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MAIN DIRECTIONS OF AZERBAIJAN'S ENERGY TRANSITION

A B S T R A C T

The purpose of the research is to investigate the essence of the structural changes taking place in the country's energy sector, to scientifically substantiate the economic, environmental and technological aspects of the energy transition and to determine the interaction of this process with the trends of global energy transformation.

The methodology of the research - the research used descriptive and analytical methods, and a comparative analysis was conducted based on reports of international organizations, official statistical data and strategic documents.

The practical importance of the research is that the results obtained serve to develop practical recommendations for improving the national energy strategy, forming a green economy and ensuring energy security.

The results of the research show that the energy transition of Azerbaijan is developing towards increasing the share of renewable energy sources, modernizing the energy infrastructure and creating "green energy zones".

The originality and scientific novelty of the research are determined by the systematic analysis of the transformation stage of the national energy policy and the scientific explanation of its strategic role in the processes of regional energy integration.

Keywords: energy transition, green energy, renewable energy, energy security, "Green Energy Zone".

I N T R O D U C T I O N

In the modern world, the transition to green energy holds strategic significance not only from an environmental protection perspective but also in terms of socio-economic stability and energy security. This process, based on the principles of sustainability, lies at the heart of global efforts to combat climate change. The use of renewable energy sources - particularly solar, wind, hydro, and geothermal energy - serves to preserve ecological balance by significantly reducing carbon emissions into the atmosphere.

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In recent years, increasing investments in green energy projects by both the public and private sectors have further strengthened the innovation potential in this field. Technological advances have led to the development of high-efficiency photovoltaic solar panels, next-generation wind turbines, and energy storage systems. Such technologies not only improve the efficiency of energy production and consumption but also reduce costs and create opportunities for large-scale application.

Moreover, the transition to green energy plays a crucial role in ensuring the energy independence of countries. Reducing dependence on fossil fuels, minimizing the need for imported energy carriers, and strengthening domestic energy production have become priority issues in national security strategies. This approach also contributes to enhancing economic resilience and mitigating risks arising from price volatility in energy markets. To this end, many countries implement projects aimed at expanding the use of renewable energy sources to reduce reliance on fossil fuels and ensure energy security. Azerbaijan is among these countries.

The concept of energy transition not only refers to the shift from one energy source to another but also to the more efficient, ecological, and sustainable renewal of economic and technological systems.

For many years, Azerbaijan based its economic development primarily on oil and gas production. The “Contract of the Century,” signed in 1994, marked a new phase in the country’s energy sector, turning Azerbaijan into a major energy exporter in the region.

However, recent changes in global energy markets, the growing importance of renewable energy sources, and environmental challenges have prompted Azerbaijan to pursue diversification and transformation in its energy policy.

Hosting COP29 last year was a significant milestone for Azerbaijan in terms of its energy transition goals. Within the framework of this international event, projects promoting the development of renewable energy and aiming at regional energy integration, such as the “Green Energy Corridors,” were presented. These initiatives are regarded as significant progress in terms of coordinating energy systems and strengthening regional cooperation.

What is Energy Transition?

The transition to “zero carbon emissions,” carried out globally to achieve carbon neutrality, poses significant challenges for human society. In this context, the energy sector acts as one of the key responsible parties in addressing existing climate change issues [8]. Achieving net-zero emission targets by 2050 and limiting global warming to 1.5°C requires the establishment of sustainable, efficient, competitive, and secure energy systems [7].

In the past decade, renewable energy, particularly wind and solar energy, has entered a rapid development phase, exceeding expectations, driven by both economic efficiency and increasing political and public support for low-carbon policies. According to policy scenarios developed by the International Energy Agency (IEA), by 2030, it is projected that 80% of the globally installed electricity capacity will come from renewable energy sources. This is considered one of the main indicators of how rapid and profound the transformation of energy systems will be.

