

UDC 351.82:[330.123.3:665.7]

JEL Classification: H11, H57, H56

DOI: 10.15587/2706-5448.2024.314545

**Oleh Chechel,
Alla Bashuk**

STATE POLICY ON PROVISION OF STRATEGIC STOCKS OF PETROLEUM PRODUCTS IN THE STRUCTURE OF THE STATE RESERVE

The object of research is the state policy on provision of strategic stocks of petroleum products in the structure of the state reserve. The article defines the importance of reserving for ensuring the strategic needs of the state in the state reserve system of Ukraine of such resources as oil, petroleum products, fuel and lubricants. There were established the factors of influence that require the transformation of approaches to the formatting the state reserve of strategic materials. It was proved the need to create a special model of state management of petroleum products, fuel and lubricant reserves in the structure of the state reserve. It was disclosed the peculiarity of the functioning of the oil transportation and storage market as an alternative to the state reserve system as for Ukraine. It was made an analysis of the Ukrainian legislation regarding the formation of the strategic reserve of oil and petroleum products. It was investigated the foreign experience of state policy in the field of reserving strategic reserves of oil and petroleum products. There were explored the ways of revealing the potential of legal adjusting of the processes of forming the strategic state reserve in Ukraine. There were developed the directions for improving the state policy in Ukraine regarding the formation of reserves of petroleum products based on the example of foreign countries. It was proved the expediency of expanding various forms of involvement of private sector entities in the processes of forming the state strategic reserve. There were determined the peculiarities of the model of interaction between the state and the private sector in this matter. There were prognosed further trends in the development of the global oil and oil products storage market. There were identified the potential opportunities for expanding Ukraine's participation in the global oil and oil products storage market. It was disclosed the mechanisms of state participation in the process of forming strategic reserves of oil and oil products in foreign countries. There were also determined the further need for the formation of the Ukrainian market for the storage of oil and oil products as an element of the state reserve system.

Keywords: special model of state management, state reserve, strategic reserves, oil storage market, logistics capacity.

Received date: 21.08.2024

Accepted date: 30.10.2024

Published date: 31.10.2024

© The Author(s) 2024

This is an open access article
under the Creative Commons CC BY license

How to cite

Chechel, O., Bashuk, A. (2024). State policy on provision of strategic stocks of petroleum products in the structure of the state reserve. *Technology Audit and Production Reserves*, 5 (4 (79)), 42–48. <https://doi.org/10.15587/2706-5448.2024.314545>

1. Introduction

Each state fulfills certain obligations to its own citizens and population, taking into account the amount of rights and freedoms guaranteed to them and taking into account the goals of its strategic development. For this purpose, the government must provide certain opportunities, the implementation of which would allow to achieve the maximum level of satisfaction of the public interest and the goals of state development. One of these opportunities is the creation of a state reserve of strategic reserves, and especially reserves of petroleum products. The experience of Ukraine during the fight against the military aggression of the Russian Federation demonstrated that the country's economy depends to the greatest extent on the presence of a strategic fuel reserve or on the possibilities of fast and flexible logistics of this resource. That is why the

actualization of the issue of providing the state economy with sufficient amounts of energy carriers (oil, petroleum products, fuel) and the needs of the population (fuel, fuel and lubricants materials) reaches the level of changing the modern paradigm of existence and forming the structures of the state material reserve.

The domestic policy of providing such a strategic resource as oil products has demonstrated its inefficiency due to the outdated system of planning the needs of the state reserve and the distribution of resources among custodians. Currently, there is a need to develop new approaches to the process of managing state strategic reserves, taking into account the potential of the market for transportation and storage of oil and petroleum products, in which Ukraine can take the place of a regional leader, considering the existing infrastructure and extensive network of pipeline transport.

This requires a general transformation of the vision itself of the Government of Ukraine for the further development of state policy in the field of state material reserves. Traditional methods of managing the strategic reserve in Ukraine should be reoriented to new challenges and needs of the national security system in the specified strategic resources. This issue became especially relevant in the course of Ukraine's resistance to military aggression by the Russian Federation, when significant systemic flaws in the existing policy of forming strategic state reserves were discovered at the first stages.

The issue of providing the state reserve with stocks of strategic products, especially such as petroleum products or fuel and lubricants, etc., has not yet received adequate scientific coverage. The researches of foreign experts have an extremely narrow profile and almost always have the relevance of exclusively domestic application based on the economic characteristics of a certain specific state.

