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**IMPROVEMENT AND IDENTIFICATION OF THE MODEL
OF STATE REGULATION AND CONTROL
OF TRUNK PIPELINE SYSTEMS OF UKRAINE**

The article deals with the theoretical principles of organizing the effective functioning of domestic trunk pipeline systems. The main problems in this branch are defined. The model of multilateral international and private partnership is theoretically proved and identified. The interpretation of the assessment model of state regulation and control of domestic trunk pipeline systems functioning is proposed.

Keywords: trunk pipeline systems, model, international and private partnership, state regulation and control, efficiency.

Isajewa I.N. Poprawa oraz identyfikacja modelu zarządzania systemy rurociągów w Ukrainie

W artykule przedstawiono teoretyczne zasady sprawnego funkcjonowania krajowych systemów rurociągowych tułowia. Zidentyfikowane główne problemy w tej branży. Teoretycznie uzasadniona i zidentyfikowana model wielostronnego partnerstwa międzynarodowego. Zaproponowano interpretacja wyników estymacji modelu regulacji stanu i zarządzania działalnością krajowych systemów rurociągowych tułowia.

Słowa kluczowe: systemy rurociągowie, regulacje rządowe, efektywność.

Исаєва І.М. Удосконалення та ідентифікація моделі державного управління магістральними трубопровідними системами України

В статті обґрунтовано теоретичні засади організації ефективного функціонування вітчизняних магістральних трубопровідних систем. Визначено основні проблеми в цій галузі. Теоретично обґрунтована та ідентифікована модель багатостороннього міждержавно-приватного партнерства. Запропоновано інтерпретацію моделі оцінювання результатів державного регулювання та управління діяльністю вітчизняних магістральних трубопровідних систем.

Analysis of recent research

The latest scientific research testifies to the increase of amount of scientific publications, which analyze the problematic issues of functioning of trunk pipeline transportation and management improvements in this sphere. These issues were considered in scientific works of such researchers as L. Horal, V. Hrudz, O. Dzioba, I. Diiak, I. Karp, M. Kovalko, Ye. Kryzhanivskiy, V. Petrenko, M. Serediuk, I. Chukaieva, A. Shydlovskiy, etc.

However, the regulatory and administrative format of the effective functioning of the trunk PS of Ukraine has not been formed and reasoned theoretically yet. A row of important theoretical and practical aspects of organizational structure formation of the state and branch management of domestic trunk PS require some additional analysis, generalization and reasonable recommendations in relation to the theoretical aspects of future changes, that are valuable while making decisions regarding the structure improvement of state regulation and control of the main PS.

Statement of research objectives

Research objective is to identify and justify theoretical principles of organization of effective functioning of domestic trunk PS, creation of model for assessment of state regulation and functioning management of domestic trunk PS.

Results

The maximal centralization of structure of the National Joint Stock Company “Naftogaz of Ukraine”, the important component of which is the trunk PS, has contributed to strengthening of control from the central authorities that in many cases is reduced to directive management of functioning. It, in turn, also leads to decrease in professionalism and efficiency of administrative decisions, braking of development and complicating of financial and economic state of Naftogaz in general, and its separate structures in particular.

Nowadays the complicated financial situation of Naftogaz and presence of foreign creditors dictate the use of exclusively “soft” form of its possible and necessary restructuring. The importance of the maintenance of constant financial position is noted even by the International Monetary Fund as one of priority tasks for continuation of cooperation of Ukraine with IMF (in this connection foreign creditors would not agree to large-scale and radical restructuring of Naftogaz).

However, the most realistic way of improving the organizational form of Naftogaz is transition to conglomerate that is purely divisional structure. Due to it Naftogaz has to reorganize structural subdivisions from production, transportation, distribution of oil and gas into independent “divisions” namely public

joint-stock companies (PJSC) as it was offered in [1]. Thus all security, support and excess functions will be minimized (the reduced total or even liquidated functional structural divisions). The administration of the National Joint Stock Company Naftogaz of Ukraine will significantly be reduced. The conglomerate structure guarantees distribution of risks in different spheres of its activity.