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Historically, energy transitions typically referred to the shift from one dominant energy resource or a set of resources to another, moving from less efficient energy sources to more efficient ones. Looking at the trajectory of energy consumption, human society moved from the wood-based era to the coal era, and later to the stage dominated by oil. Thus, two major energy transformations have already taken place historically.

Currently, the energy transition under discussion is characterized by a shift from carbon-based energy sources, particularly coal and oil, to alternative sources such as gas, wind, solar, and hydro energy, which produce lower carbon emissions. This transformation has become particularly relevant in the context of combating climate change, ensuring energy security, and achieving sustainable development goals.

The global oil crisis of the 1970s forced many countries to recognize the unsustainability of the existing energy model and to consider alternative energy solutions. Since that period, energy policies have entered a transformation phase, forming the basis of energy transition strategies.

A notable example is the research conducted by the Institute for Applied Ecology in Germany. Experts at the institute argued that transitioning to renewable energy technologies and improving energy efficiency could achieve economic growth while consuming less energy. In the book *Energy Transition: Growth and Progress Without Oil and Uranium*, published by the institute in 1982, the concept of “Energiewende” was introduced for the first time, encompassing the idea that renewable energy sources could become the main energy providers in the future [8]. This approach was later widely applied not only in Germany but across European energy strategies, leading to renewable energy sources becoming a primary priority.

In general, three energy transitions can be identified in human society (Figure 1): the first - replacement of wood by coal; the second - replacement of coal by oil; and the third (and ongoing) - replacement of fossil fuel energy represented by oil and coal with clean and renewable energy.

Naturally, the current wave of transition to low-carbon energy envisions a model of energy production and consumption dominated by clean electricity, aiming to achieve net-zero emissions by 2050.

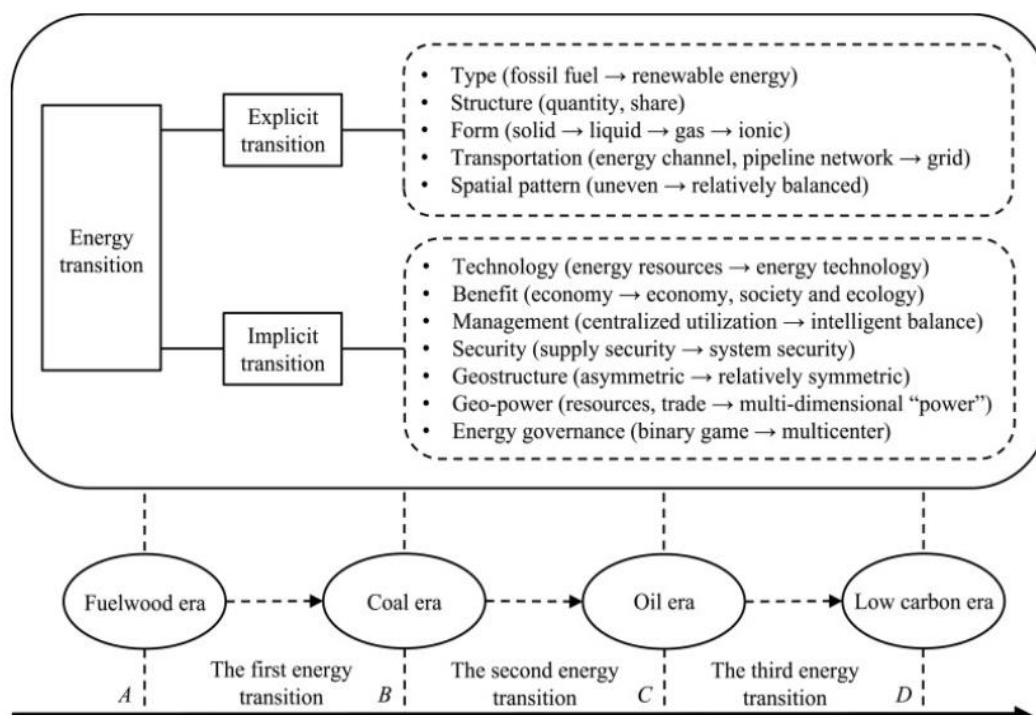
In essence, an energy transition is a process of fundamental transformation of the main elements of an energy system toward a new configuration, based on a long-term and complex system that ensures the provision of energy services. This system encompasses energy production, storage, transmission, and consumption, energy technologies, management, as well as activities related to energy security, geopolitics, and energy governance.