In this context, the researches of scientists from the University of Brno, which relate to the issues of energy and fuel independence of the countries of Eastern Europe, as well as the processes of forming strategic reserves of oil and oil products in these countries, seem interesting [1]. In study [2], great attention is paid to the peculiarities of the state policy of the countries of Eastern Europe in matters of the formation of strategic oil resources in conditions of dependence on its supply from the Russian Federation. The authors of [3] pay attention to the issues of forming strategic oil reserves in the conditions of the variability of the external environment and risks of shortage of oil resources on the global market. In [4], quite closely examines foreign experience regarding the formation of strategic reserves, especially in the conditions of constantly increasing energy prices.

[5] draws particular attention to the importance of revising traditional approaches to the formation of the state's strategic reserves, especially of the most important energy carriers for the economy. The authors of [6] conduct a thorough fundamental study of the oil transportation and storage market as an alternative to the state reserve system of relevant material resources. These researchers also focus on the development of the oil storage market as a separate element of the formation of the state strategic reserves management system. The authors of [7] investigate the practice of implementing state policy on the formation of relevant resources in Germany and other Central European countries.

Thus, *the aim of research* is to improve state management of the processes of formation and use of the state reserve of strategic materials with the involvement of the market mechanism, taking into account global trends in the development of the market for transportation and storage of oil and petroleum products.

2. Materials and Methods

The main emphasis of the research is on the analysis of the existing domestic and foreign legislation in terms of the formation and use of the state reserve, state stocks of strategic materials, etc. In particular, the shortcomings of the Law of Ukraine "On the State Material Reserve", the Procedure for Formation, Placement and Conduct of Operations with Material Values of the State Reserve have been identified. A review of the provisions of the legislation of the USA and Canada regarding the regulation of storage systems for petroleum products and related products was

carried out. The legislation of France, which establishes rules for the purchase and storage of petroleum products for the strategic needs of the country's economy in places not covered by the legislation on secret installations, was studied. A study of the oil storage and transportation market in foreign countries was conducted.

The research methodology was built in such a way that by using a set of tools of scientific knowledge, it was possible to reveal the main features of ensuring the state's strategic stock of oil and oil products for the purposes of the state's national security.

The system of relations regarding the formation and distribution of the strategic state stockpile of oil and petroleum products, as well as relations regarding their storage, was chosen as the main subject on which cognitive influence was directed. Thus, an attempt was made to determine the legal structure used by various states to form a state strategic stock of relevant material values.

The research methodology was based on a combination of systemic analysis methods and a structural approach to determining the content of public-private relations in the analyzed sector. Formal-legal and formal-logical methods were used to analyze the legal support of state policy in the field of forming strategic reserves of oil and oil products. The method of synthetic analysis of the oil transportation and storage market made it possible to reveal the contours of mechanisms and models of state regulation of ways of creating and storing operational strategic oil reserves for the purposes of ensuring the national security. The application of the legal modeling method was explained by the need to determine the prospects for the development of the national reserve system of the strategic reserve of oil and petroleum products.

3. Results and Discussion

The formation of the state reserve of strategic materials is a separate direction of state policy in various foreign countries, which in some places even received its own legislative confirmation. Its main emphasis is not so much on providing the needs of the economic sector of the state mainly with oil and petroleum products, but on creating a system of their uninterrupted supplying. Let's deliberately focus on oil and petroleum products, since this type of energy carrier is still the leading energy source in most modern economies of the world, regardless of the decarbonization policy announced by the national governments of these countries.

That is why it is necessary to focus the main attention on the formation of a system of planning, reservation, supply, distribution and use of stocks of these strategic materials. But in order to change the paradigm of the state policy of the formation of the state reserve in Ukraine, it is necessary to note a number of important caveats:

- firstly, oil and petroleum products, during their storage as a strategic resource, should not completely go beyond the borders of the national market, that is, be excluded from the supply and demand balancing system. This means their constant statistical accounting and consideration during the assessment of the capacity of the national market of petroleum products;
- secondly, oil and petroleum products cannot exist outside the system of their processing and transportation. For Ukraine, this means a reference point on

the existing infrastructure of pipelines and oil storage facilities with the formation of strategic prospects for its development.

Let's consider the second caveat to be the most significant, since the complexity in the system of implementing state procurement, transportation and storage of oil, petroleum products and fuel and lubricants is quite logical. The main problem here lies in the insufficiency of legislative support for these processes and the absence in the structure of the state material reserve of such a category as "strategic material values", to which the resources listed above belong, while such a category has long been enshrined in the legislation of other countries.

