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**A.A. Kulanov\***  
doctoral student  
Turan University  
Almaty, Kazakhstan  
E-mail: [akulanov23@mail.ru](mailto:akulanov23@mail.ru)  
ORCID: 0000-0002-8148-5411

**M.A. Aitkazina**  
PhD  
Turan University  
Almaty, Kazakhstan  
E-mail: [m.aitkazina@turan-edu.kz](mailto:m.aitkazina@turan-edu.kz)  
ORCID: 0000-0002-8410-0900

**A.D. Karshalova**  
PhD  
Kazakh-British Technical University  
Almaty, Kazakhstan  
E-mail: [a.karshalova@kbtu.kz](mailto:a.karshalova@kbtu.kz)  
ORCID: 0000-0002-0065-8369

## THE ROLE OF SUPREME AUDIT INSTITUTIONS IN THE DEVELOPMENT OF A GREEN ECONOMY TO ACHIEVE SUSTAINABLE DEVELOPMENT GOALS

**Abstract.** *Problems related to the development of green economy exist in all countries of the world. These problems are particularly relevant in developing countries, whose economic growth depends on the extraction of carbon fuel minerals.*

*The purpose of this study is to identify the problems hindering the development of green economy and the role of the supreme audit institutions in solving these problems.*

*In recent years, the Supreme Audit Institutions (SAI) have become increasingly convinced of the value of interaction with civil society to achieve sustainable development goals as a way to increase government accountability and audit quality. Despite the constant cooperation with civil society in the course of daily activities, it becomes more important than ever during global emergencies, such as the COVID-19 pandemic. The issue raised is relevant for Kazakhstan as well.*

*The novelty lies in the fact that as a solution to this problem, the idea of forming a new innovation policy of the country as an engine of a new model of economic growth was proposed.*

*The methods used in the study, such as systematic, comparative analysis, allowed us to identify cause-and-effect relationships, build a logical chain and draw reasonable conclusions.*

*The results of the study are presented in the form of developed state measures of influence in solving the problems of investing «green» finance. The article provides a literary review on the topic, on the basis of which a conclusion is made about the desire of the SAI to increase its public utility with the help of an audit according to the prevailing evidence. However, we have proposed measures to enhance this role by taking a more substantial part in energy reporting.*

**Keywords.** *Supreme Audit Institution, state audit, investments, financing, green economy, sustainable development goals, economic growth.*

### ■ Introduction

The realization of all the Sustainable Development Goals set by the United Nations requires sustainable energy production and consumption. Consequently, energy accountability plays a key role in achieving these goals [1]. Moreover, modern economic growth in many countries has negative external consequences, such as environmental pollution, greenhouse gas emissions and global warming, which poses a threat to life on the planet. Therefore, a transition to sustainable development and a green economy is necessary [2]. Many state leaders are aware of this problem and declare the need for a transition to a green economy, which requires significant financial investments. However, the current level of green investment is insufficient to make such a transition. Even in the European Union, experts estimate an investment gap of 500 million euros for 2020 only in the energy sector [3].

To study the history of the problem and identify the main reasons that hinder the development of green finance, this article provides a systematic review of the literature and applies a systematic analytical approach to the study of green finance. It also analyzes the conceptual framework, world experience in

the field of green finance and statistical analysis of data from the websites of international organizations and financial institutions.

There are several studies devoted to the activities of the Supreme Audit Institutions (SAI). However, the question of the role of the SAI in ensuring energy accountability still remains unanswered.

Meanwhile, the SAI, as the most important state auditors, should assess how governments solve energy problems, helping not only to spend money sparingly, but also to be accountable. Based on the review by Łukasz Sułkowski, it is concluded that the SAI seek to maximize public utility through an ex-post audit. However, such an audit approach is not sufficient to strengthen energy accountability throughout the European Union [1].

The scientific significance of the article lies in the fact that as a solution to this problem, an idea was proposed to increase the role of the SAI by more substantial participation in energy reporting.

The subject is economic relations related to the solution of environmental problems through the activities of the SAI.

It is concluded that in order to solve the problems of «green» financing, a union of the state, international organizations and firms is necessary. Moreover, the leading role in this union belongs to the state, which should coordinate, stimulate and control activities in the field of «green» finance.

The practical significance is connected with the possibility of using the proposed new innovation policy of the country to achieve the goals of sustainable development.

