gosuslugi.ru/

Аннотация. В данном исследовании анализируется влияние конфликтогенных факторов на международный рынок нефти, включая геополитическую напряженность, экономические зависимости и цивилизационные различия в распределении энергоресурсов. Рассматривается, как геополитические конфликты (например, войны, санкции) и экономическая политика (например, доминирование нефтедоллара) определяют волатильность цен на нефть и глобальную энергетическую безопасность. Вводится цивилизационный подход для анализа конкуренции между североамериканской, китайской, исламской и другими цивилизациями за контроль над нефтяными ресурсами. Используются статистический анализ, историко-логические методы и экономическое моделирование для оценки последствий военных интервенций (например, вторжение США в Ирак) и стратегий диверсификации энергопоставок. Результаты показывают, что нестабильность нефтяного рынка обусловлена глубинными геополитическими и цивилизационными противоречиями, что требует многостороннего сотрудничества и внедрения инновационных технологий (например, ВИЭ, ядерная энергетика) для снижения конфликтного потенциала.

Ключевые слова: нефтяной рынок, геополитические конфликты, энергетическая безопасность, нефтедоллар, цивилизационная конкуренция, экономические санкции, возобновляемая энергетика, военные интервенции.

Информация о финансировании: данное исследование выполнено без внешнего финансирования.

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INTRODUCTION

The preceding section of the article «Influence of Conflict-Genic Factors on the Nature of the International Oil Market (Part 1)» presents a systematic examination of geopolitical and economic determinants influencing global oil market dynamics [1]. Empirical evidence demonstrates the market's heightened sensitivity to geopolitical disruptions, as manifested in substantial price fluctuations during the COVID-19 pandemic (declining to $35/barrel in 2020) and following sanctions against Russia (peaking at $122/barrel in 2022), with historical precedents including the 1973 OPEC embargo and Iraq War further illustrating the destabilizing effects of geopolitical tensions on supply-demand equilibrium. The study establishes the U.S. dollar's pivotal role as the principal petrocurrency, while analyzing the systemic risks introduced by attempts to implement alternative settlement

mechanisms, as exemplified by Iraq and Iran's currency diversification initiatives. Strategic import diversification patterns are examined, particularly the U.S. procurement strategy encompassing Canadian, Mexican, and Middle Eastern sources, revealing a paradoxical enhancement of both supply security and geopolitical exposure. The research employs quantitative methods to evaluate the economic calculus underlying military interventions, positing the Iraq campaign as an instrument for safeguarding hydrocarbon interests and maintaining monetary hegemony. Intensifying resource competition is documented among major economies, with accelerated consumption growth in China, India, and Brazil generating heightened tensions in hydrocarbon-rich zones including Arctic and Caspian territories. While recognizing the potential of renewable energy technologies to reduce conflicts, the study highlights the ongoing dominance of petroleum in global energy frameworks due to the inertia inherent in transitional processes. The research ultimately reveals the intricate links between political, economic, and security factors in the global oil markets, calling for advanced policy approaches that balance energy demands, economic stability, and geopolitical concerns through coordinated international efforts and technological progress to manage systemic instability and its cross-border impacts.

OBJECTIVE OF THE STUDY

This study seeks to provide an in-depth examination of the conflict-inducing elements influencing global oil markets, focusing especially on geopolitical strains, economic interconnections, and disparities in energy resource distribution across civilizations. The research aims to pinpoint key drivers behind oil price fluctuations, assess how armed conflicts and economic sanctions affect market dynamics, and propose strategies to reduce conflicts within the energy sector.

Methodologically, the investigation adopts a multi-dimensional analytical framework incorporating geopolitical examination of conflict-induced supply disruptions (including U.S. military interventions in Iraq, OPEC embargo policies, and anti-Russian sanctions regimes), economic analysis of hydrocarbon market fluctuations and their correlation with global financial crises (with special attention to petrodollar dominance in international settlements), assessment of import diversification strategies among major consuming nations (notably U.S. supply portfolios combining North American and Middle Eastern sources) and their geopolitical implications, comparative civilizational analysis of resource endowment disparities (contrasting North American, Chinese, and Islamic energy paradigms), and technological evaluation of alternative energy solutions (nuclear, hydrogen, and renewable technologies) as potential mechanisms for reducing oil dependency and associated conflict risks. The research utilizes a comprehensive methodological framework that integrates quantitative evaluation of energy market indicators, systematic assessment of geopolitical risks, and comparative analysis of civilizational factors to achieve a nuanced understanding of the conflict mechanisms operating within international oil markets..

SCIENTIFIC NOVELTY

This research significantly advances the current scholarly discourse by elucidating that fluctuations in the oil market extend beyond mere economic phenomena, embodying intricate expressions of geopolitical rivalries and civilizational contestations. Consequently, it establishes a critical theoretical foundation for future investigations aimed at exploring sustainable energy transitions within the broader framework of international conflict dynamics.

METHODOLOGY

The research utilizes an integrated methodological approach combining statistical analysis of oil market indicators (price dynamics, production and consumption data from EIA, OPEC and Federal Reserve sources), comparative evaluation of regional energy policies and import dependencies (particularly between major

consumers like the U.S. and China, as well as producing regions such as the Middle East and Europe), and historical examination of significant conflict events (including the 1973 oil embargo and 2003 Iraq War) to identify recurrent patterns of market destabilization. This multi-faceted methodology enables comprehensive analysis of both quantitative market data and qualitative geopolitical factors shaping oil market volatility.

Scientific methods were also used:

Economic Modeling: Calculation of investment returns from military interventions (e.g., U.S. economic gains from Iraqi oil) using discount rate and future value formulas.

Geopolitical Forecasting: Projection of future energy conflicts based on current trends in resource competition, technological advancements, and policy shifts.

RESULTS AND DISCUSSION

Energy supply as an indicator of international contradictions. From the graph «US Petrol» we see the gap between the level of oil consumption in the USA and the level of oil production in the USA and we see that an increasing part of the energy needs of the USA will be covered by imported oil (Fig 1). Also attached is the figure «US Natural Gas» we can judge the level of consumption and the dynamics of prices for energy resources. According to the Rocky Mountain Institute, the US GDP in 1977-1985 increased by 27%, oil consumption decreased by 17%. Oil imports fell by 42% and imports from the Persian Gulf fell by 87% [2].