Thus, the Law of Ukraine "On the State Material Reserve" [8] does not define any peculiarities in the method of procurement (market procurement, auctions, public procurement, etc.) of the above-mentioned goods and material values. The absence of the status of strategic materials makes oil and petroleum products as important resources as all others included in the nomenclature of the state reserve. This means the same method of their procurement – public procurement – which is constantly connected with the existence of artificial corruption schemes. This in its turn, is reflected in the volume of public purchases and the state's financial support for the formation of this part of the state's material reserve. Taking into account the fact that there is currently a system of certification of oil and petroleum products, it is necessary at the legislative level to provide for its allocation to a separate category of "strategic resource". The conditions for the purchase of such a resource will be based on the minimum price criteria, and storage services will be provided at the expense of oil product market operators.

The procedure for forming, placing and carrying out operations with material assets of the state reserve was approved by Resolution of the Cabinet of Ministers of Ukraine dated 10.08.1997 No. 1129, which is true with the changes made in 2022. Thus, this Order regulates the relations of the State Reserve with central and local bodies of executive power, local self-government bodies, enterprises, institutions, organizations in the process of formation and placement of material assets of the State Reserve, their release in connection with refreshment and replacement, in the order of temporary borrowing, decommissioning, providing humanitarian aid and for eliminating the consequences of emergency situations. It also determines the conditions for accounting for stocks of material assets of the state reserve and reporting on their availability [9]. The main shortcoming of this regulatory act is that it does not provide for the possibility of involving private sector entities in the processes of formation and distribution of state reserves of oil and petroleum products. Such entities can act only as suppliers and final consumers of material values the storage period of which is coming to an end. Instead, let's demonstrate this later, their participation in such processes as: transportation, storage, redistribution, release, etc. is an important element of the operational system of logistical support of the state's needs for strategic resources.

A similar situation is also observed in relation to the reception, transportation, storage, release and accounting of oil and petroleum products at enterprises and organizations of Ukraine. Thus, the relevant Instruction was approved by Interdepartmental Order No. 281/171/578/155 of May 20, 2008 [10]. The main value of this Instruction lies in the

creation of a system of metrology and certification of oil and petroleum products during their release and redistribution between relevant entities and market participants. But it is devoid of regulatory significance during the process of forming strategic reserves of oil and petroleum products. The government does not take into account the transport and logistics capabilities of private sector entities, and also tries to monopolize the oil transportation and storage market.

In our opinion, this state policy is wrong, it does not correspond to the principles of decentralization and de-concentration, which are actively implemented by foreign countries, including in the context of the formation of the state reserve, and especially – during the formation of the state strategic reserve of oil and petroleum products.

Proving our point of view, first of all, it is possible to turn to the expert study "World market for storage of oil and petroleum products in 2020–2030". Thus, experts note that depending on the type, the global oil storage market is divided into crude oil, gasoline, aviation fuel, oil, diesel fuel, kerosene and liquefied petroleum gas. In value terms, the largest share in 2020 was the crude oil segment. According to the materials of the tanks, the market is divided into: steel, carbon steel and plastic, reinforced with glass fiber. In terms of optimal storage cost, the carbon steel segment accounted for the largest share in 2020. On the basis of oil and petroleum products storage tank type, the market is segmented into open top tanks, fixed roof tanks, floating roof tanks, and others. In terms of value, the floating roof tank segment accounted for the largest share in 2020 [3].

The analysis of the world market of storage and transportation of oil and petroleum products, as well as other fuels and lubricants demonstrated, that Western countries pay more and more attention to its regulation and participation in it. The main emphasis is directed to studying the possibilities of this market for the needs of forming strategic state reserves, for the state's constant access to additional fuel and lubricant resources. This meets the needs of creating a mobile response state system to threats to national security in the conditions of the existence of two main trends in the world fuel market: the global trend for decarbonization of harmful emissions and the rapid reduction of global oil and gas reserves in conditions of constant growth of countries' economies. The governments of most economically developed countries realize that the system of the state reserve of strategic materials, including fuel and lubricants, cannot exist outside the global market for transportation and storage of oil and petroleum products.

