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МЕТОДИЧНИЙ БАЗИС ДІАГНОСТИКИ УПРАВЛІННЯ ЕКОЛОГІЗАЦІЄЮ ЕНЕРГЕТИЧНОГО СЕКТОРУ

Актуальність. Питання діагностики управління екологізацією енергетичного сектору набуває своєї актуальності у зв'язку із необхідністю визначення досягнення, чи навпроти зневілювання основної мети управління – переорієнтації енергетичного сектору у відповідності до нових еколого орієнтованих цілей, обумовлених внутрішніми екологічними проблемами, міжнародними вимогами та національними інтересами країни. Екологізація енергетичного сектору набула значної актуальності як з точки зору інтересів держави, у зв'язку із існуючими викликами перед країною, стану довкілля, векторів екологічного стратегічного розвитку, так і суспільних і економічних інтересів. Адже результатом техногенного навантаження на довкілля є виникнення різного роду соціо-еколого-економічних збитків, зменшення ефективності підприємств та потенціалу їх конкурентоспроможності в умовах світових еколого орієнтованих викликів. Діагностика управління екологізацією енергетичного сектору – це можливість побачити стан процесу екологічного перетворення та удосконалення енергетичного сектору, що надасть можливість зобачити результативність прийнятих управлінських заходів та виявити їх слабкі місця, задля подальшого адаптування управлінського процесу до існуючих викликів і пошуку методів сприяння досяжності соціо-еколого-економічних інтересів країни, що визначило актуальність даного дослідження.

Мета та завдання. Метою статті є обґрунтування методичного підходу щодо діагностики управління екологізацією енергетичного сектору.

Результати. Методичний підхід до діагностики управління екологізацією енергетичного сектору базується на концепції формалізації процесу управління, а саме виділення тяжких взаємодій суб'єктів управління залучених для досягнення цілей національних інтересів у екологізації енергетичного сектору, об'єктів управління, які адаптуються до прийнятих управлінських рішень, та відповідного інституційного підґрунтя, необхідного для досяжності цілей управління.

Висновки. Діагностика управління екологізацією енергетичного сектору повинна відображати взаємодію між собою окремих частин управлінського процесу: узгодженість економічної та екологічної політики в частині екологізації енергетичного сектору з управлінням процесів техніко-технологічного забезпечення, узгодженості соціо-еколого-економічних процесів та узгодженості діяльності суб'єктів управління нижчого рівня з цілями управління вищого. Результатом такої єдиної взаємодії має стати синергетичний ефект досягнення національних інтересів екологізації енергетичного сектору на різних рівнях управління: локальному, місцевому, регіональному, державному.

Ключові слова: управління екологізацією енергетичного сектору, діагностика управління екологізацією.

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METHODOLOGICAL BASIS OF DIAGNOSTICS OF THE ENERGY SECTOR ENVIRONMENTALIZATION MANAGEMENT

Topicality. The issue of the environmentalization management diagnostics in the energy sector becomes increasingly topical due to the necessity to define the achievement or vice versa - leveling the management goal which is the reorientation of the energy sector in conformity to the new environmentally oriented goals conditioned by the internal

environmental issues, international demands and national interests of the country. Environmentalization of the energy sector became very topical both from the point of view of the national interests in connection with the existing challenges in front of the country, environmental condition, vectors of the ecological strategic development and socio-economic interests. The man-caused load on the environment results in different types of the social, ecological, economic damage, reduction of the enterprises' efficiency and potential of their competitiveness under the conditions of the world environmentally oriented challenges. Environmentalization management diagnostics in the energy sector is the possibility to see the condition of the environmental transformation process and improvement of the energy sector which will show the results of adopted management steps or determine their weaknesses for further adaptation of the management process to the existing challenges and searching for the methods of satisfaction of the social, ecological, economic interests of the country which defined the topicality of this research.

Aim and tasks. The article is aimed at grounding the methodological approach to the environmentalization management diagnostics in the energy sector.