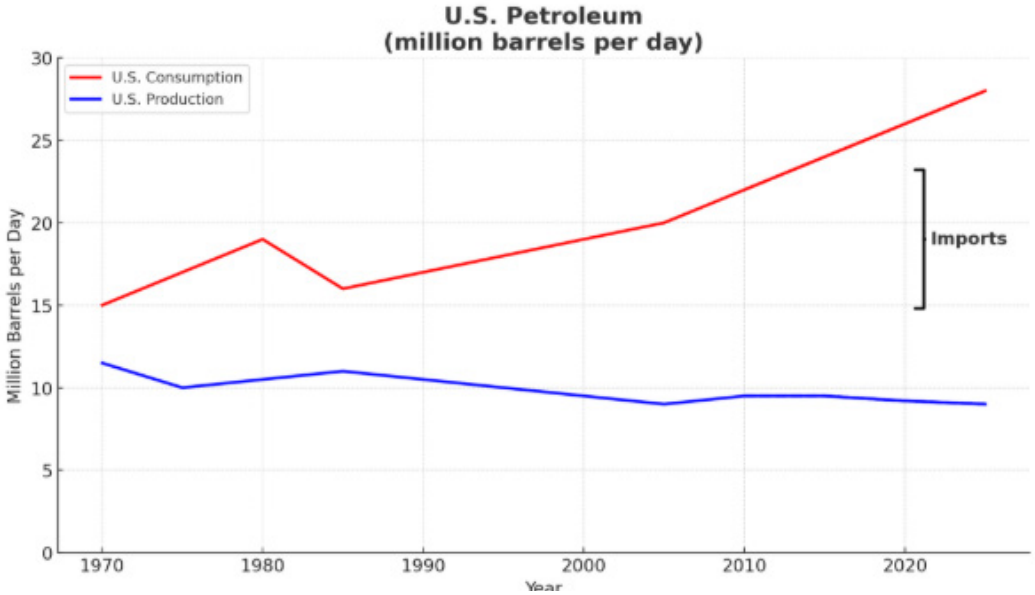

Figure 1. The level of oil production and consumption in the United States
Рисунок 1. Уровень производства и потребления нефти в США

According to statistics, transport consumes 68% of the oil consumed in the USA, construction – 8%, industry – 17%. That is, we see reserves for reducing oil consumption [3].

Another conflict-generating factor is the amount of money earned by countries that own energy resources. According to the Institute for the Analysis of Global Security, funds created by some countries by the end of 2007 received more than 3 trillion US dollars [4]. Over several years, the amount of money in these funds may exceed 15 trillion US dollars. What worries Americans most is that these funds buy shares of American companies. For example, the Adu-Dhabis fund bought Citygroup shares for 7.5 billion dollars, and the emirates of Dubai, which has only a million inhabitants, own 22% of the London Stock Exchange, and Qatar owns another 24%. 20% of Nasdaq also belongs to these funds. The US is also very concerned that the significant increase in oil prices from 25 dollars to 146 dollars in June 2007 gives Saudi Arabia approximately 700 billion US dollars in profit. The US is also very concerned about the growth of profits from oil sales in Arab

countries. Since 2006, Saudi Arabia's income has grown from 2.7 trillion dollars to 200 trillion. US dollars. With oil at $100, OPEC can buy Bank of America in 2 months, Apple Computer in 2 weeks, General Motors in 6 days. In less than 3 years, OPEC has bought 20% of major companies. Now OPEC owns more than 500 companies. With oil at $100 per barrel, OPEC's capitalization was more than $92 trillion. This is more than half of the world's financial income, more than 2 times the capitalization of 27 world stock markets (fug. 2).

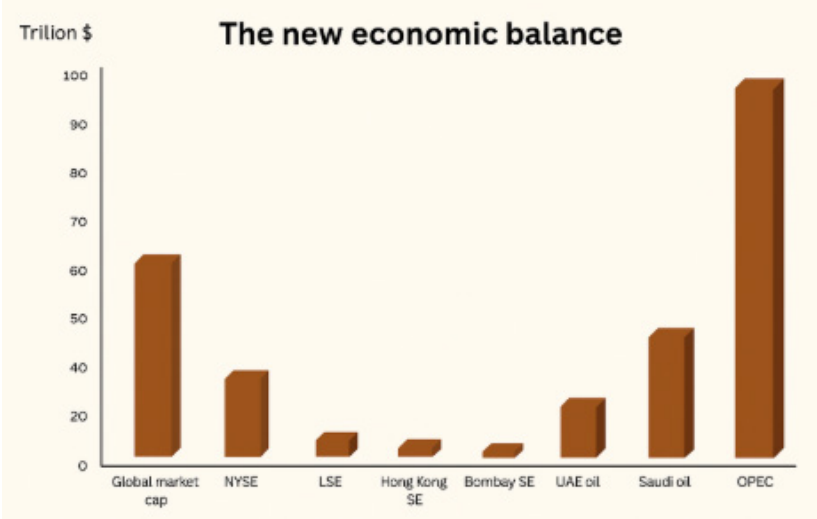

Figure 2. The new economic balance
Рисунок 2. Новый экономический баланс

Behind all the conflicts for control over energy resources, namely oil reserves, there is a deeper conflict, namely a civilizational one. This conflict is exacerbated by the fact that, according to B.N. Kuzik and Yu.V. Yakovets, «with a change in the population growth structure of some civilizations, there is a moderate growth of others and for the first time and intensified to depopulation of the third» [5, p.253]. Let us examine the conflicts within the oil market through the lens of the civilizational paradigm. Within the framework of Chinese civilization, it is pertinent to note that China is poised to emerge as the principal market for global energy supplies in the foreseeable future. Currently, China occupies the second position globally in terms of energy consumption, underscoring its growing significance in shaping the dynamics of global energy demand. According to O.T. Bogomolov, «rich countries, attracting intellectual migration, become big winners, and countries that lose their intellectual potential end up being big losers» [6, p.143]. In this sense, China is becoming a richer country, which attracts intellectual migration to a greater extent. The quote by V.P. Voronin is very appropriate here: «World development in the conditions of innovative growth and the creation of a single world economic space contributes to a change in the fate of individual countries and integration associations» [7, p.3]. China's economic expansion presents a paradigmatic case study of these energy dynamics, demonstrating a pronounced divergence between domestic hydrocarbon production capacity and escalating consumption requirements. During the initial observation period (2000-2015), while maintaining a robust 7% annual GDP growth accompanied by 4% yearly increases in petroleum demand, domestic crude output expanded at merely 2% annually, creating an exponentially growing supply deficit. This imbalance manifested concretely by 2005 when consumption reached 250 million metric tons, necessitating import dependence ratios approaching 50% by 2010. Extrapolation of these trends positioned China to emerge as the global leader in crude oil imports by 2020, fundamentally altering international energy

trade patterns and security considerations. The Chinese developmental trajectory thus exemplifies the critical challenges faced by rapidly industrializing economies in reconciling energy demand growth with domestic resource constraints. In terms of import structure, 46.2% of China's imported oil was sourced from the Middle East, 18.6% from Asia-Pacific countries, and 19.8% from African nations, highlighting the geopolitical diversification of its energy supply chain.

Eurasian civilization (CIS countries). The economy of the Republic of Belarus is completely dependent on the import of Russian energy resources. According to the textbook «World Economy», «the government forms the rules of international exchange» [8, p.45]. According to Robert Gilpin, «The international investment regime will also have to solve the problem of symmetrical differential or mutual access to national markets» [9, p.190].