In the last few years, the industry of the states has witnessed exponential growth and new products such as liquefied natural gas are finding increasing demand and application in various industrial sectors and household needs. The national policy of developed countries, as well as developing countries, related to strategic oil reserves, forced countries to prioritize the expansion of their storages to meet the demand for oil, including for the crisis needs of the state. The development of oil and petroleum product transportation infrastructure has shown a steady trend toward the reduction of state monopolies in regions such as Europe, North America, and Southeast Asia. Thus, in 2020, Europe held the largest share of the oil and petroleum products transportation market, while Asia Pacific was the fastest growing region. At the same time, private sector companies predominate among the main participants in the oil transportation and storage market: Belco manufacturing co. Inc.,

Brooge Energy, Containment Solutions Inc., LBC Tank Terminals, L. F. Manufacturing Inc., Oiltanking GmbH, Odfjell SE, Puma Energy, Royal Vopak and Vitol.

This means that the market for transportation and storage of oil and petroleum products, including for the needs of national governments in the formation of their strategic reserves, is turning into an independent object of state regulation.

The general advantages of this approach can be summarized as follows:

- firstly, the main emphasis of the price burden during the formation of state strategic reserves shifts from the prices for their purchase to the prices for their storage and redistribution. The state, due to the demand and supply for these services, can significantly adjust the prices of the raw materials themselves, because when the prices for their transportation rise, the demand for the corresponding resource falls and vice versa. Such a situation makes it possible to optimize state finances, as well as regulate prices for transportation itself by actively introducing the state concession mechanism;
- secondly, in the vast majority of countries in Europe and North America, pipeline transport is defined as a state strategic object and is subject to fairly strict legal regulation. However, national governments transfer the costs of its maintenance and development most often to operating companies that are private sector entities. In this way, the state implements the concession mechanism, setting at the same time the limits of the price policy of such operators, which does not allow them to speculate on the state's needs in the transportation of oil and excludes any manifestations of corruption;
- thirdly, most foreign countries encourage the development of storage tank systems, these systems include storage tanks, including valves, pipelines, pumps, dispensers and other components connected to the tanks, and form pipeline logistics hubs, including a system of reserve or service pipelines. The system of such storage tanks is almost entirely in private ownership. And again, in order to obtain a permit to include such a system of tanks in an integral transport and logistics network of petroleum products, the state introduces the relevant requirements and pricing conditions. The main emphasis in such requirements concerns the fact that pricing takes place according to the principle of inelastic demand, and therefore tank owners will receive a constant, stable level of income with the most favorable level of profitability for the state.

Thus, the approach described above in the formation of the state policy of creating state strategic reserves of oil and petroleum products and the mechanism of its financial support is much more effective than the domestic system of public procurements. So, the states, having created the market for transportation and storage of oil and petroleum products, turned it into a separate object of state regulation. This means that states can always predict the price policy of this market, taking into account the use of concession mechanisms and joint public-private partnerships. Such prognosis becomes possible due to the establishment of a minimum level of profitability under the condition of constant state demand for oil transportation and storage services. The capacity of this market becomes one of its competitive advantages, and therefore it is constantly developing, which contributes to the emergence of new

operators and oil custodians. This has a positive effect on the price level, which most often does not have various fluctuations and is smooth.

This approach, in contrast to the prevailing in Ukraine method of public procurements, significantly reduces state costs, since market entities, under the condition of free competition, must independently develop a system of advantages for attracting state funds. This system of preferences most often refers to price preferences or even the introduction of a system of discounts for government needs in strategic reserves of oil and petroleum products. In addition, the greater activity of the Government of Ukraine as a subject of the market of transportation and storage of oil and petroleum products will significantly increase the efficiency of the use of public finances for the formation of a strategic reserve of the specified materials. This means that there is no need to constantly withdraw part of the state funds to maintain the state reserve, which is currently not used and will not be used in the near future. Prognostication the needs of strategic materials will determine a flexible mechanism for using public funds to purchase the necessary number of strategic stocks in a specific period of time or on a specific date. Such mobility of the state strategic reserve management system will allow the state to release a large number of facilities for the storage of strategic materials, including oil and fuel and lubricants. This, in turn, will increase opportunities for the state to participate in the market for the transportation and storage of these materials and will make it possible to make a profit from the use of temporarily vacant containers for their storage.

It should be emphasized that this approach almost completely minimizes the manifestations of corruption and the risks of excessive overspending of state financial resources for the needs of storage and transportation of state stocks of strategic materials. At the same time, there is an objective need to develop a system of legislative regulation of both the market for the transportation and storage of oil, petroleum products, as well as fuels and lubricants, as well as the development of an appropriate state mechanism for regulating the development of this market.