## ■ Literature review

Most of the publications devoted to green finance are in the fields of economics, political science and international relations. This indicates that most researchers propose to solve environmental problems using economic and political approaches. The study of publication dynamics can be carried out using Scholar Google, as peer-reviewed scientific articles from various scientific databases are presented there.

The analysis of topics and keywords showed that green finance research can be divided into three stages. The first stage is described by the works of D. H. Meadows and her followers and focused on the problems of limited natural resources and environmental pollution [4]. The second stage is associated with the emergence of the concepts of green economy and green finance, which began to be actively used together with the concept of sustainable growth from the 1990s to the early 2000s. The third stage began in 2015 and continues to this day. It is characterized by the terms green revolution and green transition [5-14].

Despite the fact that the activities of the SAI are the subject of some studies, including energy audit in production processes, improving the efficiency of energy transmission, audit of commercial buildings and renewable energy sources [15-17], no studies have been conducted on the role of SAI in energy accountability.

In order to improve the use of the audit mandate and audit tools in the field of environmental policy, SAI from all over the world have decided to establish a Working Group on Environmental Audit at the International Organization of Supreme Audit Institutions (INTOSAI). The Group seeks to improve the use of the audit mandate and audit tools in the field of environmental policy by both Members of the working group and non-members of the SAI. Special attention of the Working Group is paid to the joint audit of the SAI of transboundary environmental problems and policies, as well as the audit of international environmental agreements [18].

## ■ Materials and methods

In this paper, by the method of system analysis and with the help of a systematic review of the literature, approaches to the definition of green finance are considered and the role of the state in green financing, including SAI, is revealed. A systematic literature review includes peer-reviewed academic literature and literature from open sources, i.e. information in news publications, on websites, and in official documents.

## ■ Results and discussion

The issues of losses and damage as a result of the impact of climate change require the development of coordinated measures to reduce the growing threat.

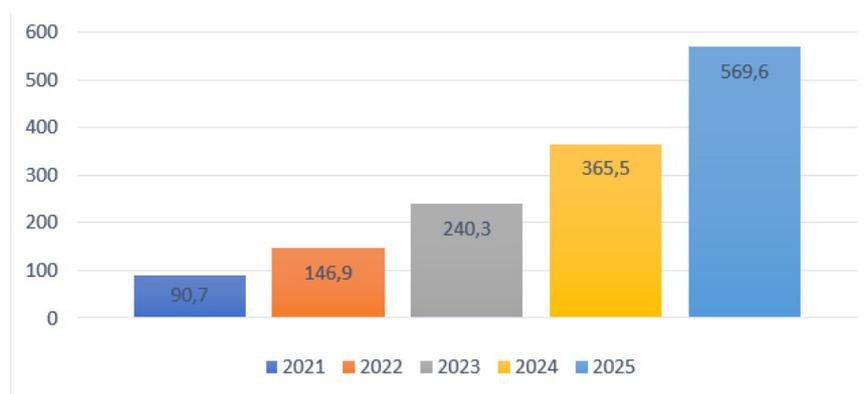
This particularly highlights the importance of adaptation to climate change. In this regard, Kazakhstan has done considerable work to create a legislative framework for the implementation of the adaptation

process in the four most vulnerable sectors – water resources, agriculture, forestry and disaster risk reduction.

The implementation process begins with a full vulnerability assessment, on the basis of which, at the national and local levels, it has become possible to take into account climate risks in sectoral government programs and develop the necessary measures to adapt to climate change.

It is extremely important to increase the sustainability of Kazakhstan’s infrastructure through adaptation measures. Considering that adaptation measures reduce the costs of road and construction infrastructure caused by climate change, bringing benefits both for individual sectors and for the entire economy.

At the same time, by the Decree of the Government of the Republic of Kazakhstan dated April 19, 2023 №313, updated Nationally Determined Contributions (ONUV) were approved, which are a key element of the Paris Agreement and contribute to achieving its long-term goals.



**Figure 1.** The volume of financing of the National project Green Kazakhstan, billion tenge

*Source: Compiled by the authors based on the literature [19].*

Figure 1 above shows the amount of funding for the Green Kazakhstan National Project from the republican budget for 2021-2025, which amounts to 1.4 trillion tenge. Expected economic effect: contribution to the growth of the economy of the Republic of Kazakhstan until 2025 - 0.05-0.22 percentage points annually; 61043 workplaces will be created due to the implementation, including 830 permanent and 60213 temporary. Expected social effect: the achievement of the country’s forest cover up to 5% of the republic’s area, an increase in real incomes of the population.