In Kazakhstan, crude oil production increased by 15% in 2000 and reached 30.6 million tons of oil. In recent years, Kazakhstan has rapidly become one of the largest suppliers of energy resources on the world market.

As A.P. Golikov reports, «the system of world economic relations depends on many very little-known factors that are changing rapidly» [10, p.27]. One of the specific factors is the provision of energy resources. By the way, Azerbaijan has the same significant factors. Gas reserves in the Azerbaijan sector of the Caspian Sea amount to about 3 trillion cubic meters of gas.

In the contemporary global system, international economic organizations occupy a position of considerable significance. As noted by I.N. Gerchikov, «international economic organizations exert a decisive influence on all dimensions of international economic relations» [11, p. 41]. This assertion underscores the critical role such institutions play in shaping global trade, investment flows, and the distribution of economic power.

Within this context, the economy of Turkmenistan is notably characterized by its reliance on energy resources. The oil and gas sector contributes to over 60% of the country's gross domestic product, reflecting its structural centrality within the national economy. Moreover, energy exports account for approximately 74% of Turkmenistan's total exports, illustrating the country's dependence on external markets for its hydrocarbon revenues.

A.P. Golikov and N.A. Kazakova emphasize that «the world economy constitutes a global economic organism, representing a system of interdependent national economies» [12, p. 7]. This perspective highlights the integrated nature of the contemporary global economy, within which national economies, such as that of Turkmenistan, function as interconnected components shaped by international market dynamics and regulatory frameworks established by global economic institutions.

The Muslim civilization occupies a position of substantial significance within the contemporary global system, particularly in the context of energy markets and geopolitical dynamics. Among the Muslim-majority countries, Turkey demonstrates a notable upward trend in oil consumption, with figures rising from 33 million metric tons in 2000 to 43 million metric tons in 2006. However, Turkey's domestic oil reserves, estimated at approximately 39.1 million metric tons, remain highly limited, necessitating a heavy reliance on external sources to meet domestic demand. Turkey demonstrates significant energy import dependence, with approximately 90% of its petroleum consumption being supplied through imports originating primarily from hydrocarbon-rich Muslim nations, including Saudi Arabia, Iran, Libya, Algeria, Syria, and Egypt [13]. More broadly, the Muslim world represents a pivotal geopolitical entity in global energy markets due to its substantial hydrocarbon endowment. As documented in reference [13], this civilizational sphere contains extraordinary petroleum reserves, most notably: Saudi Arabia (266 billion barrels), Iran (132.5 billion barrels), Iraq (115 billion barrels), Kuwait (104 billion barrels), and the United Arab Emirates (97.8 billion barrels). This remarkable concentration of

fossil fuel resources establishes Muslim-majority states as critical determinants of global energy security architecture, enabling them to exert considerable influence over international oil markets through both supply mechanisms and price formation processes. The strategic significance of these reserves extends beyond mere economic considerations, fundamentally shaping contemporary geopolitical alignments and power dynamics in the post-carbon world order.

Significant oil reserves and relatively low production costs make these countries strong competitors to other oil producers in the world. For example, according to the textbook «World Economy», «the cost of oil production in the Middle East is $2 per barrel, in North America – $2 per barrel, Russia - 11 dollars per barrel» [14, p.121].

Within the framework of North American civilization, the United States is projected to maintain a high level of oil consumption in the foreseeable future. Over the past two decades alone, the demand for electricity in the United States has increased by approximately 45%, reflecting the broader trends of economic expansion, technological development, and rising standards of living.

Throughout the twentieth century, the United States evolved into the world's largest importer of crude oil, underscoring its structural dependence on external energy sources to sustain its industrial and consumer demands. The United States' energy security paradigm has incorporated systematic import portfolio diversification as a core strategic imperative, with particular attention to expanding potential supply sources - including, at various policy junctures, the evaluation of Russian Federation crude oil exports as a component of this diversified supply matrix.

The diversification paradigm constitutes a strategic response to the dual challenges of maintaining energy system stability and navigating the exogenous shocks inherent in global hydrocarbon markets, reflecting an adaptive policy framework that acknowledges both the economic realities of commodity price volatility and the geopolitical constraints affecting resource accessibility in an increasingly multipolar energy landscape. According to V.V. Lipov, «the structure of oil in world production is 36.1%, and in consumption - 35%» [15, p.63]. That is, we see that the United States is faced with the need for structural restructuring of its economy. According to E.A. Dovgal, «of great importance is such a long-term factor as the structural restructuring of the national economy, which is oriented toward modern scientific and technical, economic, environmental and social standards» [16, p.54]. However, the structural transformation of the economy of a large country cannot be achieved within a short timeframe. The United States maintains a persistent structural dependence on petroleum imports, with significant supply chains extending to the Persian Gulf region, Canada, and Latin America to meet domestic energy requirements. Energy demand projections indicate a 33% growth in U.S. hydrocarbon consumption within a twenty-year horizon, driven primarily by industrial expansion, transportation sector demands, and residential energy needs. Under existing policy parameters, domestic crude oil output demonstrates a declining trajectory, with production forecasts anticipating reduction to 5.1 million barrels per day by 2020 - representing a 45.7% decrease from peak production levels of 9.4 million barrels per day achieved three decades prior. This production-consumption divergence underscores the growing import dependency ratio and highlights critical energy security challenges facing the nation. Presently, the United States satisfies approximately 54% of its oil requirements through imports, a figure that is anticipated to rise to around 64% in the near future, further underscoring the country's reliance on external energy sources to maintain its economic stability and energy security.

Within the framework of Latin American civilization, countries in this region serve as significant exporters of energy resources, playing a notable role in the global

energy market. Mexico, in particular, is a major supplier of crude oil, with approximately 85% of its oil exports directed toward the United States, 11% toward the European Union, and 3.6% to the Asia-Pacific region, reflecting its established trade patterns and the strategic orientation of its export flows. Venezuela also holds a prominent position as a leading oil exporter within Latin America. Quantitative analysis reveals Venezuela's extreme fiscal reliance on petroleum revenues (70% of state budget) while Colombia emerges as a strategically important regional exporter with proven hydrocarbon reserves totaling 37 billion barrels (25.9 billion barrels crude, 11.1 billion barrels gas equivalent), positioning both nations as key participants in global energy markets albeit with differing resource profiles and economic dependencies [13].

The Indian civilization's energy security framework is fundamentally limited by its scarce domestic hydrocarbon resources, necessitating heavy dependence on crude oil imports to satisfy its escalating energy requirements. This reliance is predominantly channeled through suppliers within OPEC nations and the Persian Gulf, exposing India to significant risks stemming from global oil market volatility and geopolitical instability in these regions. The country’s energy import pattern highlights a critical structural vulnerability within its economic system, as petroleum imports pose a strategic challenge to both long-term energy security and overall macroeconomic stability. Consequently, this external dependency intensifies India’s susceptibility to fluctuations in international oil prices and geopolitical shifts in key exporting areas, thereby informing the core strategic imperatives of its national energy policy.