At present financial risks of Naftogaz have great influence on activity of all its divisions and at relative financial independence and independence of its divisions the risks are differentiated among them with simultaneous diversification. Such structure has an exclusive strategic efficiency and speed of reaction when any division is independently capable to identify changes in the environment and to adapt quickly to them by means of incremental corrections of strategic priorities of its own development in the general strategy of development.

However, realities of the present time don't demonstrate the administration intentions of the National Joint Stock Company "Naftogaz of Ukraine" to be exempted from the first roles in the oil and gas sphere (in particular in the transport sphere) in favor of management improvement and increase of functioning efficiency of the total system, deepening of market bases of branch activity, attraction and use of investment streams, etc. Therefore carrying out such structural reforms (being the competence of the government) and the developed by it in this sphere state policy, demands the already determined economic reforms and tasks concerning branch reforming and necessary of structural changes.

The given research proves that the most acceptable way in improvement of management structure of oil and gas complex is creation of public joint-stock companies (PJSC) on the basis of such existing subsidiaries as "Ukrtransgaz", "Ukrgezvydobuvannya" and "Gas of Ukraine" with synchronous transformation of the National Joint Stock Company "Naftogaz of Ukraine" in the state holding company in accordance with the Law of Ukraine "About the holding companies in Ukraine" [2]. In that case the National Joint Stock Company Naftogaz of Ukraine has on the one hand to carry out management functions of holding corporate shareholdings of public joint-stock companies (the corporate enterprises) formed on the basis of the called subsidiaries and on the other one to dispose of their profit for investment of strategic industry projects and repayment of credit debt.

Functioning of some government and branch structures has improved under pressure of necessity of carrying out specific European integration steps in recent years, however, there are certain results of reforming of the National Joint Stock Company "Naftogaz of Ukraine":

- “Ukrtransgaz” and “Ukrgazvydobuvannya” subsidiaries are transformed to PJSCs for the purpose of functions differentiation concerning production and transportation in accordance with the legislation of European Union;
- non-core assets of the National Joint Stock Company Naftogaz of Ukraine are inventoried;
- usage conditions of gas-distributing networks are defined;
- functioning independence of gas-distributing enterprises is provided regarding current financial operations; operation, constructions or modernizations of objects of gas-distributing networks for implementation of the related licensed activity and quick technological management;
- tasks concerning modernization of the Ukrainian GTS are being solved;
- transparent conditions of access to the Single gas transportation system of Ukraine are provided.

Both reorganization of the National Joint Stock Company “Naftogaz of Ukraine” and the gradual approach to the offered structure of the state holding company with restriction of opportunities of directive administrative influences from government institutions can be considered as a good step forward, which will contribute to removal of trunk pipeline systems on an appropriate level of economic independence, economic efficiency and social responsibility as the main priority of existence.

However, from the documents and decisions accepted, realized and analyzed it becomes obvious that implementation of necessary structural transformations at the level of housekeeping subjects of trunk pipeline systems (which by the way, now still remain incomplete) needs obligatory introduction of similar steps concerning improvement of functioning conditions of high-level management structures in the hierarchy of nation-wide system of national economy management.

The made analysis [3-5] of peculiarities of state regulation and management of trunk pipeline systems of Ukraine shows that:

- the modern state policy of usage and development of oil and gas transport networks of Ukraine was and remains inefficient. It slows down the processes of approaching of oil and gas transport network to the European criteria of reliability, safety and competitiveness, doesn't provide loading and, respectively, positive shifting in providing reliable and stable oil and gas transportation both in Ukraine and EU;
- the structure of the state policy in this sphere and its established priorities remain unadapt to new economic, scientific and technical as well as organizational forms of trunk PS management, to conditions of European integration, to new geopolitical and globalization calls.

Improvement of operating conditions of the central state bodies responsible for the state and results of domestic trunk pipeline systems functioning has to be based on prime awareness of the need and introduction of expedient changes in processes and procedures of interaction of all interested participants at three following levels of organizational relationship hierarchy: branch, state and interstate.