According to the Supreme Audit Chamber of the Republic of Kazakhstan, the implementation of this project in 2022 amounted to 80%.

The updated ONUV, along with the goal of reducing greenhouse gas emissions, for the first time includes equally important issues of adaptation to climate change. Reflects information on the impacts, risks and vulnerabilities of Kazakhstan, as well as national priorities, plans and actions in the field of adaptation to climate change.

At the same time, Kazakhstan, despite the abundance of traditional energy resources (coal, natural gas, oil), is deeply committed to the goals of the Paris Agreement. During the Climate Ambitions Summit, Kazakhstan announced its intention to achieve carbon neutrality by 2060. Given that Kazakhstan’s economy is energy-intensive, this is an important step for our country.

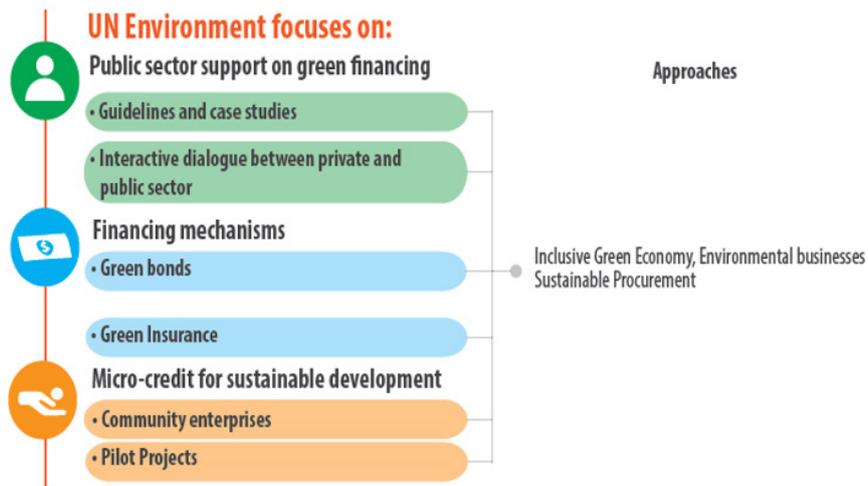
To achieve this goal, a Strategy was approved to achieve carbon neutrality until 2060, which will become a benchmark in the deep decarbonization of the economy. The strategy is aimed at reflecting both the economic and social benefits of the country from the transition to low-carbon development. Adaptation measures based on the use of natural ecosystems also contribute to the implementation of a long-term strategy.

In order to achieve the goals of the Paris Agreement, improve the level and quality of life of the population, and sustainable development of the country, Kazakhstan is ready to take all measures and cooperate on the implementation of new projects aimed at increasing the adaptive capacity and mitigating the effects of climate change.

The UN report entitled «Report on Financing for Sustainable Development for 2023: Financing for Sustainable Transformation» states the need for immediate mobilization of large-scale investments to accelerate transformation, including in the field of electricity, industry, agriculture, transport and building construction [20].

According to the report, some of the necessary changes are already taking place. The energy crisis caused by the war in Ukraine stimulated the growth of investments in global energy transition, the volume of which jumped to a record \$1.1 trillion in 2022. In 2022, the volume of investments in energy transfer for the first time exceeded the volume of investments in a system based on fossil fuels, but almost all of them were made in China and developed countries.

Green financing can be promoted through changes in the regulatory framework of countries, harmonization of public financial incentives, increased green financing from various sectors, coordination of public sector financing decisions with the environmental aspect of the Sustainable Development Goals, increased investment in clean and green technologies, financing of sustainable a green economy based on natural resources, and a blue economy taking into account the climate, the expansion of the use of green bonds, and so on.



**Figure 2.** Sustainable Development Goals and green financing

Source: Compiled by the authors based on the literature [21].

The main directions of the UN’s current work on green financing are:

- Support of the public sector in creating an enabling environment;
- Promoting public-private partnerships in financing mechanisms such as green bonds;
- Capacity building of public enterprises for micro-crediting.

The UN Environment Programme, as part of its resource efficiency programme, will offer countries services to review their policies and regulatory frameworks for the financing system and develop roadmaps for sustainable financing, as well as assist central banks and regulators in best improving the regulatory framework of domestic financial markets to shape the way and support multi-country policy initiatives at the subregional level, regional and global levels.