If we analyse this information, we see that different civilizations are provided with oil reserves and energy resources to different degrees. Therefore, a deeper conflict arises, not only an economic and political, but also a civilizational conflict. Not only is competition among countries for control over energy resources intensifying, but also a civilizational conflict. And the conflict between the North American civilization, the Chinese and the Indian civilizations is especially intensifying. The consequences of this competition may be different. For example, the US war in Iraq is only a small fragment of such competition.

The connection between the global financial crisis and the energy market. According to the monograph «Economic problems of the XXI century – international and Ukrainian dimension», «The development of modern civilization is connected with three components E - energy, economy and ecology» [17, p. 231]. If we see from the events that have unfolded in the world, that the world economy and oil prices are very closely connected.

For example, on October 1, 2006, the US stock market fell by more than 1 trillion dollars. Since October, the US Senate has decided to allocate 700 billion dollars to support the rate. This led to a decrease in oil prices from 146 dollars per barrel in June 2008 to 61 dollars per barrel in October 2008. This led to an extraordinary meeting of OPEC on October 24, 2008. OPEC reported a 4% reduction in oil production. Iran and Venezuela insisted on an 8-10% reduction in production, but a more compromise solution was adopted. The volume of oil production since November 1, 2008 has decreased from 29 million barrels per day to 27.5 million barrels per day. It seems that in the near future oil prices have exceeded not only $ 146 per barrel, but possibly even $ 200 per barrel. The basis of conflicts in the energy sector, namely in the oil market, is that oil reserves are very different among countries of the world. Estimates of oil reserves within specific countries vary depending on the data sources utilized for assessment. According to data published in the Oil & Gas Journal as of January 1, 2007, the countries with the largest proven oil reserves include Saudi Arabia with 259 billion barrels, Canada with 179.2 billion barrels, Iran with 136.3 billion barrels, Iraq with 115.0 billion barrels, Kuwait with 99 billion barrels, the United Arab Emirates with 97.6 billion barrels, Venezuel

with 80.0 billion barrels, Russia with 60.0 billion barrels, Libya with 41.5 billion barrels, Nigeria with 36.2 billion barrels, and Kazakhstan with 30 billion barrels. Discrepancies in reserve estimations emerge across different sources due to methodological variations in reporting standards, technological evaluation parameters, and regional classification systems for reserve categorization, as exemplified by the divergent data presented in the Oil & Gas Journal's December 19, 2005 report [18], which offers an alternative assessment of global petroleum reserve distributions illustrated in Figure 3; nevertheless, consensus estimates indicate aggregate proven global oil reserves surpassing four billion barrels, highlighting both the substantial volume of extractable hydrocarbon resources and their pivotal role in shaping the geopolitical and economic contours of the contemporary energy landscape.

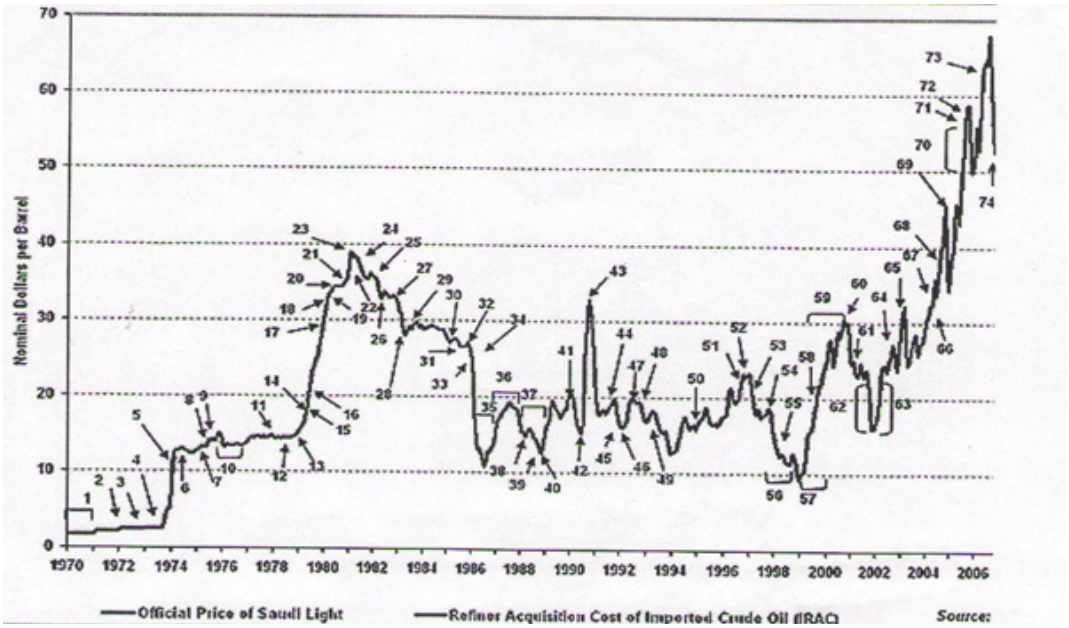

Figure 3. World Nominal Oil Price Chronology: 1970-2006 [18]
Рисунок 3. Хронология мировых цен на нефть: 1970-2006 [18]

If we analyse conflict situations, we can determine that the main conflict is related to the fact that countries with very high oil reserves such as Saudi Arabia, and consumers such as the United States. This information is very consistent with what is defined in such sources as «International Trade» by Golikov A.P., Grigorova L. [19, p. 8] factors that influence the price level are divided into: political, economical, social, psychological. This is very clearly seen from the graph «World Nominal Oil Price Chronology» 1970-2006, how these factors influence the price level. According to the textbook, «World Economy and International Economic Relations», 2003 by Golikov A.P. [20, p. 31] by their meaning factors are divided into: energy, raw materials, food, cultural and aesthetic. The influence of these factors on the world price of oil can be well studied on the chart «Word Nominal Oil Price chronology 1970-2006». It is clearly seen that the main conflict in the world economy is connected with the fact that the West does not have enough resources, namely oil reserves, to control the world economy. Therefore, very often, in order to protect their own interests, the USA uses either an embargo against oil-producing countries, or military actions, as in Kuwait (1991), or during military actions in Iraq. (March 19, 2003.)

So, international conflicts that are associated with contradictions between exporters and importers are the subject of attention of researchers. According to the data, the United States receives about 95 billion US dollars from the sale of Iraqi oil every year. The investment effect for the US economy is 4tr. 757 billion over 5 years. Over 10 years, about 13.7 billion

dollars. The United States is trying to diversify oil supplies by country (table. Origin of United States Import of Crude Oil) and regions, diversify their risks in energy supply, international competition in the market is intensifying. The demand for oil in the most developed economies is constantly increasing. International conflicts greatly affect the price of oil in the world.