Research results. Methodological approach to the environmentalization management diagnostics in the energy sector is based on the concept of the management process formalization, mainly, on the accentuation of the tough interaction of the management subjects involved in the achievement of the goal of the national interests satisfaction with regard to the environmentalization of the energy sector, management objects adapted to the management decisions passed and the related institutional ground necessary to achieve the management goals.

Conclusion. The environmentalization management diagnostics in the energy sector shall reflect the interaction between the separate parts of the management process: Coherence of economic and environmental politics concerning the environmentalization of the energy sector with management of the processes of technical and technological insurance, coherence of the social, ecological, economic processes and coherence of the activity of management subjects of the lower level with the management goals of the higher. Such unified interaction shall result in the synergistic effect of national interests achievement in the environmentalization of the energy sector at different management levels: local, regional, national

Keywords: environmentalization management diagnostics in the energy sector.

Problem statement and its connection with important scientific and practical tasks. The issue of managing the relations between the economy and environment appeared due to the dramatic aggravation of the environmental condition in most countries and danger of the economic and environmental crisis. Environmentalization management diagnostics in the energy sector of the economy of Ukraine is a process of ecological transformation and improvement of sector through the approval of the focused actions, consistent introduction of technological, economic, organizational solutions which will facilitate the elimination or reduction of the eco-destructive factors effect, achievement of the systemic sociological, environmental and economic effect of environmentalization management at the local, regional and national levels. Therefore, the environmentalization management diagnostics in the energy sector means the possibility of determining the condition of the environmental transformation process and improvement of the energy sector. The task of the diagnostics of the energy sector environmentalization is the analysis of the efficiency of approved legislative initiatives in management, compliance of the taken steps with the possibility of realization, finding the weaknesses and change in the environmental impact, determining further adaptation of the management process to the existing challenges and searching for the methods facilitating the realization of the country's social, ecological, economic interests at the local, regional, and national levels. The necessary information and assessment indexes in the diagnostics of the energy sector environmentalization can be as follows: information concerning the change of the energy sector condition and positive/negative impact on the environment; legislative basis of the country and tasks connected with the fulfillment of the environmental goals of environmental and energy politics; statistical information concerning the changes of GDP energy intensity, energy facilities modernization condition, development of infrastructure, energy supply quality and resources, energy efficiency level, etc. The methodological basis of the research is the systemic approach which in its turn is based on the environmentalization provision, interaction between different parts of the management process, its formalization and regulation of the interaction between the management subjects, compliance with the nonlinearity principles which is based on the achievement of the synergistic effect and interaction effect.

Analysis of recent publications on the problem. The notion of the economy environmentalization was researched by the foreign and national scholars including the scholars of the Institutes of Market Problems and Economic-Ecological Research of the National Academy of Sciences of Ukraine within the subject of budget [1], by the scholars such as S.V. Mochernyi, [2], O.A. Veklych [3], L.H. Melnyk [4], V.N. Kyslyi, E.V. Lapyn, N.A. Trofymenko. [5], I. Syniakevych [6,7], V.O. Palamarchuk E.V. [8], Myshenin, P.I. Koreniuk, V.Ya. Shevchuk, Yu.M. Satalkin, H.A. Byliavskyi, V.M. Navrotskyi, V.V. Hetman, O. Hetman [9, 10, 11]. Generally, the economy environmentalization shall be considered as the process of economic development aimed at the liquidation of the environmental imbalances of the stable development through the

realization of efficient environmental management methods. Thus, the environmentalization process combines three components: surrounding natural environment, society and environment and environmental policy. By reference to the notion of the economy environmentalization, the energy sector environmentalization management shall be based on its expedient modernization which is determined by certain transformation with the time which results in the change of its development condition in general and its components in particular, mainly, introduction of the process of the production (extraction) environmental improvement, transformation, transportation of the energy resources, with the orientation to the minimization of the destructive impact on the environment and satisfaction of the consumers' needs for the environmentally safe affordable energy resources. The diagnostics of the energy sector environmentalization is the analysis of the environmental transformation process and improvement of the energy sector, efficiency of the management legislative, organizational, economic and other initiatives, consistency of the lower and higher goals, related measures taken, determination of weaknesses, risks, factors and changes of environmental impact, etc. The diagnostics shall result in further adaptation of the management process to the existing challenges and searching for the methods of facilitating the realization of the country's social, environmental and economic interests on the local, regional, and national levels.

