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# INTEGRATION OF CLIMATE GOALS INTO THE PLANNING SYSTEM OF THE REPUBLIC OF KAZAKHSTAN

**Abstract**
This study examines documents of the state planning system and other planning documents for their linkage with the decarbonization goals of the Republic of Kazakhstan. In order to achieve the purpose of the work, methods of qualitative content analysis and analytical comparison of the texts of strategic and programmatic documents, as well as methods of dynamic and comparative analysis of quantitative data, were used. Top-level documents, intersectoral and industry concepts, and development plans of government agencies were analyzed for the content of direct or indirect measures, policies, or indicators for decarbonization. The analysis showed that the top-level documents provide the necessary strategic basis for further detailing the policy on reducing greenhouse gas emissions in lower-level documents. Despite this, not all industry documents have been sufficiently linked to decarbonization goals. A direct decomposition is reflected in the Development Plan of the Ministry of Ecology and Natural Resources. Indirect indicators have been developed in the energy, energy conservation, and energy efficiency sectors. Based on the analysis, a decomposition architecture of direct and indirect indicators was developed in the form of corresponding matrices. A conclusion was reached regarding the need for stronger intersectoral coordination and more detailed decarbonization indicators and instruments in documents for the next planning period.

**Keywords:** greenhouse gases; government regulation; climate policy; strategic planning; decomposition of indicators.

## INTRODUCTION

Over the years, the issue of climate change has evolved from the emergence of climate science, concern and recognition of the problem at the international level to the formation of a coordinated climate policy.

French scientist Joseph Fourier describes the greenhouse effect for the first time, suggesting that the atmosphere retains heat. Later John Tyndall discovered that greenhouse gases strongly trap infrared radiation and Swedish chemist Svante Arrhenius mathematically showed the relationship between the concentration of $CO_2$ and global temperature. Finally, Stuart Callendar improved the Arrhenius model and linked warming to anthropogenic combustion of fossil fuels (Anderson et al., 2016).

The acknowledgement by countries of the necessity to reduce GHG emissions, together with the adoption of international climate agreements, created the preconditions for the emergence of carbon markets

After the ratification of the Kyoto Protocol, in 2005, the European Emissions Trading System, was launched. As of 2025, there are 38 emissions trading systems in the world, which now account for 23% of total greenhouse gas emissions, nearly a fivefold increase compared with 2005 (International Carbon Action Partnership [ICAP], 2025).

Given the substantial influence of rising greenhouse gas concentrations on climate change and further socio-economic consequences, the issue of regulating greenhouse gas emissions is of significant importance.

Kazakhstan has been actively integrating into global climate policy framework through the ratification of the Kyoto Protocol and the Paris Agreement.

In accordance with the obligations arising under the Paris Agreement, the "Updated National Contribution of the Republic of Kazakhstan to the Global Response to climate Change" (NDC) was approved in 2023, which sets a target to reduce greenhouse gas emissions by 15% on an unconditional basis and by 25% with international support by 2030, relative to 1990 levels (Government of the Republic of Kazakhstan, 2023).

According to the State Planning System in the Republic of Kazakhstan, planning documents are divided into three main groups. The first group consists of goal-setting documents that define a global vision, long-term directions and priorities for sustainable development. Such documents include the Strategy "Kazakhstan - 2050" and the Strategy for achieving Carbon Neutrality until 2060. The second group is composed of the documents of

the State Planning System, which include the National Development Plan of Kazakhstan until 2029, the country's National Security Strategy, development plans of central and local government agencies, as well as development plans of national companies. Concepts, national projects, state programs, comprehensive plans, and roadmaps belong to the third group of other planning documents (Government of the Republic of Kazakhstan, 2017).

The purpose of this study is to asses to which extent greenhouse gas emissions reduction goals are incorporated into strategic planning system documents of the Republic of Kazakhstan and evaluate challenges and opportunities for further development.

The hypothesis of this study is based on assumption that weak decomposition of climate targets in policy documents limits the coherence of their integration within state planning system.