Implementation of new technologies in the energy supply sector.

One of the most important ways to remove conflict factors in the energy sector, namely in the oil market, is to reduce oil consumption. Under the condition of a free market, supply and demand in the oil market are very well defined in general terms in the textbook by D.I. Barkan «Marketing for Everyone»: «let us note such a complex problem as assessing the level of demand satisfaction» [21, p.43]; in the textbook by F. Kotler «Fundamentals of Marketing» there is also a lot of information that proves the importance of a balance between the supply of goods and the demand for these goods. From our perspective, a fundamental objective lies in the formation of an economic and social system wherein energy factors are effectively leveraged through the implementation of advanced energy-saving technologies. The adoption of such technologies has enabled technologically advanced nations, including Germany, Italy, and Japan, not only to expand their industrial production capacities but also to achieve simultaneous reductions in oil consumption. For instance, statistical data indicate that Germany's oil consumption decreased from 2.683 million barrels per day in 1993 to 2.662 million barrels per day in 2001, and further declined to 2.178 million barrels per day by 2007. This demonstrates the potential for aligning economic growth with energy efficiency improvements through the systematic integration of technological innovations within the energy consumption structure of industrialized economies. That is, we see that Germany, thanks to new technologies, was able to reduce its consumption of crude oil and simultaneously increase its exports.

But the difficulty is that new energy-saving technologies require very substantial funds. The introduction of new technologies such as «thermodomestic», metal-plastic windows, new energy supply systems, heating require very large investments and government support. Only economically developed countries are able to allocate significant funds for energy saving.

In the conditions of the world financial crisis, when in one day, the stock markets collapsed by more than 1 trillion dollars on October 1, 2008, the introduction of new energy-saving technologies is very problematic for all countries. If the American Congress can afford to allocate 700 billion dollars to save the American economy, then there is no official plan to save the Ukrainian economy at all. There is only the official version that the world financial crisis allegedly threatens all countries except Ukraine. Meanwhile, according to the EIA International Energy Annual 2004, oil in the energy supply system of Ukraine takes up 12%, gas – 49%, coal – 24%, nuclear energy – 14%, hydroelectric power - 1%. World prices for energy resources are steadily increasing, and Ukraine will lose favourable time for reforming the Ukrainian energy sector. It is very important for humanity in general that all countries of the world have the opportunity to receive money to reduce oil consumption and there are resources for their national producer. This requires global international programs, that would help attract funds for the implementation of new technologies in the poorest countries. For example, Ukraine consumes as many energy resources as Germany [22], according to the World Bank.

Meanwhile, Germany ranks first in exports – 1.327 trillion dollars [22, p. 15], second place is occupied by China with an export volume of 1.218 trillion dollars. We see what a rapid reduction in demand for oil can lead to in the example of the global financial crisis in October 2008, when the price of oil fell from $149 per barrel in June 2008 to $62 per barrel in October 2008. New technologies can significantly

increase the efficiency of thermal power plants by about 20%. But all these measures will require significant capital investment. The problem of introducing new technologies- is the issue of securing significant funding at low interest rates, that very difficult to do during the global financial crisis.

Prospects for the Development of Nuclear and Thermonuclear Energy. A very important component for preserving the environment and getting rid of dependence on oil and other energy sources is nuclear and thermonuclear energy. According to EIA Energy Annual 2004, in the structure of energy supplies in Ukraine, energy generated at nuclear power plants accounts for 14%. This is a very significant factor for Ukraine, because nuclear energy replaces expensive gas, oil or coal. In the structure of energy supplies in some European countries, the share of energy generated at NPPs already exceeds 40%. Unfortunately, there is no alternative to this process. Humanity requires more and more energy, and reserves of oil, coal, and gas are very limited. In the future, the share of energy generated by NPPs in Ukraine can be increased several times. But this requires very solid funds, approximately 1 billion US dollars is needed to build one nuclear power plant with a capacity of 1 million kW. The amount of about 1 billion US dollars is needed to build 1 nuclear power plant with a capacity of 1 million kW/h. A similar funding issue exists in other developing countries such as India, China and others.

Use of alternative energy. In recent years, the problem of replacing oil and other fuels with alternatives has become of global importance. Enterprises across more than 40 countries, including leading oil and automotive corporations, have mobilized financial resources to support research initiatives in the field of hydrogen energy. Investigations are currently underway to examine diverse methods of hydrogen production, including the utilization of nuclear and hydroelectric power facilities, which may contribute to ensuring a more stable and sustainable energy supply in the future. The development of hydrogen energy has also become a priority on the agendas of governments in the world's leading economies. Notably, the United States enacted a series of legislative measures pertaining to the «Hydrogen Future» in 1996, 2001, and 2003. In 2003, President George W. Bush announced the «Hydrogen Fuel Initiative», under which a comprehensive 15-year national program was established to advance hydrogen energy technologies. The program was supported by $1.7 billion in federal budgetary allocations, complemented by significant private sector investments, reflecting a coordinated public-private partnership approach. To oversee and implement this program, a dedicated working group was formed, comprising representatives from nine federal agencies under the leadership of the Office of Science and Technology Policy within the Executive Office of the President of the United States, ensuring interdepartmental coordination and systematic advancement in the hydrogen energy sector. In addition, the United States has a program to replace gasoline with ethanol.

The European Union has strategically prioritized hydrogen energy development through substantial financial commitments, including €300 million allocated under the Sixth Framework Programme for research and development [citation needed], followed by the establishment of the European Technology Platform on Hydrogen and Fuel Cells in 2004, which formulated a long-term strategic roadmap extending to 2050 with planned investments of €2 billion to systematically advance hydrogen technologies across member states [citation needed]. Parallel developments in Japan include the implementation of a national hydrogen energy program through 2020 backed by $4 billion in funding, with specific deployment targets including the introduction of over 10,000 hydrogen- powered vehicles by 2010, demonstrating practical applications in the transportation sector [citation needed]. Contemporary research efforts exhibit global engagement, with China, India, France, Canada,