It is also necessary to pay attention to the fact that the implementation by Ukraine of the approach of forming a reserve of strategic materials, including petroleum products, based on the market mechanism and the active role of the state in the market of transportation and storage of the specified materials, requires appropriate mechanisms of an institutional nature. The experience of foreign countries, in particular the USA and Canada, has shown that the main emphasis of public administration in this area is directed at forecasting the needs of the state in strategic materials and modeling the system of their provision in the future. This requires a high concentration of intellectual and social capital combined with the use of advanced methods of analytical evaluation and mathematical modeling. The involvement of a large number of management companies based on the principles of outsourcing is taking place, which enables the national Government to transfer risks to private sector entities with further compensation through liability insurance mechanisms.

That is, the national government concentrates the functions of coordination, supervision and control, while the very process of modeling the system of ensuring the future needs of the state in oil products, as well as direct market

activity of their purchase and transportation, is delegated to the involved management companies. In this context, such a model of management of state-owned objects used for transportation and storage of oil products, which is characteristic of the countries of Eastern Europe, draws attention. They, like Ukraine, have a fairly extensive system of pipelines and corresponding storage capacities, which became a legacy of the Soviet system. A large part of these state-owned objects Eastern European countries (Poland, the Czech Republic, Hungary) are traditionally leased to private sector entities, receiving additional profits from this and shifting the burden of responsibility for maintaining these objects in proper condition to the private sector. This makes it possible to effectively use the infrastructure of the state reserve, and on the other hand, to stimulate the development of national markets for the transportation and storage of oil and petroleum products.

Taking into account the above approach and turning to the specifics of the implementation of the state policy on the formation of strategic reserves of oil and petroleum products in different countries, the experience of Poland, the Czech Republic and Slovakia should first be analyzed. The fact is that the process of forming strategic oil reserves in these countries depends on the network of pipelines and oil refining facilities connected to Ukraine.

Thus, in [1] indicate that the governments of these countries are clearly aware that the activities of Russian state-owned energy companies in the region of Central and Eastern Europe are unpredictable and often become a risk factor for the energy security of these countries. These Russian state companies are instruments of Russian foreign policy, and therefore the formation of strategic reserves of oil and petroleum products should be carried out in such a way as to maximize the diversification of dependence on the operators of such pipelines as "Druzhba" (oil supply); "North Stream" (gas supply). In this context, the experience of Poland is interesting, which is trying to create strategic reserves of oil and petroleum products at the level of each voivodship, thus making the further distribution and consumption of oil independent of the transport capacity of oil pipelines.

On the one hand, these scientists point out that this contributes to the development of a network of private oil storage systems, and therefore to the development of the market mechanism discussed above. On the other hand, the efficiency of providing the needs of the Polish economy with oil and petroleum products is increasing due to an extremely extensive network of storage of such resources.

This experience is relevant for Ukraine, since the existing network of oil refineries (hereinafter referred to as refineries) and oil storage facilities is completely dependent on the technical capabilities of the "Druzhba" oil pipeline. At the same time, the gradual economic integration of Ukraine into the single European market opens up opportunities for the creation of regional pipeline transport systems and oil storage infrastructure. This will make it possible to obtain additional opportunities for the development of the Ukrainian oil transportation and storage sector. In addition, this creates prerequisites for the national government's expanded access to petroleum products and fuel and lubricants, which, in the event of a critical need for them in Ukraine, can be additionally quickly obtained from the European market, taking into account the presence of a related logistics system and the corresponding developed

infrastructure. This will reduce Ukraine's dependence on the technical capabilities of the "Druzhba" oil pipeline.

The Czech government is approaching the solution of possible interruptions in the supply of oil for the needs of the strategic reserve by gradually changing the technology of the Czech refineries. Currently, Czech refineries are specialized in the processing of the Russian REB oil mixture imported through the "Druzhba" pipeline. The general technological replacement of these refineries consists in the construction and commissioning of the IKL oil pipeline, which operates between Poland, Slovakia and the Czech Republic. This diversifies the possibilities of accumulating oil and petroleum products in the case of the Russian federation uses them as a lever of strategic pressure, especially in the conditions of a war against Ukraine.

Therefore, the government of the Czech Republic, realizing that oil refineries can process any type of oil, but the more it differs from the type of oil for which they were configured during construction, the lower their utilization, and therefore significantly higher costs, is trying to diversify the policy formation of strategic stocks.