In this regard, the concept of energy transition is broadly explained across multiple dimensions: type of energy, energy structure, form, transportation, spatial pattern, technology, benefits, management model, energy security, geopolitical structure, energy power, and energy governance.

The concept of energy transition encompasses both explicit and implicit dimensions.

Figure 1.

Stages of energy transition



Source: [8]

The explicit term of energy transition is primarily determined through statistical data and information. This data emerges from the analysis of various parameters in the transformation process, such as the type, structure, and form of energy, transportation modes, and spatial distribution. Indicators of energy transition include the shift from fossil fuels to renewable energy sources, the transformation of electricity into the main energy carrier, and the transition from carbon-intensive to low- or zero-carbon models in energy use.

The energy structure becomes more diversified, characterized by a gradual reduction in fossil fuel consumption and share in the energy mix, along with an increase in the consumption and share of renewable energy sources.

The transformation of energy form is assessed as the shift from solid (coal) and liquid (oil) to gaseous (natural gas) and ionic forms (electricity). This form change also transforms energy transportation; traditional energy transport channels and pipeline networks are replaced by power grids, with interregional energy networks playing a key role in transmitting renewable energy.

Moreover, compared to the global unequal distribution of fossil fuels, the wide spectrum and more balanced spatial distribution of renewable energy sources increase spatial equity in the energy transition, ensuring a shift toward a relatively more balanced allocation of energy resources.

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The implicit term of energy transition refers to less visible and intangible transformations that accompany the explicit processes of energy transition. These transformations cover various aspects, including energy technologies, economic benefits, management models, energy security, geopolitics, energy power, energy justice, and energy governance.

Firstly, energy transition includes fundamental technological changes that reduce the energy sector's dependence on fossil fuels and the resources derived from them, ensuring the establishment of a sustainable energy system. With the development of low-carbon technologies, the energy sector in the renewable energy era will become technology-oriented, freeing the energy system from the carbon-intensive traditional “lock-ins.” Additionally, unlike the development model of the fossil fuel era, which prioritized economic profit without considering social and environmental aspects, the energy transition aims to synergistically provide economic, social, and environmental benefits and enhance sustainable development potential.

Secondly, energy transition is expected to decentralize energy production, consumption, and distribution, reducing monopolization and forming a decentralized energy geography. In this context, the role of various energy actors, such as individual producers, community energy organizations, and social movement participants, will significantly increase. The intermittent and decentralized nature of renewable energy requires distributed and smart approaches in its development, use, and management. This process moves away from the centralized monopoly of fossil fuels, maximizing flexibility in renewable energy use and enabling the development of “energy democracy.”

Thirdly, energy transition broadens the concept of energy security from traditional energy supply security to a systematic security concept. In the fossil fuel era, energy security mainly focused on the uninterrupted supply of energy and price stability, with limited resource diversity. During the transition, energy security will require a broader and multifaceted approach, considering social, economic, and environmental aspects, including energy availability, infrastructure resilience, energy prices, public impacts, environmental factors, governance, and energy efficiency. At the same time, energy transition introduces new security risks, such as instability in critical mineral supply chains and cyberattacks targeting energy infrastructure. Consequently, supply chain security and cybersecurity have become key components of energy security in the renewable energy era.