The scientific significance of this research lies in the following contributions:

1) the development of the decomposition approach to analyze policy documents, which allows to identify and classify direct and indirect climate policy indicators,

2) the application of matrix-based approach to assess the extent of coherence of decarbonization targets across different level documents,

3) the identification of structural gaps in coordination of climate policy implementation.

## LITERATURE REVIEW

In the scientific literature the incorporation of policy objectives into state planning system is considered through the concept of policy integration. In research by Jordan and Lenschow (2010) this approach is described as a principle for aligning social, economic and environmental goals within the context of sustainable development. Nevertheless, these studies remain largely theoretical and do not provide practical tools for assessing integration at the level of documents and indicators.

Mickwitz et al. (2009) attempted to operationalize the concept of policy integration and suggested a set of criteria assessing integration, such as goal inclusion, policy coherence, and reporting mechanisms. Although methodologically relevant, this approach focuses mainly on institutional and procedural aspects. It does not clearly explain how integration is reflected within the planning documents content and performance indicators

Important contributions have also been made in the field of policy coherence. For instance, Nilsson et al. (2012) examine policy coherence through the interaction between implementation goals, tools and practices, emphasizing the importance of identifying synergies and conflicts across policy sectors. At the same time this approach is largely qualitative and depends on expert assessment.

The development of a systematic approach of goal integration analysis is presented by Weitz et al. (2018) where sustainable development goals are analyzed as interconnected system, including both synergies and potential conflicts. However, this approach focuses mostly on interactions between goals and offers limited insight into how these goals are reflected in state planning systems or policy documents

Empirical studies emphasize that the success of climate policy depends on the coherence and quality of regulatory frameworks. For example, Browiec et al. (2024) demonstrate that the impact of environmental policy on emissions depends on both the combination of policy instruments and the degree of regulatory stringency. Sun (2024) shows that regulatory fragmentation can reduce the effectiveness of emissions trading systems. These findings reinforce the role of importance of aligning policy goals and instruments.

In the context of Kazakhstan, domestic researchers highlight similar challenges. These include the lack of clear plans to achieve commitments to reduce greenhouse gas emissions, weak interdepartmental coordination and inconsistency between the goals of economic development and environmental protection (Nukusheva et al., 2025; Kenzhebekov et al., 2025).

Overall, the existing studies tends to be either conceptual or focused on institutional mechanisms. The question how policy goals are actually incorporated into strategic documents through indicators and measurable targets remains underdeveloped.

Based on a review of the literature, this study examines the following areas that require further investigation:

1. Study the documents of the state planning system and other planning documents for the content of direct or indirect measures, policies or indicators that contribute to decarbonization.

2. Create an architecture for the decomposition of indicators and policy across the main sectors of the economy.

3. Evaluate the alignment of industry planning documents to country climate targets.

## MATHODOLOGY AND METHODS

To ensure a comprehensive assessment of the current state, challenges, and development prospects of state regulation of greenhouse gas emissions in the Republic of Kazakhstan, the methodology of this study incorporates a theoretical foundation, scientific approaches and research methods.

The research is based on the texts of strategic and policy documents. The algorithm of selection of documents was as following. First, a screening of the documents of the State Planning System in the Republic of Kazakhstan

was carried considering the following criteria (1) documents that define a global vision, long-term directions and priorities for sustainable development; (2) documents governing the highest $CO_2$ emitter sectors, (3) validity of the documents on the date of analysis.

The article uses a mixed scientific approach. When analyzing the system of regulatory legal acts and strategic program documents, high-quality content analysis was used, which allows to identify and interpret key ideas, approaches and priorities of public policy. The unit of the analysis was defined as text fragments and indicators reflecting climate policy goals. The indicators were classified into two groups: (1) direct greenhouse gas reduction indicators and (2) indirect indicators related to CO2 emissions (energy efficiency, share of renewable energy sources etc.).