The branch level is made of the relationship between bodies of branch management and subjects of economic activity; the state level encounters relationship between bodies of state regulation and management and governing branch bodies; the interstate presupposes the relationship between specially authorized bodies of the participating states.

The branch level. The given justifications of expedient changes in organizational structure of the National Joint Stock Company Naftogaz of Ukraine are directed on the solution of problematic issues of introduction of intra-branch structural and organizational transformations (of the first level of hierarchy) and can't be fulfilled without taking similar steps concerning the relationships between bodies of state regulation and management and governing body of the branch.

In this regard, identification of necessary structural and organizational changes and the formulation of reasonable recommendations as for improvement of regulatory and administrative activity at the second level of hierarchy are expedient. Such relationship is based between the central bodies of state administration (CBSA) and the National Joint Stock Company Naftogaz of Ukraine.

State level. If to interpret the hierarchy pyramid of submission of branch subjects of the national economy (in this case exclusively oil and gas TPS) through the National Joint Stock Company Naftogaz of Ukraine to regulatory and administrative influences of CBSA (Ministry of Fuel and Energy of Ukraine) in the form presented in fig. 1, the need of distribution of expedient structural and organizational changes on the high-levels of this hierarchy becomes obvious. These changes are oriented on changes in national economy with economic and social benefits adequate for the position of Ukraine in the four-main- world-countries with the most highly developed systems of pipeline transport.

CBSA has to fulfill the strategic tasks formulated in the State policy as for effective use of domestic oil and gas trunk pipeline systems.

In the complex statement for the oil pipeline transportation system of Ukraine (PTSU) these tasks presuppose transit mode of crude oil transportation with ensuring stability, reliability and profitability as it was provided in the document "The Concept of State Policy in the Sphere of Supply and Transition of Oil" [6].

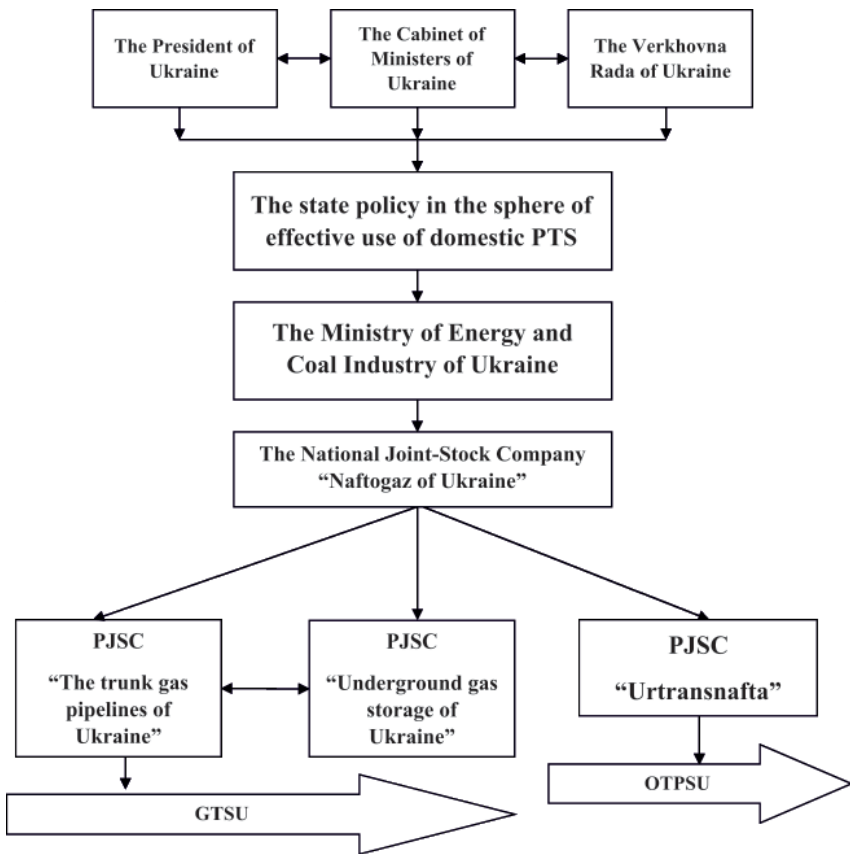


Fig. 1 – The structure of state regulation and management of domestic oil and gas PS functioning and their technologically integral component namely underground gas storage (UGS) (author’s interpretation [7])