Fourthly, energy accessibility is closely linked to geopolitical factors, as states possessing energy resources strive to preserve their reserves. The geographical concentration of fossil fuels leads to “asymmetric” geopolitical relations and conflicts. However, energy transition reduces the geographical inequality of hydrocarbon resources that underpin traditional energy geopolitics, decentralizes renewable energy, and leads to a more balanced spatial distribution of energy resources. This enables the formation of a more symmetric geopolitical structure, extending energy geopolitics beyond the energy sector to renewable energy technologies and critical mineral resources. This process significantly alters the global energy geopolitical landscape.

Additionally, energy transition transforms the nature of power in energy geopolitics. In the fossil fuel era, power was mainly concentrated in the control of energy resources and trade

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routes. In the renewable energy era, this power will shift toward the management of investments, technology, and markets. Energy will no longer solely reflect the interests of states and large corporations but will become part of the redistribution of power across global energy production, trade, consumption, and investment networks. Energy transition expands the concept of “energy power” to encompass multidimensional areas, including energy supply, demand, technology, finance, carbon emissions, and development.

The concept of energy justice ensures every social group’s right to access affordable, secure, sustainable, and decent-quality energy, as well as the ability to influence energy-related decision-making and effect change. A just energy transition places social justice at the center. The decentralization opportunities of renewable energy empower citizens, local communities, and cities, promoting the realization of energy justice and energy democracy.

Finally, energy transition will fundamentally reshape the global energy governance system. In the fossil fuel era, geopolitical relations regarding energy governance were characterized as a “dual-game” model between main energy producers and consumers. As the transition progresses, interactions among various energy actors, such as international energy agencies, states, NGOs, and multinational corporations, will increase, leading to the formation of a polycentric system in global energy governance.

In conclusion, energy transition is not merely the replacement of one energy source with another; it is a complex and long-term process involving fundamental and multidimensional transformations in the energy system. This process entails reconstruction in technology, policy, infrastructure, scientific knowledge, and social culture, serving the goals of combating climate change and promoting sustainable development [8].

Azerbaijan’s Energy Transition Strategies

Today, energy transformation has become an important global agenda issue in terms of ecological sustainability and energy security. To achieve these goals, Azerbaijan has developed comprehensive energy transformation strategies and focused on contributing to these objectives during the COP29 process.

When defining its energy transition strategies, Azerbaijan has considered various factors. The diversification of the country’s energy portfolio, focus on sustainable resources, and increasing energy efficiency form the basis of these strategies.

1. Renewable Energy Investments: Azerbaijan diversifies energy production by making significant investments in renewable energy sources such as wind, solar, and hydroelectric power. In this way, it aims to minimize environmental impact while reducing carbon emissions.

2. Energy Storage Systems: Azerbaijan aims to make energy supply more efficient and sustainable through investments in energy storage systems. These systems play a crucial role in balancing the variable nature of renewable energy sources.

3. Energy Efficiency Projects: The country focuses on energy efficiency projects to optimize energy consumption. Additionally, the transition to energy-saving technologies and awareness campaigns aim to improve society’s energy usage habits [12].

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1. Renewable Energy Investments

At the center of Azerbaijan's energy transformation strategy is an investment policy directed toward renewable energy sources (RES). Despite the long-term dominance of the oil and gas sector, the country has provided significant financial and institutional support to alternative energy projects in recent years to diversify the economy and strengthen energy security.