**Figure 3.** Green financing

Source: Compiled by the authors based on the literature [21].

The IMF makes reference to commitments under the Paris Agreement and the Sustainable Development Goals, whose task is to achieve climate goals and policies that would limit the increase in global temperature. The transition to environmentally friendly public investments will help to reduce greenhouse gas emissions. In addition, significant public investment will be required to create public infrastructure that will make the economy more resilient to climate change and related natural disasters.

The IMF’s assessment of public investment management has already been applied in more than 70 countries. Such an assessment has not been carried out in Kazakhstan.

In 2019, the principles of Quality Infrastructure Projects (QII) were adopted at the G20 Summit in Osaka [22].

Principles of high-quality infrastructure investments		
<p><b>Compliance with the Sustainable Development Goals and ensuring the growth of the national economy</b></p> <ul style="list-style-type: none"> <li>– Ensuring favorable efforts for economic activity</li> <li>– Continuation of the Sustainable Development Goals</li> <li>– Open access to information on infrastructure projects</li> </ul>	<p><b>Cost-effectiveness throughout the entire life cycle</b></p> <ul style="list-style-type: none"> <li>– Systematic cost-benefit analysis throughout the project cycle</li> <li>– Minimization of risks associated with an increase in the cost of the estimated cost of capital investments by untimely performance of work, as well as risks arising at the operational stage</li> <li>– Use of innovative technologies to increase economic efficiency</li> </ul>	<p><b>Environmental friendliness in minimal negative impact on climate and environment</b></p> <ul style="list-style-type: none"> <li>– Consideration of environmental issues at all stages of the project life cycle</li> <li>– Transparency of information on the environmental impact of the project for all stakeholders</li> </ul>
<p><b>Safety and resilience to natural disasters and emergencies</b></p> <ul style="list-style-type: none"> <li>– Implementation of risk management mechanisms for natural disasters and emergencies at the stages of infrastructure planning and design</li> <li>– Ensuring the reliability of infrastructure by insuring risks in case of emergencies</li> </ul>	<p><b>Socially oriented solutions and project implementation policy</b></p> <ul style="list-style-type: none"> <li>– Non-discrimination and open access of users to the infrastructure</li> <li>– Implementation of the principles of inclusiveness at all stages of the infrastructure project life cycle</li> <li>– Fair treatment of employees, ensuring equal work opportunities and self-development</li> <li>– Safe working conditions in the workplace, a favorable atmosphere in the team</li> </ul>	<p><b>Managerial efficiency and transparency in making investment decisions</b></p> <ul style="list-style-type: none"> <li>– Openness and transparency of procurement</li> <li>– Effective interaction of authorities in the planning and implementation of infrastructure projects</li> <li>– Anti-corruption regulation</li> </ul>

**Figure 4.** Principles of quality infrastructure projects

Source: Compiled by the authors based on the literature [22].

The guidance of these principles is strategically important in the development of domestic investment management assessment methodologies in terms of determining the evaluation criteria.

The relevance of the topic is clear to everyone and requires the authorities to take immediate measures for further sustainable development. What is the role of the SAI in this.

In view of the above, the SAI needs to take all possible measures within its mandate. In our opinion, this lies in the following.

The role of the SAI in sustainable development and achievement of national priorities is important and relevant. In the light of rapid changes in the geopolitical environment and digital transformation, appropriate changes in approaches, methods and the system of SAI are required. Innovation is a necessary factor.

Maintaining the status of quality institutions of the SAI and their improvement is the goal not only of the audit bodies themselves, but also of the INTOSAI. The II XXIII Congress of INTOSAI is devoted to the role of the SAI in achieving national priorities and goals, which indicates the importance of this issue [23].

Fundamental changes in public audit and public policy, as well as increased expectations of society, have created a new environment for the work of the SAI. These changes include the adoption of the United Nations 2030 Agenda and the Sustainable Development Goals, the data revolution, the transition to the International Framework of Professional Statements (IFPP), and commitments arising from the International Standards of Supreme Audit Institutions (ISSAI) 12, which focus on the value and benefits of the SAI.

In the light of these changes and requirements, the SAI should take all necessary measures within its mandate to adapt to the new environment and innovatively develop. This may include the development

of new methodologies for assessing investment management, improving the audit system, the use of modern technologies and increasing its role in sustainable development and environmental accountability.