The state policy in this subsector is stated in the updated strategic document [8]. It provided preservation, enhancement and development of potential of oil PTSM (pipeline transportation system management), optimization of technological modes, input of the power storing technologies, the equipment, guaranteeing reliability and safety of oil pipelines and oil pumping stations, improvement of regulatory ensuring of functioning system. However, research and assessment of functioning efficiency condition and integration process of oil PTSM in similar systems of the EU remain negative and testify to existence of significant amount

of problems in the sphere of transit of crude oil. All given facts completely confirm formulated and proved by us earlier expediency of differentiation between regulation and management processes of domestic oil and gas (and in this case oil) PTS among different levels of management hierarchy in the branches of national economy.

The Ukrainian GTS strategic tasks are first of all keeping it at high technical and technological level, secondly, expansion through development of UGS system for the purpose of the guaranteed supply of natural gas both on internal and on the European markets.

However, called in 2002 “a big national asset” [9, page 17], GTS of Ukraine has not even become such asset for present time, and continues to be the source of internal and interstate misunderstandings, conflicts and confrontations of political, social, financial and economic character.

However, until recently the absolute dependence of GTS subjects of house-keeping operating on regulatory and administrative influences of domestic government structures and long braking of any positive steps in its European integration aspirations, generated unjustified, and often simply harmful political, economic and social consequences in market sector for all participants of natural gas transition: growth of debt obligations and accounts payment, reduction of capitalization and escape of investors, loss of mutual trust and lack of prospects, price instability and social tension, etc. Dynamics of GTS companies functioning efficiency also shows the tendency of continuous deterioration of results.

Both scientists and experts unambiguously proved that the radical solution of problems of the Ukrainian gas market and its GTS is possible only on the way of their radical structural and functional reorganization according to European standards, with further integration in European and if necessary in the world markets. Thus, a complex of the offered actions for reforming of Ukrainian gas sector according to European principles on the basis of strategic interest of the European Union in integration of both GTS and UGS [10, 11] and the positive dynamics predicted by the majority of key world analytical structures, the world and the European markets of gas will be able to bring to Ukraine notable positive results.

Thus, I come to necessity of improving the regulatory and administrative activity concerning PTSM already at the third level of hierarchy namely at the interstate level.

Interstate level. Taking into account the fact that perhaps no sector of the national economies of the Russian Federation, Ukraine and the European Union is so closely interrelated as trunk PS and that the overall success of state policy implementation of the above mentioned countries depends on the level of their cooperation, all the parties concerned should consider possible broadening of co-

operation in this field as one of the key factors in energy security development of everyone involved.

Therefore, the deliberate strategic policy of Ukraine's integration into the European Union without sacrificing the relations with the Russian Federation in the field of hydrocarbons transportation can and should become a means of achieving pragmatic goals by all the participants of the above mentioned reasonable scheme of interaction between Russia, Ukraine and EU (or other possible versions) and presuppose the mandatory execution by government structures of the following provisions:

- state identification of the balance between political, economic and social interests in diversification of transit transport routes to prevent negative consequences for the domestic economy by means of construction and introduction of bypass routes;

- the development and implementation of state policy of transit transportation of raw hydrocarbons in cooperation and harmony with the Russian Federation and the European Union;

- the creation, rise and emerging role of community councils based on involvement and use of the intellectual capacity of scientists, experts, businessmen and representatives of non-governmental organizations;

- the use and state coordination of diplomatic mechanisms to counteract the creation of bypass routes, promote the intentions and projects of the Russian Federation aimed at increasing the production of raw hydrocarbons, creating additional production capacities and routes, expanding the harmonious cooperation between Ukrainian, Russian and European companies;

- partnership in the creation, development and implementation of the long-term transit transport strategy in the Eurasian region, active consulting and coordination of positions, intentions and interests of the parties at the level of government structures of the RF, EU and Ukraine in operation, renovation and construction of transnational PTS;

- the differentiation of regulatory and administrative actions of states with direct control of economic activities of business entities in the field of PTS;

- the privatization of PTS according to the above mentioned terms of multilateral international and private partnerships.