The analytical comparison method was used to determine the degree of relationship between indicators of program documents. Decomposition matrices were constructed via (1) vertical integration of different level documents, (2) time bound linking, (3) unity of indicators - grouping of direct and indirect (by industries) indicators.

**RESULTS**

The dynamics of GHG emissions in the Republic of Kazakhstan over the period 1990-2023 shows first a sharp decrease in the period 1990-2000, then a gradual increase with a peak value of 425.8 million tons in CO2 equivalent in 2018, followed by a decrease and levelling at 350 million tons in 2022-2023 (Byuro natsional'noi statistiki Agentstva po strategicheskomu planirovaniiu i reformam Respubliki Kazakhstan, 2024). This trend is driven by the economic downturn in the early years of independence, followed by subsequent economic recovery and growth (Hamitova et al., 2025), as well as by the effects of the COVID-19 pandemic in 2020-2021.

In 2023, the largest share of emissions occurred in the sectors of energy, agriculture, industrial processes, the use of solvents and other products. The sector data calculated according to the methodology of the Intergovernmental Panel on Climate Change (IPCC) is shown in Table 1.

Taking into account the contribution of industries to the total emissions a sample of 19 planning documents, which cover the sectors of energy, industry and agriculture were analyzed according to the following key components:

- The content of the policy to reduce greenhouse gas emissions,
- Availability of numerical indicators or targets, including by sector and year.

**Table 1. Total emissions for 2023 excluding the sector in land use, land-use change and forestry, (million tons of CO2 equivalent)**

| № | Sector name | Total emissions | Share, % |
|---|---|---|---|
| 1 | Energy | 278,5 | 80,5% |
| 2 | Industrial processes, use of solvents and other products | 26,8 | 7,7% |
| 3 | Agriculture | 33,5 | 9,7% |
| 4 | Waste | 7,1 | 2,1% |
| **TOTAL** | | **345,9** | **100** |

*Note: developed by the author based on data from (Nukusheva et al., 2025)*

Top-level documents.

The Kazakhstan - 2050 Strategy, as a goal-setting document, sets a long-term vector for the country's development, identifying rational use of natural resources, transition to a low-carbon economy and a "green" development path as the main priorities. The document does not contain specific climate indicators, but it sets a goal to bring the share of alternative and renewable energy to half of energy consumption.

The Strategy for achieving carbon neutrality until 2060 contains a vision for low-carbon development across the energy, industry, agriculture, and forestry sectors, identifying sector-specific decarbonisation pathways, including the phase-out of coal, the expansion of renewable energy sources (RES), improvements in energy efficiency, and the deployment of hydrogen technologies. The strategy also establishes cross-cutting methods for low-carbon development, including green finance, R&D, and the creation of a carbon regulatory system. The document defines a national goal to achieve carbon neutrality by 2060 and sets interim targets for 2030, 2040 and 2050, including projections for greenhouse gas emissions and uptake.

The next long-term country document is the Concept for the transition of the Republic of Kazakhstan to a "green economy". The document focuses on issues of sustainable economic development and sets out the framework directions for reducing the impact on the environment and human health, on the sustainable use of natural resources. There are no direct provisions on reducing greenhouse gas emissions, but there are indicators

for 2030, 2040 and 2050 to increase the share of RES, lower the energy intensity of the economy and abandon coal-fired power generation. The substantive part of the document notes the need to use agricultural methods that minimize tillage, conservation and restoration of pastures; specifies energy-saving and energy efficiency initiatives across the housing and utilities, industrial, and transport sectors, and establishes measures for the installation of carbon capture and storage technologies at thermal power plants, increase gas capacity in the structure of the energy balance. In 2024, the Government of the Republic of Kazakhstan approved an Action Plan for 2024-2030 to implement the Concept of Transition to a "green economy", which, despite the presence of defined targets for 2030, does not provide for interim values by year.

Documents of the state planning system.