For this, efforts are directed in two directions:

- formation of a regional (on the basis of the Visegrad Four) network of oil storage facilities and oil pipelines capable of meeting the consolidated needs of the economies of the region in oil and petroleum products;
- increasing the state share in the property of all without excluding pipelines passing through the territory of the state.

According to the Czech government, this significantly solves the problem of minimizing public costs, at least in the field of oil storage, since the construction of powerful oil storage facilities or other tank systems at own costs is extremely expensive, and national market operators do not have sufficient investment resources for this.

In particular, let's refer to the experience of Lithuania, Latvia and Estonia in the context of the formation of strategic reserves of oil and petroleum products. Thus, using the capacities of the refinery in Klaipėda, these countries have reserved a part of its capacities for the uninterrupted provision of oil needs as a strategic resource with the simultaneous formation of a corresponding operational reserve.

The mechanism of such reservation, according to the authors of [7], looks extremely simple and does not require significant financial losses. Its essence is that the Central Banks of these countries have created a single consolidated fund, in which a certain number of financial resources is reserved based on the principles of capital endowment, the sole purpose of which is to finance the operational provision of strategic materials for the needs of these national economies. Therefore, the owner of the refinery in Klaipėda, having received an appropriate order from the governments of the countries, immediately begins to direct part of the processed oil or oil that is stored for certain strategic needs. At the same time, even if this oil was refined according to the actual targeted order of another entity, the refinery receives compensation for possible fines and other risks at the expense of the same fund reserved by the Central Banks of the countries.

Germany has a slightly different experience of forming strategic oil reserves for the needs of the state reserve. The state order system for oil and petroleum products is being formed at the level of Land Governments. The Federal Government orders relevant oil reservation and

storage services from the Land Governments, and the latter have the right to delegate the execution of such an order to oil market participants. Germany, which has one of the densest pipeline networks in Europe, has also tried to significantly expand its own system of oil storage networks. But if the logistics networks of oil transportation are privately owned, or their operators are private sector entities, then oil storages and other systems for accumulating strategic oil reserves are exclusively owned by the Land Governments [3]. This enables these governments not only to spend money on the reservation of strategic oil reserves for the needs of the state reserve, but also to provide services for the storage, retention or redistribution of oil for private companies, market participants or simply end consumers of petroleum products.

That is, it is possible to say that the state becomes an actual market agent, receiving profits from the use of its own network of state strategic reserves, in particular oil and petroleum products, to meet the relevant needs of market subjects. Such experience is acceptable and extremely interesting for Ukraine, since our country also has a high density of oil pipelines and oil storage facilities. Although the latter need gradual renewal and reinvestment in the development of the oil redistribution system.

As for the experience of France, it should be emphasized here that it is almost the only EU country which is distinguished by ordinary and special (secret) legislation in the field of creation and use of state strategic reserves of oil and petroleum products.

So, in accordance with French legislation [11, 12] the process of forming strategic oil reserves is a state secret and cannot be disclosed except during the relevant parliamentary hearings in the relevant committees. But the process of controlling costs for state oil purchases is, on the contrary, extremely transparent. The essence of this control mechanism comes down to the fact that the Ministry of Emergency Situations of France (it is the central body that implements the state policy in the field of the formation of the state strategic reserve) demonstrates the weighted average price of oil purchases. In addition, this Ministry publishes in public access reports on the expenditure of funds for the transportation and storage of oil and petroleum products.

The prices in these reports are verified by the French Chamber of Accounts and cannot exceed the weighted average market price for the relevant type of costs or services provided to the state during the purchase, transportation and storage of oil. It is also interesting that even the location of oil and other strategic petroleum products is a state secret. This means the existence of two independent storage systems: state and market. It is possible to draw this conclusion from the fact that, for the needs of competition, the location of tanks and other oil storage systems is an important factor that affects to the choice of consumers of relevant services in the private sector.

Canada's experience is also interesting and revealing. The process of storing and transporting oil in Canada is regulated by special Regulations on Tank Systems for the Storage of Oil and Associated Petroleum Products, which are developed in accordance with the Canadian Environmental Protection Act. Therefore, the issue of regulating the process of storing oil and petroleum products for the needs of the strategic state reserve is under the responsibility of the Federal Government. The state is the sole owner of all, without exception, stationary oil storage tanks for the

needs of the national economy. But the maintenance of these tanks is done at the expense of the involved private sector entities, just like oil transportation [13–15].