The national priorities of Ukraine in the multilateral cooperation should include:

- the support for the EU policy on Russia's accession to and ratification of the European Energy Charter Treaty to improve and develop market competition in natural gas supply from CIS countries to European markets;

- the coordination and harmonization of Ukraine and Russia's accession to multilateral associations, participation in European projects in the energy sector;

- the harmonization of laws, regulations and standards of Ukraine with pertinent EU document items, creation of legislative conditions, guaranteed and clear rules and procedures for privatization and operation of transport enterprises in the field (including the involvement of foreign capital);

- the inclusion of the transnational energy transit issues into the priority list of interactions between the intergovernmental and interparliamentary structures of Ukraine and the EU with simultaneous exclusion from their business practices of possibilities to interfere with economic activities of companies participating in multilateral international and private partnerships.

In the context of European integration of the Ukrainian trunk pipeline systems, the main goal of enhancing the utilization efficiency and developing the potential trunk PS can be achieved only by means of scientifically based changes in the complex implementation mechanism of state policy in the field, state regulation and control with mandatory adaptation and harmonization of Ukrainian legislation with the parts of the European Energy Charter, norms and standards of the European Union in the following chapters: “Free movement of goods”, “Free movement of capital”, “Company law”, “Intellectual property rights”, “Power production”, “Taxes”, “Science and research”, “Environment”.

Pursuing the prescriptive management of the trunk PS by Russian and Ukrainian governments and lack of a single economic structure formed on the part of the EU countries restrict the implementation of most projects of mutual, productive, efficient and cost-effective cooperation.

The priorities of state regulation and control of Ukrainian trunk PS, defined in the course of my investigation, are designed to ensure the effective and efficient functioning of the national system of oil and gas PTS to the good of the Ukrainian society, which requires both state leaders and chief executives of the industry and its enterprises to realize the generalized assessment criteria of their collaborative activities.

The indicators of effectiveness and efficiency of state regulation and control of the of national trunk PS operation – the main estimates of the expected or received implementation results of the developed and existing state policy in this sector of national economy, are undoubtedly of great interest for my study as they can substantiate the reasons and level of government intervention in this activity.

The authors of the monograph “Efficiency of State Control” [12, p. 49] interpret these characteristics in the following way:

- effectiveness is the degree to which the intended objectives of state policy are achieved, which demonstrates the extent to which obtained results are close to the declared ones;

- efficiency is the correlation between state policy expenditures and obtained results, measured by natural or value indicators.

In European countries the efficiency and effectiveness assessment of state policies, programs or activities of government agencies can be also performed according to the EEE concept, in which the similar notions of effectiveness and efficiency are enhanced by the concept of economy, which means "... minimising the cost of resources used for an activity, having regard to appropriate quality" [13, p.15].

If the above mentioned assessment criteria are set in Cartesian coordinates, they form the EEE dimensional model (Fig. 2), which illustrates possible variants of result assessment of state regulation and control in terms of effectiveness, efficiency and economy.

It is obvious that the best consequences and results of the state regulatory and control actions correspond to the position of relevant object characteristics in the first octant of the dimensional model, described by a set of parameters (+E) (+Ef)(+Ec), and the worst consequences and results are in the opposite octant with parameters (-E)(-Ec)(-Ef).

It is evident that the only possible variant of state impact on the object under regulation and control is the results, described by the criteria (+E)(+Ef)(+Ec). All other variants with at least one component with the minus sign are unsatisfactory.