Despite that, there is no general formula for success.

The adoption of the 2030 Agenda has added a new dimension requiring that the work of the SAI should include an audit of the SDGs.

SAI Problems		
data access and quality	development and use of appropriate methodologies	professional skills

**Figure 5.** What do SAIs face

*Source: Compiled by the authors based on the literature [22].*

As governments transform to achieve national and global goals more effectively, SAI should evolve in a similar way. Although the impact of the SDG audit on the roles of the SAI has not yet been fully realized, the transition from the activities of the SAI from «accountability for the process» to «accountability for results» is even more important for improving accountability and efficiency of public administration.

The growing role of the SAI is to become a strategic partner of the government, especially given the institutional knowledge that the SAI can contribute to achieving long-term national goals.

While the strategic approach tends to focus on various elements of the policy cycle, the mandates of the SAI and the context in which the SAI operates are additional factors to be considered, including the ability to address comprehensive governance and strategic issues; assess public awareness, civic engagement, and data openness; and assess audit inclusiveness.

The availability of data has created additional requirements for both Governments and the SAI. Effective use of publicly available data contributes to greater transparency and accountability, and SAI are uniquely positioned to ensure the quality, reliability and accuracy of this data.

Audit inclusiveness is a key point in the 2030 Agenda.

By performing an advisory role, the SAI can provide non-audit products to improve management efficiency, while maintaining the integrity, objectivity and independence so important to the work of the SAI.

The ability to manage, analyze and interpret performance and evaluation data is important for conducting audits, as well as fostering a culture of evaluation and forecasting in the SAI and developing the necessary skills.

«Auditors of the Future» – SAI employees who can solve problems of the future, including using data analytics, artificial intelligence and innovations, be knowledge exchange specialists and make forecasts – can help the SAI integrate innovative approaches into audit work.

## ■ Conclusion

Thus, SAIs have a wealth of experience in providing recommendations for improving management efficiency, and some strategies may be more effective for their role, including for the development of a green economy:

- Establishing good relationships and engaging in two-way communication, which includes constructive and open dialogue with auditees and other stakeholders;
- Benchmarking at the level of the public sector and state-owned enterprises;
- Implementation of systematic monitoring of the implementation of recommendations;
- Raising awareness and educating stakeholders about the role and responsibilities of SAIs;
- Providing easy-to-understand, practical, visual reports and recommendations; and
- Improving communication with experts.

Proposals for improving the role of SAI for sustainable development goals:

- transition from «accountability for the process» to «accountability for the result»;
- strengthening analytics;
- ability to address comprehensive management and strategic issues;
- evaluate public awareness, civic engagement and data openness;
- evaluate the inclusiveness of audits.

Thus, it is concluded that in order to solve the problems of «green» financing, a union of the state, international organizations and firms is necessary. Moreover, the leading role in this union belongs to the state, which should coordinate, stimulate and control activities in the field of «green» finance.

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## ТҰРАҚТЫ ДАМУ МАҚСАТТАРЫНА ҚОЛ ЖЕТКІЗУ ҮШІН ЖАСЫЛ ЭКОНОМИКАНЫ ДАМУДАҒЫ ЖОҒАРЫ АУДИТ ОРГАНДАРЫНЫҢ РӨЛІ

**А.А. Куланов\***

«Қаржы» кафедрасының докторанты  
Тұран Университеті  
Алматы қ., Қазақстан Республикасы  
E-mail: akulanov23@mail.ru

**М.А. Айтказина**

PhD  
Тұран Университеті  
Алматы қ., Қазақстан Республикасы  
E-mail: m.aitkazina@turan-edu.kz

**А.Д. Каршалова**

PhD  
Қазақстан-Британ  
техникалық университеті  
Алматы қ., Қазақстан Республикасы  
E-mail: a.karshalova@kbtu.kz

***Аңдатпа.** Жасыл экономиканы дамытуға байланысты проблемалар әлемнің барлық елдерінде бар. Бұл проблемалар әсіресе экономикалық өсуі отын көміртегі қазбаларын өндіруге тәуелді дамушы елдерде өзекті болып табылады.*

*Бұл зерттеудің мақсаты - жасыл экономиканың дамуын тежейтін проблемаларды және осы мәселелерді шешудегі жоғары мемлекеттік аудит органдарының рөлін анықтау.*