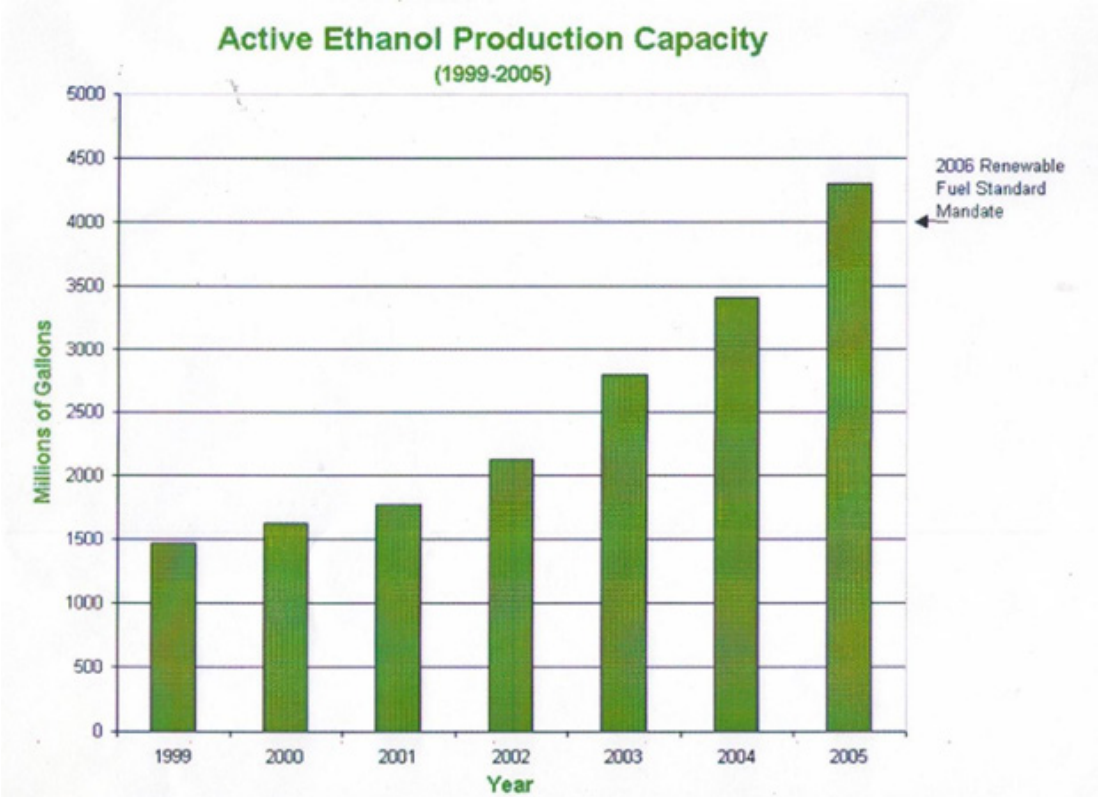

Figure 4. Active Ethanol Production Capacity (1999-20025) [4]
Рисунок 4. Действующие мощности по производству этанола [4]

Sweden, Ukraine, and Belarus actively developing hydrogen technologies, reflecting international consensus on hydrogen's dual role in addressing energy security and environmental sustainability through decarbonization [citation needed]. This multinational research framework identifies hydrogen as a pivotal energy carrier for achieving low-carbon transitions, owing to its distinctive ability to integrate renewable energy sources, provide large-scale energy storage, and enable multi-sectoral applications across transportation, industrial processes, and electricity generation. By substituting traditional fossil fuel systems, hydrogen contributes significantly to climate change mitigation [citation needed]. The broad international collaboration highlights not only the technological promise of hydrogen-based systems but also the geopolitical importance of attaining competitive advantages along the entire hydrogen value chain. This encompasses advancements in production techniques—including electrolytic, thermochemical, and biological methods — improvements in storage technologies aimed at enhancing energy density and safety, and the development of innovative distribution networks to facilitate widespread adoption across varied energy markets and climatic environments [citation needed].

The European Technology Platform for Hydrogen and Fuel Cells has formulated a strategic framework comprising six key objectives to accelerate hydrogen technology deployment in energy and transportation systems: (1) facilitating policy development to support hydrogen infrastructure growth, (2) augmenting research funding mechanisms, (3) implementing demonstration projects to validate technological and economic viability, (4) mobilizing private capital investment, (5) establishing specialized education programs to develop human capital, and (6) creating a centralized coordination hub for knowledge management and technology transfer, with this multidimensional approach exhibiting notable parallels to the structural organization and strategic

objectives of Russia's historical GOELRO electrification initiative during its industrialization phase, particularly in terms of combining centralized planning with technological demonstration and workforce development components to achieve systemic energy transformation. This holistic strategy embodies current initiatives aimed at overcoming the multifaceted technical, economic, and institutional obstacles associated with the transition to hydrogen energy systems. It draws upon insights gained from historical examples of large-scale energy infrastructure modernization, where the effective integration of policy frameworks, targeted research funding, and industrial deployment facilitated successful transformation.

The European Union has formulated an extensive strategic roadmap that specifies clear developmental milestones for the phased integration of hydrogen energy technologies across critical economic sectors. This implementation framework delineates targets for technological deployment, infrastructure expansion schedules, and market adoption metrics, facilitating the progressive assimilation of hydrogen solutions into the continental energy system. It carefully considers regional disparities in energy demand, existing infrastructure, and the availability of renewable energy resources, thereby creating a harmonized transition pathway aligned with overarching decarbonization goals and energy security priorities within the EU. Notably, by 2010, the strategy anticipated the initiation of mass production of hydrogen-powered vehicles coupled with the establishment of a supporting hydrogen refuelling network. By 2020, the objectives included achieving competitiveness for hydrogen-powered vehicles and the commercialization of low-cost high-temperature fuel cells. The roadmap further projects that by 2030, technologies for long-term hydrogen storage will be developed, accompanied by the widespread use of residential fuel cells for electricity generation. By 2040, hydrogen energy is expected to become the dominant energy source within the system, with the final milestone set for 2050, targeting the introduction of hydrogen-powered aircraft. This systematic and phased approach demonstrates the European Union’s strategic vision to position hydrogen as a cornerstone of its future sustainable energy system while ensuring technological leadership in the global transition towards low-carbon energy solutions.

European nations have demonstrated significant commitment to renewable energy development through extensive project implementation focused on technological advancement and system integration of alternative energy sources, with the United States maintaining quantitative leadership in absolute renewable electricity generation volumes while exhibiting relatively low renewable penetration rates of approximately 2% within its national electricity mix, contrasting sharply with the substantially higher renewable energy shares achieved in pioneering jurisdictions such as Denmark, Finland, and select German Länder, where comprehensive policy frameworks and targeted investment strategies have enabled more substantial renewable integration; nevertheless, despite these regional successes and ongoing governmental support initiatives, renewable energy technologies collectively continue to represent a modest proportion of worldwide electricity production, reflecting persistent technological, economic and infrastructural barriers to large-scale renewable deployment across global energy systems. This is primarily attributable to the higher production costs associated with renewable energy technologies and the extended payback periods characteristic of such projects.

Japan, the United States, and Western European countries continue to lead in the development and deployment of advanced technologies for electricity generation, reflecting their commitment to technological innovation within the energy sector. Looking forward, it is anticipated that within the next

30 to 40 years, a transformative phase may occur, marked by the emergence and diffusion of fundamentally new technologies for electricity generation from non-traditional raw materials. This includes the utilization of fuel cells for hydrogen production and significant reductions in the cost structures of wind and solar energy technologies.