Allocation of previously unsolved parts of the general problem. The process of the energy sector management shall include the key provision on the economy environmentalization concerning the focused environmental modernization of the sector which is determined by transformation within the time and leads to the change of the sector condition, its environmental development through the production (extraction) improvement, transformation, transportation of the energy resources. Such process shall be aimed at the minimization of the eco-destructive impact of the energy sector on the environment and satisfaction of the consumers' demand for the environmentally safe energy resources. Based on the assumption that the economy environmentalization is a complex system of management due to the necessary certain interaction between the management subjects, the implementation of environmentalization provisions demands sharing its values (environmental credibility, life quality, health, accountability, justice, transparency) to achieve the common goal. Such interaction will lead to the management actions efficiency with regard to the stable production and consumption, energy efficiency in the innovation, eco-technology aspects, renewable energy resources, energy resources and local production management. The methodological approach to the environmentalization management diagnostics in the energy sector will become a basis of the management process and related institutional basis necessary to achieve the management goals.

Formulation of research objectives (problem statement). The research is aimed at the formation of the methodological basis of the environmentalization management diagnostics in the energy sector.

An outline of the main results and their justification. The environmentalization management diagnostics in the energy sector first of all reflects the assessment of changes in the energy sector, environmental condition and efficiency of the operating management system. The environmentalization management elements are graphically shown in fig. 1. Social aspect is included within the narrower cooperation sphere i.e. only to the part directly connected with the environment or economy.

Existing specific interrelations shown in fig. 1, between the elements of the environment, economy, and society, shall be applied in 4 spheres for the environmentalization management diagnostics in the energy sector:

- 1) Natural capital - includes the indexes describing the environmental condition;
- 2) manufacturing eco-efficiency includes the indexes of interconnection between the natural environment and economy;
- 3) Environmental living standards is the presentation of indexes for the diagnostics of interconnections between the natural environment and society, energy and environmental policy, and their consequences - including the indexes characterizing the tools for the economy and society influence creating the preferred directions of development aimed at the environmentalization of the energy sector of economy.

Energy sector environmentalization management shall be considered from the point of view of its conceptual part, organization and technology of management at the national, regional, and local levels. All these components play an important role in the energy sector environmentalization with the help of the related mechanisms of management. The goals and spheres of the energy sector environmentalization management are shown in fig.2.

Let us consider the outlined spheres of the energy sector environmentalization management more in detail:

1. The availability of the environmentally safe energy supply of the country. This includes the scientific and technical innovations of the environmentally safe energy supply for the public needs. This is reflected in the ability to provide for the public energy needs and reduce the environmental pollution effect.

2. Accessibility of the environmentally safe energy supply of the country. It includes the interrelation between the following:

- environmentally safe technical means and economy, reflecting the profitability of the energy sector operation;
- determination of the energy supply income from the energy sector operation for the consumers.