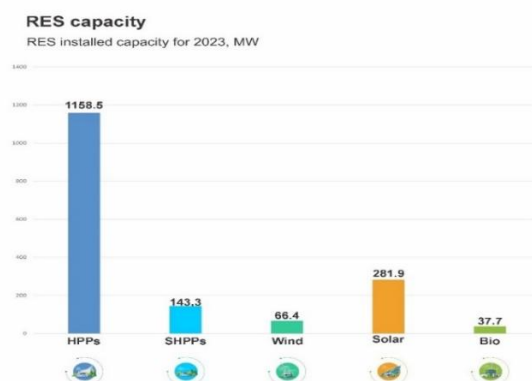
The Presidential Decree No. 1209 dated May 29, 2019, "On Accelerating Reforms in the Energy Sector of the Republic of Azerbaijan," established the legal foundations for market liberalization, increased competition, and transition to green energy. The Law of the Republic of Azerbaijan No. 339-VIQ dated May 31, 2021, "On the Use of Renewable Energy Sources in Electricity Production," serves as an important legal framework regulating the legal, economic, and organizational foundations of this sector, as well as support mechanisms to promote green energy. Additionally, the National Socio-Economic Development Strategy of the Republic of Azerbaijan for 2022–2026 identifies the transition to green energy, increasing energy efficiency, and building a low-carbon economy as one of the main objectives of national development.

The technical potential of the country's onshore renewable energy sources is 135 GW, while offshore potential is 157 GW. The economic potential of renewable energy sources is estimated at approximately 27 GW, including 3,000 MW of wind energy, 23,000 MW of solar energy, 380 MW of bioenergy potential, and 520 MW of mountain river energy potential.

The total installed capacity of the energy system is 9,732.5 MW, with 107 plants in operation. Among them, 65 hydroelectric power plants have a total capacity of 1,443.5 MW, 5 wind power plants have a capacity of 63.5 MW, 9 solar power plants have a capacity of 278.2 MW, 1 bioenergy plant has a capacity of 37 MW, and 3 hybrid plants have a capacity of 7.3 MW. The capacity of renewable energy sources accounts for approximately 18.8% of the total capacity, i.e., 1,829.6 MW. The following graph shows the installed capacity at RES in 2023 (Graph 1):

Graph 1.

RES capacity in 2023



Source: [1]

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In 2024, the total electricity production in the Republic of Azerbaijan was 28.4 billion kWh. Hydroelectric power plants produced 3 billion kWh, while other sources produced 839.7 million kWh. Within this figure, wind power plants produced 50.9 million kWh, solar power plants 556.3 million kWh, and bioenergy plants 232.5 million kWh of green energy.

Azerbaijan is determined to rise among the leading countries in the field of renewable energy and, for this purpose, utilizes its rich wind and solar potential. This is also an essential component of the country's plan to reduce greenhouse gas emissions by 40% by 2050. By 2030, the country aims to increase the share of installed capacity from renewable energy in electricity production to 30% and diversify the existing energy system to become a leader in the green energy sector.

By 2027, it is planned to implement green energy projects with a total capacity of more than 2 gigawatts. Among these projects, wind and solar power plants implemented jointly with local and international partners hold special importance:

Garadagh Solar Power Plant: On October 26, 2023, the 230 MW Qaradagh Solar Power Plant pilot project began operation in collaboration with the UAE's Masdar company. The plant was built with a foreign investment of 262 million USD. It will produce 500 million kWh of electricity annually and save 110 million cubic meters of natural gas, while reducing 200,000 tons of carbon dioxide emissions into the atmosphere.

Khizi-Absheron Wind Power Plant: The 240 MW Khizi-Absheron Wind Power Plant is planned in collaboration with Saudi Arabia's ACWA Power company. The plant will produce 1 billion kWh of electricity annually, saving 220 million cubic meters of natural gas per year and preventing more than 400,000 tons of carbon dioxide emissions into the atmosphere.

Shafag Solar Power Plant: The 240 MW Shafag Solar Power Plant project is being implemented jointly with BP in the Jabrayil district. Using a virtual energy transfer model, the electricity produced at Shafag will be transferred to "Azerenergy" Jabrayil, while an equivalent amount of energy will be sent to the "Sangachal" terminal in Baku by "Azerenergy." This will reduce approximately 50% of the waste generated from terminal operations at the "Sangachal" terminal. The annual average production of Shafag Solar Power Plant is approximately 500 million kWh, which corresponds to saving 120–150 million cubic meters of natural gas and reducing 260–330 thousand tons of CO₂ emissions annually.