For instance, in France, the cost of electricity generated using photovoltaic cells remains approximately fifteen times higher than that produced through conventional means. The United Kingdom has reached cost competitiveness between electricity produced by onshore wind and traditional power generation methods, thereby demonstrating the economic feasibility of renewable energy technologies under specific market conditions. This technological progress enhances the prospects for energy system transformation by facilitating the replacement of incumbent generation technologies, promoting increased integration of renewable sources into the national grid, and simultaneously improving the diversity and sustainability of electricity supply. Nevertheless, the complex geopolitical and economic factors underlying global energy conflicts persist despite potential reductions in petroleum consumption, as these structural tensions derive from multifaceted interdependencies within the international energy system that transcend simple resource substitution scenarios, requiring comprehensive systemic reforms rather than singular technological solutions to address the fundamental conflict drivers embedded in contemporary energy supply architectures.

Addressing these challenges requires the implementation of a set of targeted measures, among which the following steps may be identified:

1) The reduction of oil and other energy resource consumption through the deployment and integration of advanced technologies.

2) Conducting a strong demographic policy in countries such as China, India and other developing countries, because it is impossible to reduce the energy needs of humanity when every 10 years the planet's population increases by 1 billion people.

3) Withdrawal of US troops from Iraq and a halt to US preparations for military action in Iran. Because, in addition to economic difficulties, such US actions can lead to a civilizational conflict between the North American and Islamic civilizations.

4) The US refusal to play the role of a country that interferes in the internal affairs of all countries of the world and wants to impose its morality and its way of life on the whole world.

5) Resolving the problem of poverty in the world. It is very abnormal when 1 billion people (USA, Europe, Japan) have everything, and 7 billion people in other countries have nothing.

6) Creating opportunities to attract low-interest loans for the development of poor countries and those countries that are developing.

7) Creating generally accepted standards of behaviour for countries that would exclude the possibility of using military force.

That is, the ways to remove conflict factors must be comprehensive and have global significance.

CONCLUSIONS

Based on the results of the work performed, it should be noted that conflict factors directly affect the level of oil production and the price level. If you pay attention, most of the oil in the world is exported from very conflict-prone regions, such as the Middle East – 22%, Africa – 22%, Latin America – 17%. In the oil market, behind the economic conflicts are deeper civilizational conflicts. We see increased competition between the North American, Eurasian, Chinese, Indian and Latin American civilizations for control over energy resources. The fact that energy resources are proportionally distributed between countries and civilizations significantly affects conflicts in the energy sector. This is what exacerbates world conflicts. The most acute conflicts already exist between the North American civilization and the Islamic civilization. A significant contribution to overcoming these conflicts is the reduction

in oil consumption in the world. This reduction can be carried out due to the latest energy-saving technologies. But at this stage these steps are impossible. We see what financial profit the USA has from the war in Iraq. For a year of military actions in Iraq, the American government receives a profit from the sale of Iraqi oil of about 95 billion US dollars. If we subtract from this the costs of military actions, then the profit each year will be 576 billion dollars. For 5 years of military actions, the USA will spend about 2 trillion 880 billion dollars on the military campaign in Iraq. If from the amount of profit from the US military actions in Iraq for 5 years 4 trillion 757 billion dollars we subtract the costs of military actions of about 2 trillion 880 billion dollars, we will see that the US government received an economic profit of 2 trillion US dollars in 5 years. But this money also has a significant investment effect on the US economy according to the formula:

$$PV = FV - \left(\frac{1}{1+R}\right)^{N}$$

where PV is the present value of the resource; FV is the future value of the resource; R is the discount rate (8+2) =10%; N is the number of years.

The investment effect for the US economy over 5 years is from 95 billion US dollars for 1 year of war: (2) billion US dollars.

Now let's find the investment effect for the US economy over 10 years, if we know that the US received 4 trillion 575 billion US dollars over 5 years, which will be our PV. Over 10 years, the US economy receives: 13.68 trillion US dollars.

That is, we see that the investment effect of US military action over 10 years is 13.68 trillion US dollars. If we calculate that only 10% of US dollars are backed by gold or goods, we can see that only the war with Iraq supported the US economy.

The growth of energy prices leads to the strengthening of contradictions between oil exporters and oil importers. For example, on October 24, 2008, OPEC decided to reduce oil production by 4%. The decision to reduce production from 323.9 million barrels to 27.5 million barrels was negatively received by Western countries, and it was made only in connection with the fact that oil prices as a result of the crisis collapsed from 149 dollars per barrel to 65 dollars per barrel. Such a compromise decision was made without taking into account the positions of Iran and Venezuela, which insisted on reducing production by 8-10%. The US military actions in Iraq increase the fears of the world community that Islamic countries will begin to use significant financial resources to fight Western and North American civilizations. If we take into account that the capitalization of OPEC is more than 80 trillion US dollars, then these fears are not groundless. The only way to alleviate this conflict-prone situation is seen in the cessation of US military actions in Iraq and the cessation of planning military actions against Iran. Because this factor of the clash of Islamic civilization and European and North American civilization is very dangerous for the world.

Another factor that will require the influence of the world community is demographic. It is very dangerous for the world that the population of the planet increases by 1 billion every 10 years. This will require the adoption of a global demographic program that would help India and China and other countries reduce the growth of their own population, which in turn will reduce the world's need for energy resources and especially oil.

To reduce conflict factors, it is necessary to take into account the factor of availability of cheap financial resources for poor countries or developing countries, which they could use to implement energy-saving technologies and other things. The global financial crisis of 2008 only exacerbated this problem. The most important factor that could significantly mitigate world conflicts is the refusal of the United States to play the role of a superpower.

One of the main factors that could reduce conflicts in the world and in the oil market, especially, is the problem of poverty in the world. It is very unpleasant that only 1

billion of the population of planet Earth can enjoy all the benefits of civilization, this is the so-called "golden billion". It includes the population of Europe, Canada, the USA. But the fact that 7/8 of the planet's population does not have basic means of subsistence only significantly intensifies this conflict. Another way to mitigate conflict factors in the world and in the oil market in particular is to create global standards of behavior for countries in the world and strictly adhere to these standards. Also, one of the factors that could mitigate the impact of conflict factors on the oil market is the development of nuclear, space and other types of energy, including solar and other alternative energy sources.