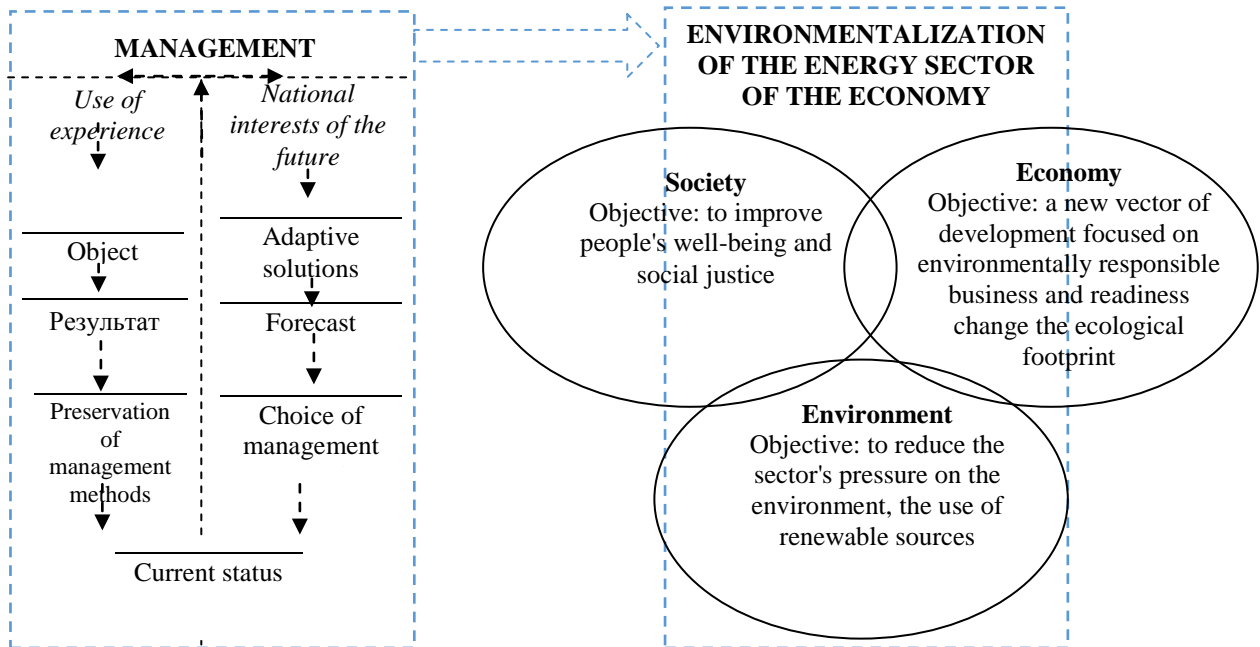


Fig. 1. Sectors of the energy sector environmentalization and management

Resource: author's elaboration

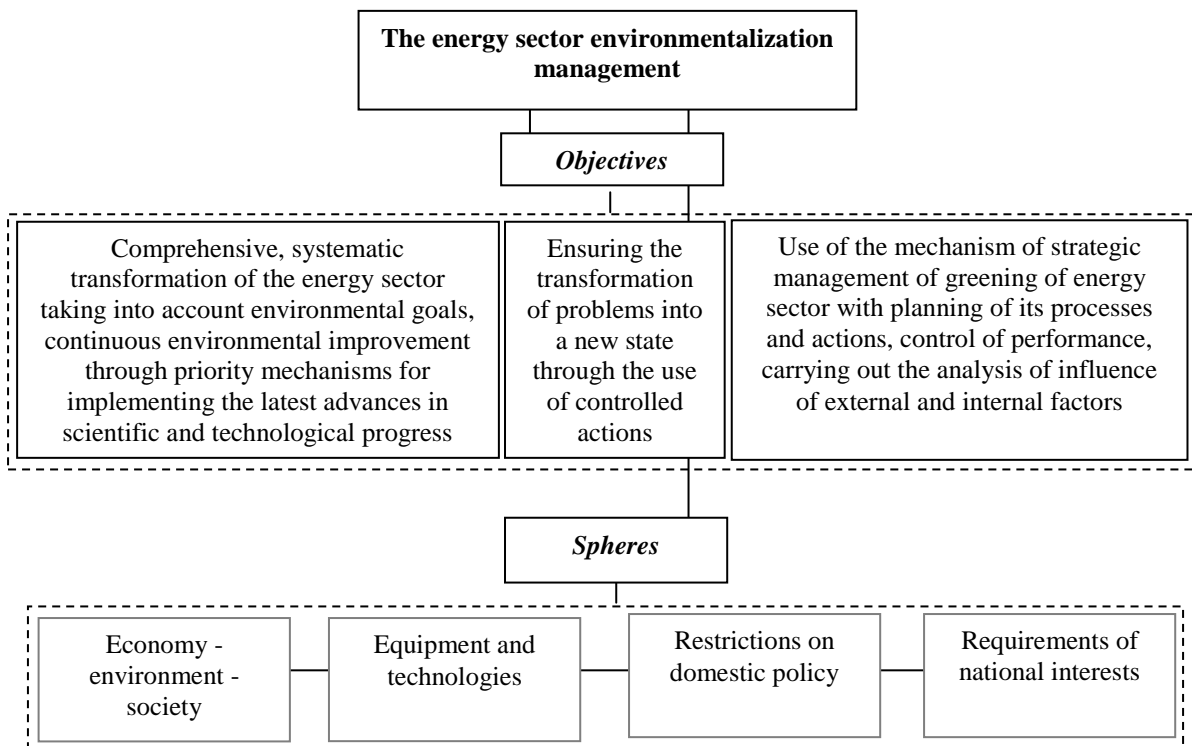


Fig. 2. The goals and spheres of the energy sector environmentalization management

Resource: author's elaboration

3. Feasibility of the management solution depending upon the political goals. The management is combined with the models of the energy sector operation arrangement. Social, environmental and economic dimension with the political aspects of the national politics realization.

4. Protection of the national interests. This includes the accentuation of the prioritized directions of the activity to provide for the national environmental interests in the sphere of energy.

As of these days the energy sector management pattern is reduced to the economic impact assessment and is based on the economic mechanisms: profitability, competition, encouragement, taxation and customs policy. The new directives of the European Union outline the approach of subordination to the political decisions concerning the consumers protection, encouragement of the energy efficiency, decarbonization, etc.

However, these days in Ukrainian practice the process of passing the management decisions on the issues of the energy sector environmentalization is inconsistent and controversial.

For the environmentalization management diagnostics in the energy sector it is suggested taking the idea by J. Jewel who used the approach of the energy sector analysis through the assessment of vulnerability of the important energy systems and long- and short-time risks and apply it from the point of view of the detachment of the management sphere with the orientation towards the specificity and formalization of the environmentalization management diagnostics in the energy sector. Our approach is based on the following positions:

1. The environmentalization management diagnostics in the energy sector shall reflect the interaction between the separate parts of the management process: coherence of economic and environmental politics concerning the environmentalization of the energy sector with management of the processes of technical and technological insurance, coherence of the social, ecological, economic processes and coherence of the activity of management subjects of the lower level with the management goals of the higher. Such interaction shall result in the achievement of goals in unity resulting in the synergistic effect. Such approach complies with the nonlinearity principle and reflects the tough interactions effect.

2. Compliance of the management process formalization and regulation of the management subjects interaction. It is reflected in the goals and tasks at different management levels which allow for the formalization of the management activity of the management subject within the creation of strategic environmentalization management diagnostics in the energy sector. The landmark of the management object and diagnostics compliance criterion is the insurance of the national interests (through the detachment of motives of the different stockholders - business entities, international organizations, political forces) in the achievement of the energy sector environmentalization goals and interaction between the management subjects, responsible for the smaller spheres of the environmentalization management.

Fig. 3a and 3b show the conceptual approach to the environmentalization management diagnostics in the energy sector. The presented content of formalization of the process of environmentalization management diagnostics in the energy sector includes the wide specter of variables applicable by the management subject in the sphere of the energy sector environmentalization. These variables encompass the goals of the national interests and the sector environmentalization processes, formation of the management process consistency, set of management principles in achievement of the energy sector environmentalization goals, assessment of the condition and achievement of the future goals, a set of mechanisms and tools of the environmentalization implementation process support instruments, operating in consistency and interaction with the models of the social, environmental and economic development of the country.