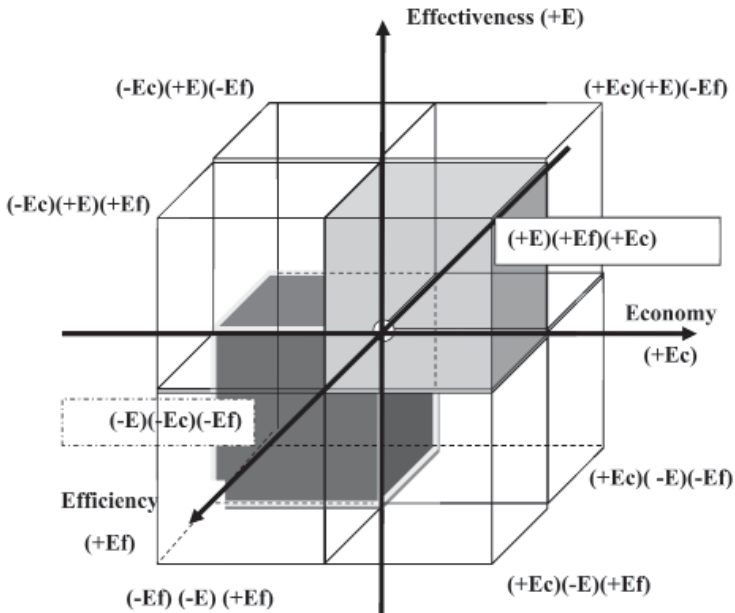


Fig. 2 – Dimensional model of result assessment of state regulation and control in terms of effectiveness, efficiency and economy (author’s interpretation)

Conclusions

The proposed recommendations for the solution of challenging issues not in a separate area, but in terms of EEE concept with the substantiated simultaneous exclusion of the political component by means of differentiating the regulatory and control actions of government agencies and preserving the vertically integrated system of NJSC based on divisional structure require radical changes in the system of relations and powers between the company and its subsidiaries in terms of optimizing their financial and economic activities, management and control functions in order to observe the norms of the European law and introduce the European management culture, which are cumulatively designed to ensure:

1. Setting of market rates for all categories of customers or development of the efficient government program on rate increase for households and thermal power enterprises.
2. Revision of the system and principles of setting oil and gas transport rates, which presupposes the location of the PTS entry and exit points.
3. Free access to the PTS and creation of independent system operators of OPTSU and GPTSU.
4. Increasing the capacity of gas storage facilities and their modernization in order to facilitate the withdrawal/injection.
5. Equal rights for oil and gas producers through the development, adoption and implementation of a clear and predictable government policy.
6. Installation and modernization of gas meters with the transition from the volume metering system (cubic meters) to the caloric value measurement (usually in megawatt-hour).
7. Structural, organizational and functional reforming (reengineering) of the NJSC “Naftogaz of Ukraine” and turning it into a modern, socially responsible company, independent of the government.
8. Inclusion of the Ukrainian oil and gas PTS into the relevant EU power networks as an equal and responsible member of the Energy Community.

The implementation of the combined action program of the Government and chief executives of the industry in the context of improving state regulation and control of NJSC “Naftogaz of Ukraine” will enhance Company’s position and the state of its PTS in terms of effectiveness, efficiency and economy criteria due to: the reliable and efficient operation of Ukrainian oil and gas PTS and their direct integration into the European oil and gas pipeline network; reconstruction, modernization, technical and technological re-equipment of the Ukrainian PTS units; enhancement of environmental and technological safety of the oil and gas pipelines; creating a favourable investment climate for further

development of the Ukrainian oil and gas PTS; creation of employment; increasing the revenues of state and local budgets.

This will result in the elimination of the outdated relations in terms of state, industry sector and enterprises, that impede the development of the Ukrainian oil and gas industry, its enterprises in general and trunk PS, mainly because of the long-term impact of the imperfect state and corporate management, existence of contradictions, defects and gaps in the Ukrainian legislation, inefficient state regulation in the oil and gas complex.

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