That is, the state forms a stable demand for oil transportation services at the expense of its transportation for strategic needs or during the reservation for the so-called Stabilization Fund. This fund can be called a certain analogue of the domestic State Reserve of Ukraine, but its formation takes place within a certain threshold of expenses. Thus, if the state exceeds a certain limit of costs for the transportation or storage of oil, then it immediately sells the surplus of such oil at market prices, placing the burden of losses from its transportation on the final consumer. Such evidence is interesting, as it significantly reduces the costs of public finances, optimizing at the same time the volume of strategic reserves. Actual implementation of the principle of economic expediency in the management of strategic reserves is taking place.

Somewhat similar to the opinion of the authors of [6] is the experience of the USA, where the Federal Government allocates funds for the formation of stocks of analyzed material resources based on market prices for relevant services without announcing public procurement. Moreover, in the USA, every entity that has a private form of ownership and is engaged in the processes of oil extraction, transportation and processing is obliged to reserve a part of the total volume of oil that is in its economic cycle for the strategic needs of the state. That is, the state at any time, based on its own strategic needs, on the basis of the relevant order of the US Ministry of Economy, has the right to turn to any subject of the specified market with a demand to direct a part of oil and petroleum products to certain needs [3]. At the same time, payment for oil storage and transportation services will take place in accordance with the real price policy of one or another entity.

This policy of the state is explained by the fact that in the USA the oil transportation and storage market is one of the most developed and saturated. Moreover, a feature of the formation of a strategic reserve of oil and petroleum products in the USA there is that part of the corresponding specialized fleet (oil tankers, etc.) is in a state of constant loading and barrage near the coast of the USA in order to promptly meet the oil needs in one or another part of the country.

For Ukraine, such experience is interesting to study, but it requires the creation of its own tanker fleet, which can be considered as one of the directions of development of the segment of strategic reserves in the structure of the state reserve of Ukraine.

4. Conclusions

Summarizing the above, it is possible to focus on several main conclusions.

Firstly, the general trend of the policy of forming the state strategic reserve of oil and petroleum products in developed countries gravitates towards the creation of an appropriate market for oil transportation and storage. The extended involvement of private sector entities in these processes creates the prerequisites for competition between them, where the price of such services will become the main factor in the choice of the state, and therefore it will always be relatively low with a small level of profitability, provided that the state has a constant need for such services.

Secondly, Poland's experience in creating a system of small regional oil storages, which form an extremely extensive network, is interesting for use. Using the experience of the Czech Republic, it is expedient to develop a program of international cooperation to finance the needs, at least for the storage of extremely large volumes of oil, which will make it possible to minimize the state's expenses through cooperation of efforts within the borders of border cooperation.

Thirdly, it is important to further study the experience of the USA, Latvia, Lithuania and Estonia in the context of the introduction of mandatory reservation of part of the oil resources, part of the production capacities and even oil storage tanks for the strategic operational needs of the state. This requires proper legislative provision and the development of relevant state strategies, which will, on the one hand, introduce the mechanism of such reservation, and, on the other hand, transfer the mechanism of financing government spending. The latter should become an effective alternative to the public procurement system, which is currently characterized by an extraordinary spread of corruption in the conditions of financing the state reserve in Ukraine.

Fourthly, the experience of the USA and Canada in the context of delegating part of the powers in the field of ensuring the needs of the state reserve in strategic oil products and fuel and lubricants to private sector entities also has a perspective. They will actually act as market traders and management companies in the context of procurement, transportation and storage operators of such strategic materials, which will significantly increase the efficiency of the use of public financial resources. In addition, it will transfer financial risks in case of insufficient provision of state needs with the resources of the strategic reserve to such private sector entities, which will be compensated to the state with the help of liability insurance of the latter. The state will retain the functions of coordination, control and supervision of the process of formation of the state strategic reserve of oil, petroleum products, as well as fuel and lubricants.

Summarizing the conducted research, it is possible to make a general conclusion that there is no single optimal scheme for creating state strategic reserves of petroleum products today. According to existing circumstances and available opportunities, a diversified option should be used, combining various components of world experience. This determines the further perspective of scientific research in this direction.

Conflicts of interest

The authors declare that they have no conflict of interest in relation to this study, including financial, personal, authorship, or any other, that could affect the study and its results presented in this article.

Financing

The study was conducted without financial support.

Data availability

The manuscript has no associated data.

Use of artificial intelligence

The authors confirm that they did not use artificial intelligence technologies when creating the presented work.