Environmentalization management diagnostics in the energy sector is the possibility to see the condition of the environmental transformation process and improvement of the energy sector which will show the results of adopted management steps and determine their weaknesses for further adaptation of the management process to the existing challenges and searching for the methods of satisfaction of the social, ecological, economic interests of the country

To provide for the environmentalization management diagnostics in the energy sector the creation of the information system of the energy sector development is necessary which would accumulate the necessary information and become the basis for the management solutions, determine the authority and organization of gathering, processing, and distribution of information into different management levels. As of now the basis of the management solutions is constituted by the reports of the Ministry of Energy of Ukraine, Ministry of Ecology and Natural Resources of Ukraine, regional reports, reports of the international organizations, etc.

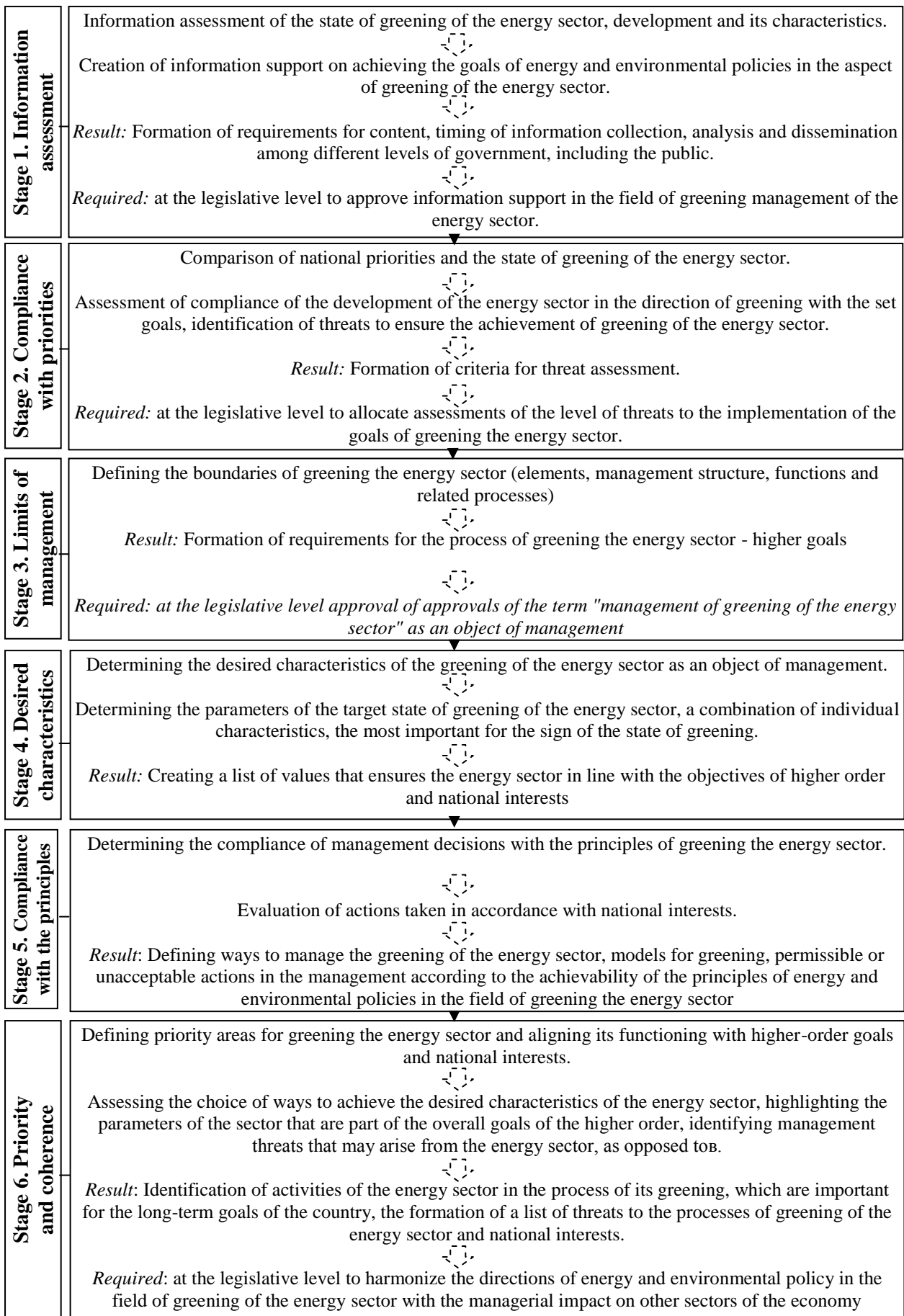


Fig. 3a Conceptual approach to the environmentalization management diagnostics in the energy sector
Resource: author's elaboration