*Соңғы жылдары жоғары аудиторлық органдар (ЖАО) Үкіметтің есептілігі мен аудит сапасын арттыру тәсілі ретінде тұрақты даму мақсаттарына қол жеткізу үшін азаматтық қоғаммен өзара іс-қимылдың құндылығына көбірек сенуде. Күнделікті іс-шаралар барысында азаматтық қоғаммен үздіксіз ынтымақтастыққа қарамастан, бұл COVID-19 пандемиясы сияқты жаһандық төтенше жағдайлар кезінде бұрынғыдан да маңызды болып отыр. Көтерілген мәселе Қазақстан үшін де өзекті.*

*Жаңалық мынада, бұл мәселенің шешімі ретінде экономикалық өсудің жаңа моделінің қозғалтқышы ретінде елдің жаңа инновациялық саясатын қалыптастыру идеясы ұсынылды.*

*Зерттеуде қолданылатын әдістер, мысалы, жүйелік, салыстырмалы талдау себеп-салдарлық байланыстарды бөліп көрсетуге, логикалық тізбекті құруға және негізделген қорытынды жасауға мүмкіндік берді.*

*Зерттеу нәтижелері «жасыл» қаржыны инвестициялау мәселелерін шешуде әзірленген мемлекеттік ықпал ету шаралары түрінде ұсынылған. Мақалада тақырып бойынша әдеби шолу жасалады, оның негізінде ЖАО-ның қалып*

тасқан нақты деректерге сәйкес аудит арқылы өзінің қоғамдық пайдалылығын арттыруға деген ұмтылысы туралы қорытынды жасалады. Алайда, біз энергетикалық есептілікке едәуір қатыса отырып, осы рөлді арттыру шараларын ұсындық.

**Түйін сөздер.** жоғары аудит органы, мемлекеттік аудит, инвестициялар, қаржыландыру, жасыл экономика, тұрақты даму мақсаттары, экономикалық өсу.

## РОЛЬ ВЫСШИХ ОРГАНОВ АУДИТА В РАЗВИТИИ ЗЕЛЕННОЙ ЭКОНОМИКИ ДЛЯ ДОСТИЖЕНИЯ ЦЕЛЕЙ УСТОЙЧИВОГО РАЗВИТИЯ

**А.А. Куланов\***

докторант кафедры «Финансы»  
Университет Туран  
г. Алматы, Республика Казахстан  
E-mail: akulanov23@mail.ru

**М.А. Айтказина**

PhD  
Университет Туран  
г. Алматы, Республика Казахстан  
E-mail: m.aitkazina@turan-edu.kz

**А.Д. Каршалова**

PhD  
Казахстанско-Британский технический  
университет  
г. Алматы, Республика Казахстан  
E-mail: a.karshalova@kbtu.kz

**Аннотация.** Проблемы, связанные с развитием зеленой экономики, существуют во всех странах мира. Эти проблемы особенно актуальны в развивающихся странах, чей экономический рост зависит от добычи топливных углеродных ископаемых.

Цель данного исследования — выявить проблемы, сдерживающие развитие зеленой экономики, и роль высших органов государственного аудита в решении этих проблем.

В последние годы высшие органы аудита (ВОА) все больше убеждаются в ценности взаимодействия с гражданским обществом для достижения целей устойчивого развития как способа повышения подотчетности правительства и качества аудита. Несмотря на постоянное сотрудничество с гражданским обществом в ходе повседневной деятельности, как никогда это становится важным во время глобальных чрезвычайных ситуаций, таких как пандемия COVID-19. Поднятый вопрос актуален и для Казахстана.

Новизна заключается в том, что в качестве решения этой проблемы была предложена идея о формировании новой инновационной политики страны, как двигателя новой модели экономического роста.

Методы, используемые в исследовании, такие как системный, сравнительный анализ, позволили выделить причинно-следственные связи, выстроить логическую цепочку и сделать обоснованные выводы.

Результаты исследования представлены в виде разработанных государственных мер воздействия в решении проблем инвестирования «зеленых» финансов. В статье сделан литературный обзор по теме, на основе которого сделан вывод о стремлении ВОА повысить свою общественную полезность при помощи аудита согласно сложившимся фактическим данным. Однако нами предложены меры по повышению данной роли, взяв ВОА на себя более существенное участие в энергетической отчетности.

**Ключевые слова:** высший орган аудита, государственный аудит, инвестиции, финансирование, зеленая экономика, цели устойчивого развития, экономический рост.