Mega Project: Within the Mega project implemented by Masdar, solar power plants of 445 MW in Bilasuvar and 315 MW in Neftchala, as well as wind power plants of 240 MW in Absheron and Qaradag, are being constructed. On October 2, 2025, the first solar panel was installed at Bilasuvar Solar Power Plant.

Gobustan Solar Power Plant: Implemented by the Chinese company Universal International Holdings Limited, the 100 MW Gobustan Solar Power Plant, won in the 2024 auction, is projected to produce 260 million kWh annually. This will save 57 million cubic meters of natural gas and reduce 124,000 tons of carbon dioxide emissions.

Ufug and Shams Solar Power Plants: As part of initiatives to turn liberated territories into green energy zones, on June 2, 2025, during Baku Energy Week, contracts were signed

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with Nobel Energy for the construction of Ufug and Shams solar power plants in Jabrayil district, each with a capacity of 50 MW.

Floating Solar Panels Project: On July 29, 2024, a 100 kW photovoltaic system was inaugurated on Lake Boyukshor as part of the pilot project "Information Exchange and Technical Assistance Support for the Development of Floating Solar Panel Systems," implemented with the support of the Asian Development Bank. This pilot facility is the first solar power plant operating on a water reservoir in the country. Within the framework of the pilot project, business models will be developed and the participation of the private sector in the installation of solar energy facilities will be encouraged through training, strengthening national capacity. Research is being conducted for the implementation of large-scale projects on water reservoirs in the future.

Hydrogen Energy: The report on the low-carbon hydrogen economy market research was prepared by an international consulting company with the support of the European Bank for Reconstruction and Development (EBRD). The report assessed the possibilities of producing green and blue hydrogen in Azerbaijan, domestic consumption, as well as the technical feasibility and economic efficiency of exports. According to the market research, the production of green hydrogen is economically viable, and there are opportunities for export to regional energy markets and domestic consumption sectors. The report provides information on future steps, areas where green hydrogen can be consumed domestically, the Levelized Cost of Hydrogen (LCOH), export routes, and other issues. Within the framework of the COP29 conference, the Azerbaijan National Strategic Review reflecting a unified approach to low-carbon hydrogen production was prepared and presented.

2. Energy Storage Systems

In Azerbaijan's energy transformation process, the development of energy storage systems represents a crucial strategic direction. Due to the variable nature of renewable energy sources (especially solar and wind), it is essential to transmit the produced energy continuously and steadily. For this purpose, energy storage technologies, including battery-based systems, pumped hydro storage, and hydrogen storage technologies, are planned for implementation.

Energy storage systems increase the resilience of the energy infrastructure and balance supply and demand in the electricity grid. The Azerbaijani government prioritizes integration with international best practices, including "smart grids" and energy management systems. This approach not only ensures more efficient use of renewable energy potential but also strengthens energy security and expands export potential.

3. Energy Efficiency Projects

Another key direction of energy transformation is increasing energy efficiency and reducing energy losses. In Azerbaijan's energy policy, this area is considered a comprehensive set of measures aimed at optimizing energy consumption in both industry and the household sector.

For this purpose, energy audit programs, the implementation of energy-saving technologies, strengthening insulation in buildings, and public awareness campaigns are carried out. The "Law on Energy Efficiency" (2021) established a legal and institutional basis in this area [1].

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Energy efficiency projects contribute not only to reducing energy consumption but also to ensuring ecological sustainability, increasing economic savings, and applying new technological innovations. In this way, Azerbaijan strengthens national energy security while moving toward net-zero emissions in line with international climate commitments.