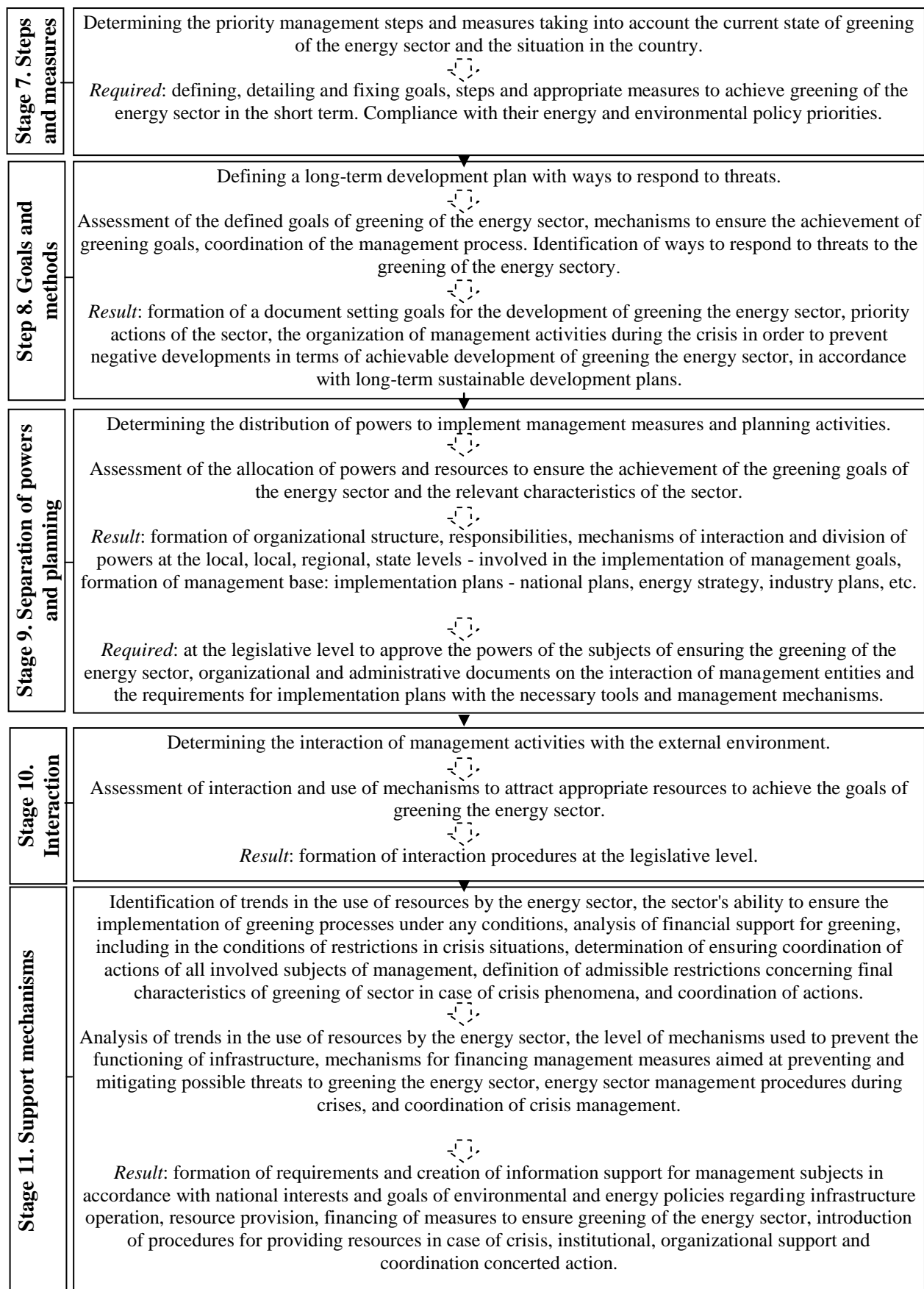


Fig. 3b. Conceptual approach to the environmentalization management diagnostics in the energy sector
Resource: author's elaboration