СПИСОК ИСТОЧНИКОВ

1. Натрус А.А. Влияние конфликтогенных факторов на характер международного рынка нефти (Часть 1). Государственное управление и право. 2024. № 3(03). С. 252-265.
2. Deutch J. (2007). Future of United States Energy Security Concerns (Report No. 115). Massachusetts Institute of Technology. Joint Program on the Science and Policy of Global Change. https://www.mit.edu/globalchange/www/MITJPSPGC_Rpt115.pdf.
3. U.S. Energy Information Administration. Short-Term Energy Outlook [Electronic resource]. – Washington: EIA, 2023. – URL: https://www.eia.gov/outlooks/steo/ (accessed: 14.10.2024).
4. Deutch J., Schlesinger J. National Security Consequences of U.S. Oil Dependency : task force report ; Council on Foreign Relations. — New York : CFR, 2006. — 80 p. — URL: http://www.cfr.org/publication/11683 (accessed: 19.10.2024).
5. Кузик Б.Н., Ю.В. Яковец. Россия 2050 г. Стратегия инновационного прорыва. – Москва: Экономика, 2005. – 618 с.
6. Богомолов О.Г. Анатомия глобальной торговли: Учебное пособие. – Академкнига, 2003. – 215 с.
7. Воронин В.П., Кондакова Г.В., Подмолодина Ш.М. Финансы и статистика. Учебное пособие. – Москва, 2007. – 237 с.
8. Гуров Ч.П. Мировая экономика: Учебник. – Москва, 2008. – 393 с.
9. Гилпин Р. Мировая экономика XXI столетия: ассиметричный доступ к национальным экономикам. – Харьков: Каравелла, 2004. - 359 с.
10. Голиков А.П. Экономико-математическое моделирование мирохозяйственных процессов: Учебное пособие. – Харьков: ХНУ, 2003. – 104 с.
11. Герчиков И.Н. Международные экономические организации. – Москва: Издательство АО «Консалтбанкир», 2000. – 621 с.
12. Голиков А.П., Казакова Н.А. Мировое хозяйство – отраслевая структура, география, современные тенденции: Учебное пособие. – Харьков 2002. – 112 с.
13. OPEC. Annual Statistical Bulletin 2022 [Electronic resource]. – Vienna: OPEC, 2022. – URL: https://www.opec.org/opec_web/en/publications/338.htm (accessed: 14.10.2024).
14. Дахно И.И. Мировая экономика: Учебное пособие. – Киев, 2008. – 277 с.
15. Липов В.В. Международная экономика: Учебное пособие. – Харьков: издательство ХНЭУ, 2007. – 207 с.
16. Довгаль Е.А. Международная экономика: Учебное пособие. – Харьков, 2002. – 263 с.
17. Филипченко А.С. Мировая экономика: Учебник – Киев: Либідь, 2008. – 581 с.
18. Oil and Gas Journal. (2005, December 19). World oil reserves report [Electronic resource]. URL: https://www.ogj.com/ (accessed: 19.10.2024).
19. Голиков А.П., Григорова Л.И. Международная торговля: Учебное пособие. – Харьков, 2003. – 154 с.
20. Голиков А.П. Мировое хозяйство и международные экономические отношения: Учебник. - Харьков, 2003. – 431 с.
21. Баркан Д.И. Маркетинг для всех: Учебник. – Культ-информ, 1991. – 256 с.
22. WTO. (2008, November 17). Developing, transition economies cushion trade slowdown (Press Release No. 520) [Electronic resource]. World Trade Organization. URL: https://www.wto.org/english/news_e/pres08_e/pr520_e.htm (accessed: 19.10.2024)/

Информация об авторе
Натрус Александр Анатольевич – учитель, магистр международной экономики и международных экономических отношений

REFERENCES

1. Natrus A.A. The influence of conflict-causing factors on the nature of the international oil market (Part 1). Public administration and law. 2024. No. 3(03). pp. 252-265 (In Russ.).
2. Deutch J. (2007). Future of United States Energy Security Concerns (Report No. 115). Massachusetts Institute of Technology. Joint Program on the Science and Policy of Global Change. https://www.mit.edu/globalchange/www/MITJPSPGC_Rpt115.pdf.
3. U.S. Energy Information Administration. Short-Term Energy Outlook [Electronic resource]. – Washington: EIA, 2023. – URL: https://www.eia.gov/outlooks/steo/ (accessed: 14.10.2024).
4. Deutch J., Schlesinger J. National Security Consequences of U.S. Oil Dependency : task force report ; Council on Foreign Relations. — New York : CFR, 2006. — 80 p. — URL: http://www.cfr.org/publication/11683 (accessed: 19.10.2024).
5. Kuzik B.N., Yu.V. Yakovets. Russia 2050 Strategy of innovative breakthrough. Moscow: Ekonomika Publ., 2005. 618 p. (In Russ.).
6. Bogomolov O.G. The anatomy of global trade: A textbook. – Akademkniga, 2003. – 215 p. (In Russ.).
7. Voronin V.P., Kondakova G.V., Podbolodina Sh.M. Finance and statistics. The training manual. – Moscow, 2007. – 237 p. (In Russ.).
8. Gurov Ch.P. World economy: Textbook. – Moscow, 2008. – 393 p. (In Russ.).
9. Gilpin R. The world economy of the 21st century: asymmetric access to national economies. Kharkiv: Karavella Publ., 2004. 359 p. (In Russ.).
10. Golikov A.P. Economic and mathematical modeling of world economic processes: A textbook. Kharkiv: KhNU, 2003. 104 p. (In Russ.).
11. Gerchikov I.N. International economic organizations. – Moscow: Publishing house of JSC "Consultbankir", 2000. – 621 p. (In Russ.).
12. Golikov A.P., Kazakova N.A. World economy – industry structure, geography, modern trends: A textbook. – Kharkov, 2002. 112 p. (In Russ.).
13. OPEC. Annual Statistical Bulletin 2022 [Electronic resource]. – Vienna: OPEC, 2022. – URL: https://www.opec.org/opec_web/en/publications/338.htm (accessed: 14.10.2024).
14. Dakhno I.I. World Economy: A textbook. Kiev, 2008. 277 p. (In Russ.).
15. Lipov V.V. International Economics: A textbook. Kharkov: KhNEU Publishing House, 2007. 207 p. (In Russ.).
16. Dovgal E.A. International Economics: A textbook. Kharkiv, 2002. 263 p. (In Russ.).
17. Filipchenko A.S. World Economy: Textbook – Kiev: Libid, 2008. – 581 p. (In Russ.).
18. Oil and Gas Journal. (2005, December 19). World oil reserves report [Electronic resource]. URL: https://www.ogj.com/ (accessed: 19.10.2024).
19. Golikov A.P., Grigorova L.I. International trade: A textbook. – Kharkov, 2003. – 154 p. (In Russ.).
20. Golikov A.P. World economy and international economic relations: Textbook. – Kharkov, 2003. – 431 p. (In Russ.).
21. Barkan D.I. Marketing for everyone: Textbook. – Kult-inform, 1991. 256 p. (In Russ.).
22. WTO. (2008, November 17). Developing, transition economies cushion trade slowdown (Press Release No. 520) [Electronic resource]. World Trade Organization. URL: https://www.wto.org/english/news_e/pres08_e/pr520_e.htm (accessed: 19.10.2024)/

Information about the author

Natrus A. Anatolyevich – teacher, Master's degree of International Economics and International Economic Relations

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