Currently, policies are being implemented to form a “green economy” as an important component of sustainable development, and these efforts are expected to accelerate in the coming period. In the document titled “Azerbaijan 2030: National Priorities for Socio-Economic Development,” the development of a green economy is highlighted as a significant issue. Within this priority, in view of the global scale of climate change, emphasis is placed on applying environmentally friendly technologies, using clean energy sources, recycling waste, restoring contaminated areas, and promoting these measures. Within this priority, achieving two objectives-high-quality ecological environment and a “green energy” space-is targeted [3]. The “Socio-Economic Development Strategy of the Republic of Azerbaijan for 2022-2026” was also prepared in accordance with national priorities and approved by the Presidential Decree dated July 22, 2022. This strategy encourages the expansion of the use of green technologies [4].

Azerbaijan’s favorable geographical location and the high usability level of the country’s renewable energy resources are factors that facilitate the implementation of the green energy transition strategy.

According to the Presidential Decree No. 1209 dated May 29, 2019, “On Accelerating Reforms in the Energy Sector of the Republic of Azerbaijan,” special attention is paid to attracting foreign investors for the development of the renewable energy sector. The economic development course outlined by the President of Azerbaijan for the liberated territories includes transforming these areas into a “green energy” zone, which is considered one of the main directions. During the meeting on January 6, 2021, regarding the economic results of 2020 after the 44-day Patriotic War, the President of Azerbaijan proposed a strategic vision for creating a Green Energy Zone in the liberated territories, noting the presence of sufficient renewable energy potential in these areas.

By Presidential Decree No. 2620 dated May 3, 2021, “On Measures for the Creation of a Green Energy Zone in the Liberated Territories of the Republic of Azerbaijan,” it was planned to involve an international consulting company. Collaboration with Japan's TEPCO company has started, and a relevant Concept document has been prepared.

The purpose of the concept is to utilize the high potential of renewable energy in the territories liberated from occupation to provide the area with environmentally clean green energy and to develop proposals by exploring the prospects for the application of environmentally friendly and energy-efficient green technologies. For this purpose, energy demand models for the territories have been developed using various scenarios.

Within the framework of creating a Green Energy Zone, the following measures are envisaged in the liberated territories: electricity production from renewable energy sources, energy efficiency measures, use of electric vehicles, installation of renewable energy systems (especially solar panels) on building roofs, use of solar-powered LED lamps for street and road

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lighting, utilization of renewable energy technologies for heating, cooling, and hot water supply, implementation of smart energy management technologies, and waste-to-energy management.

The State Oil Company of Azerbaijan (SOCAR) has also announced the measures it will implement to develop the Karabakh and Eastern Zangazur economic regions as carbon-neutral zones. According to SOCAR's 2023 Sustainability Report, these measures include reducing emissions by increasing energy efficiency, establishing regional infrastructure for electric vehicles, and replacing gas with renewable energy, hydrogen, and other green energy solutions. In addition, the company plans to increase green fuel production by replacing conventional hydrocarbon fuel with biogas and biodiesel [11].

C O N C L U S I O N

In the modern world, energy transition is not only a technological renewal process but also a comprehensive reconstruction of economic, social, and environmental systems. Globally, measures to combat climate change, reduce carbon emissions, and ensure energy security have further emphasized the strategic importance of renewable energy sources. In this regard, the energy transition process involves not only the use of new energy resources but also a fundamental change in energy production, distribution, and management models.

Azerbaijan's energy policy aligns with these global trends, prioritizing the transition from the traditional oil and gas model to a sustainable, low-carbon energy system. Legal and institutional reforms adopted by the country's leadership have facilitated the formation of a systematic approach in this area.

Large-scale projects implemented in recent years are considered a significant step toward realizing Azerbaijan's green energy potential. These projects contribute not only to diversifying the country's energy production structure but also to reducing carbon emissions, optimizing natural gas consumption, and expanding energy export potential.

The application of energy storage systems and smart energy grids ensures the reliability and resilience of energy supply while balancing the intermittent nature of renewable energy sources. At the same time, energy efficiency projects and public awareness programs help increase energy savings, reduce economic costs, and enhance environmental well-being.