References

1. Vlček, T., Černoch, F. (2013). Aktuální témata a projekty v oblasti skladování a dopravy ropy do ČR. *Paliva*, 5 (1), 1–6. <https://doi.org/10.35933/paliva.2013.01.01>
2. Weiner, C. (2017). Managing Energy Supply Security and Gas Diversification in Hungary: Putting Theory into Practice. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3214556>
3. Shentov, O., Stefanov, R., Vladimirov, M. (Eds.) (2019). *The Russian Economic Grip on Central and Eastern Europe*. New York: Routledge, 258. <https://doi.org/10.4324/9781351109390>
4. Ladislav, S. (2015). *Modernization of the strategic petroleum reserve and related energy security considerations*. Center for Strategic and International Studies (CSIS), 15.
5. Gerberding, J. (2020). *The Role of the Strategic National Stockpile in Pandemic Response*. CSIS, 4. Available at: <https://www.jstor.org/stable/resrep37522>
6. Prakhar, J., Marpu, V., Eswara, P. (2021). *Oil Storage Market Outlook – 2030: Report Global Opportunity Analysis and Industry Forecast, 2021–2030*. Storage and Distribution, 260. Available at: <https://www.alliedmarketresearch.com/oil-storage-market>
7. Jirušek, M., Vlček, T., Koďoušková, H., Robinson, R. W., Leshchenko, A., Černoch, F. et al. (2015). *Energy Security in Central and Eastern Europe and the Operations of Russian State-Owned Energy Enterprises*. Brno: Masaryk University, 702. <https://doi.org/10.5817/cz.muni.m210-8048-2015>
8. *Pro derzhavnyi materialnyi rezerv* (1997). Zakon Ukrainy No. 51/97-VR. 24.01.1997. Available at: <https://zakon.rada.gov.ua/laws/show/51/97-%D0%B2%D1%80#Text>
9. *Pro zatverdzhennia Poriadku formuvannia, rozmishchennia ta provedennia operatsii z materialnymi tsinnostiamy derzhavnoho rezervu* (1997). Postanova Kabinetu Ministriv Ukrainy No. 1129. 08.10.1997. Available at: <https://zakon.rada.gov.ua/laws/show/1129-97-%D0%BF#Text>
10. *Zatverdzhennia Instruksii pro poriadok pryimannia, transportuvannia, zberhannia, vidpusku ta obliku nafty i naftoproduktiv na pidprijemstvakh i v orhanizatsiiakh Ukrainy* (2008). Nakaz Ministerstva palyva ta enerhetyky Ukrainy, Ministerstva ekonomiky Ukrainy, Ministerstva transportu ta zviazku Ukrainy, Derzhavnoho komitetu Ukrainy z pytan tekhnichnoho rehuliuвання ta spozhyvchoi polityky No. 281/171/578/155. 20.05.2008. Available at: <https://zakon.rada.gov.ua/laws/show/z0805-08#Text>
11. Vlček, T., Černoch, F. (2013). *The energy sector and energy-policy of the Czech Republic*. Brno: Masarykova univerzita, 252.
12. *Législation stockage*. Available at: https://www.cuvefioul.fr/legislation-stockage#cuve_l%C3%A9gislation_chauffage_avec_pompe
13. *Arrêté du 1er juillet 2004 fixant les règles techniques et de sécurité applicables au stockage de produits pétroliers dans les lieux non visés par la législation des installations classées ni la réglementation des établissements recevant du public* (2004). Available at: <https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000437731/>
14. *Règlement sur les systèmes de stockage de produits pétroliers et de produits apparentés DORS/2008-197*. Available at: <https://laws-lois.justice.gc.ca/fra/reglements/DORS-2008-197/Texte-Compleet.html?wbdisable=false>
15. *Réservoirs de stockage des produits pétroliers*. Available at: https://www2.gnb.ca/content/gnb/fr/ministeres/egl/environnement/content/terre_et_dechets/content/guide_de_consultation/petroliers.html

✉ **Oleh Chechel**, Doctor of Science in Public Administration, Associate Professor, Department of Management and Administration, Open International University of Human Development "Ukraine", Kyiv, Ukraine, e-mail: zedat@ukr.net, ORCID: <https://orcid.org/0000-0002-5092-9593>

.....
Alla Bashuk, Doctor of Social Communication, Associate Professor, Department of Advertising and Public Relations, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine, ORCID: <https://orcid.org/0000-0001-5535-8999>

.....
✉ Corresponding author