Formalization of the environmentalization management diagnostics in the energy sector shall be determined through its goal, principles and priorities of the national interests. It shall assess the management level and interaction between the management subjects at different levels, determine the spheres of the management impact and conformity to the country's priorities in the aspect of the energy sector environmentalization.

In order to coordinate management actions, diagnose them and further adapt the decisions to the appropriate state in order to achieve higher goals in the processes of greening the energy sector, it is necessary to coordinate Ukraine's Energy Strategy until 2030 with energy sustainability and greening plans. This will allow the development and further diagnosis of programs and implementation plans in certain sectors of the energy sector, structural changes, relevant programs, tasks and deadlines, etc.

Diagnosis of institutional and information support of environmental management processes in the energy sector involves assessing the coherence of resource, technology, etc. bases of the system of greening of the sector. This assessment is partially covered in the Energy Balance of Ukraine. Which gives grounds for making appropriate strategic decisions.

Environmentalization management diagnostics of the energy sector involves in times of crisis analysis of management in terms of restrictive measures, the introduction of special rules to prevent blocking the implementation of greening processes and the achievement of national interests in socio-ecological and economic development.

Diagnosis of financial support of the management process involves the assessment of resources for the implementation of measures to green the energy sector. For example, these are state resources (targeted revenues from pollution taxes, budget expenditures for individual programs, etc.), resources of regional and local authorities (funds allocated in accordance with current legislation, expenditures on services provided, etc.), international projects to ensure the greening of the energy sector, etc. Appropriate greening measures should be co-ordinated with the High Level Energy Sector Greening Plans.

The proposed methodological approach to environmentalization management diagnostics of the energy sector allows to formalize its process, highlight the heavy interactions of management actors involved in achieving national interests in greening of the energy sector, management facilities that adapt to management decisions and the appropriate institutional basis needed. to achieve management goals.

Conclusions and perspectives of further research. Environmentalization management diagnostics of the energy sector is an analysis of the state of the process of ecological transformation and improvement of the energy sector, the effectiveness of administrative, legislative, organizational, economic, etc. initiatives, compliance and coherence of higher and lower order goals, relevant measures taken, identification of vulnerabilities, threats, factors and changes in environmental impact, etc. The result of the diagnosis should be further adaptation of the management process to existing challenges and the search for methods to promote the achievement of socio-environmental and economic interests of the country at the local, local, regional and national levels.

Environmentalization management of the energy sector involves the process of environmental transformation and environmental improvement of the energy sector through the implementation of coordinated, consistent actions, measures, appropriate solutions (organizational, economic, technological, etc.) that will either eliminate or reduce the effects of eco-destructive factors of the energy sector, to achieve a systemic socio-ecological-economic effect of greening management at the local, local, regional and state levels and the realization of national interests.

The paper proposes a methodical approach to diagnostics of energy sector greening management, which is based on the concept of formalization of the management process, namely the allocation of heavy interactions of management actors involved in achieving national goals in greening the energy sector, management facilities that adapt to accepted management decisions, and the appropriate institutional framework necessary to achieve management objectives.

Environmentalization management diagnostics of the energy sector should reflect the interaction of individual parts of the management process: the coherence of economic and environmental policy in the greening of the energy sector with the management of technical and technological support, coherence of socio-ecological and economic processes and coherence of lower level management goals of higher management. The result of such a single interaction should be a synergistic effect of achieving the national interests of greening the energy sector at different levels of government: local, regional, state.

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