Azerbaijan hosting COP29 and initiating green energy corridors in this context demonstrate that the country has become an important player in regional energy integration. It also reflects Azerbaijan's commitment to actively contributing to the global climate agenda.

In conclusion, energy transition has become a key component of Azerbaijan's long-term socio-economic development strategy. The country aims not only to modernize its energy system but also to create a model for the formation of a green economy, ensuring energy equity, and preserving environmental sustainability. By realizing its existing potential and strengthening international cooperation, Azerbaijan is confidently moving toward its net-zero emission targets by 2050.

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AZƏRBAYCANIN ENERJİ KEÇİDİNİN ƏSAS İSTİQAMƏTLƏRİ

X Ü L A S Ə

Tədqiqatın məqsədi - ölkənin enerji sektorunda baş verən struktur dəyişikliklərinin mahiyyətini araşdırmaq, enerji keçidinin iqtisadi, ekoloji və texnoloji aspektlərini elmi baxımdan əsaslandırmaq və bu prosesin qlobal enerji transformasiyası tendensiyaları ilə qarşılıqlı əlaqəsini müəyyənləşdirməkdir.

Tədqiqatın metodologiyası - tədqiqatda deskriptiv və analitik metodlardan istifadə olunmuş, beynəlxalq təşkilatların hesabatları, rəsmi statistik məlumatlar və strateji sənədlər əsasında müqayisəli təhlil aparılmışdır.

Tədqiqatın tətbiqi əhəmiyyəti ondan ibarətdir ki, əldə edilən nəticələr milli enerji strategiyasının təkmilləşdirilməsi, yaşıl iqtisadiyyatın formalaşdırılması və enerji təhlükəsizliyinin təmin edilməsi istiqamətində praktik tövsiyələrin hazırlanmasına xidmət edir.

Tədqiqatın nəticələri göstərir ki, Azərbaycanın enerji keçidi bərpa olunan enerji mənbələrinin payının artırılması, enerji infrastrukturunun modernləşdirilməsi və “yaşıl enerji zonalarının” yaradılması istiqamətində inkişaf edir.

Tədqiqatın orijinallığı və elmi yeniliyi milli enerji siyasətinin transformasiya mərhələsinin sistemli təhlili və onun regional enerji integrasiyası proseslərindəki strateji rolunun elmi əsaslarla izahı ilə müəyyən olunur.

Açar sözlər: enerji keçidi, yaşıl enerji, bərpa olunan enerji, enerji təhlükəsizliyi, “Yaşıl Enerji Zonası”.

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ОСНОВНЫЕ НАПРАВЛЕНИЯ ЭНЕРГЕТИЧЕСКОГО ПЕРЕХОДА АЗЕРБАЙДЖАНА

Р Е З Ю М Е

Цель исследования – исследование сущности структурных изменений, происходящих в энергетическом секторе страны, научное обоснование экономических, экологических и технологических аспектов энергетического перехода и определение взаимодействия этого процесса с тенденциями глобальной энергетической трансформации.

Методология исследования – в исследовании использовались описательные и аналитические методы, а сравнительный анализ проводился на основе отчетов международных организаций, официальных статистических данных и стратегических документов.

Практическая значимость исследования заключается в том, что полученные результаты служат для разработки практических рекомендаций по совершенствованию национальной энергетической стратегии, формированию «зеленой» экономики и обеспечению энергетической безопасности.

Результаты исследования показывают, что энергетический переход Азербайджана развивается в направлении увеличения доли возобновляемых источников энергии, модернизации энергетической инфраструктуры и создания «зеленых энергетических зон».

Оригинальность и научная новизна исследования определяются системным анализом этапа трансформации национальной энергетической политики и научным обоснованием ее стратегической роли в процессах региональной энергетической интеграции.

Ключевые слова: энергетический переход, зелёная энергия, возобновляемая энергия, энергетическая безопасность, «Зона зелёной энергии».

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