The National Development Plan until 2029 is a framework and sets a number of key directions at the strategic level. The strategic direction "Improving environmental sustainability" includes a section on reducing greenhouse gas emissions, which stipulates an increase in the annual emission reduction rate in the carbon budget of 2026-2030 from 2.7% to 5%, which is consistent with the parameters stated in the NDC. Also, the Map of key national indicators of the National Plan include one direct indicator – maximum greenhouse gas emissions as a percentage of 1990 levels, and two indirect indicators – the share of electricity generated from renewable sources and GDP energy intensity, with annual target values specified up to 2029.

For the purpose of achieving the key national indicator "Maximum greenhouse gas emissions as a percentage of 1990 levels", the development plan of the Ministry of Ecology and Natural Resources provides for a target indicator "Carbon budget (greenhouse gas emissions)", expressed in thousands of tons, which is expected to be achieved through an Emissions Trading System. To attain the indicator for the share of electricity from renewable sources in the Ministry of Energy's development plan for 2023-2027, 39 renewable energy projects are planned to be implemented, as well as an indirect target indicator contributing to the reduction of greenhouse gas emissions – the "Level of gasification of the population" with a target value of 62,2% for 2027. To achieve the plans, measures are provided for gasification of the population at the expense of the republican budget, transfers from the National Fund, as well as extra-budgetary sources indicating the planned amounts by year.

Other planning documents are grouped by industry principle.

Fuel and energy complex.

The Concept for the Development of the Fuel and Energy complex of the Republic of Kazakhstan for 2023-2029 (the FEC Concept) contains the following target indicators that contribute to the reduction of greenhouse gas emissions: increasing the share of electricity from renewable energy sources to 12,5% in 2029, increasing the country's gasification to 63,4% by 2029, reducing energy intensity in the energy sector by 2029 by 5% compared to the level of 2021. Annual target values are provided for these indicators. Achieving the planned targets is expected through such measures as the modernization of energy infrastructure and thermal power plants, the construction of power generation facilities and renewable energy projects, the introduction of new gas fields, the construction of gas processing plants and the expansion of the Saryarka main gas pipeline, the reduction of wear on the gas transmission system and electric power grids, and the introduction of mechanisms for careful gas consumption. It is worth noting separately the section of measures to create a nuclear energy industry, which is directly linked to the task of diversifying electricity generation. However, the document also establishes target indicators for the expansion of coal and oil production, which may undermine emission reduction efforts.

The Concept of Development of the electric power industry of the Republic of Kazakhstan for 2023-2029, by analogy with the FEC Concept, sets a target for expanding the share of electricity generated from renewable sources, and in the substantive part of the document, sectoral principles and approaches highlight the upgrading of existing infrastructure, the expansion of new generation capacity, the further advancement of renewable energy, and the implementation of energy efficiency measures, including the application of carbon capture and storage technologies.

The Concept for the development of Hydrogen energy in the Republic of Kazakhstan until 2030 provides for a direct target indicator for reducing CO2 emissions with the following expected results by 2030, but without an annual breakdown: increasing the share of hydrogen in the energy sector to 0,25%, reducing the share of fossil fuels by 0,03-0,04% and reducing CO2 emissions by 0,1%. The activities include the development of hydrogen refuelling stations and the introduction of hydrogen-fueled buses, and the implementation of pilot initiatives involving the use of hydrogen technologies within the energy and industrial sectors. In general, the issue of the development of hydrogen energy is a promising direction in the long term.

The General gasification scheme of the Republic of Kazakhstan until 2030 aims to increase the share of gas as an "environmentally friendly fuel" in the structure of the fuel and energy balance. In particular, it is expected to achieve projected targets for increasing the level of gasification of the population to 65% by 2030, which continues the goals of the FEC Concept, and the introduction of measures to convert thermal power centers to natural gas in Almaty, Shymkent, Kyzylorda and Astana are anticipated to mitigate negative environmental effects and reduce greenhouse gas emissions.

Comprehensive plan for the development of the gas industry up to 2029 outlines the main directions for nationwide gasification, the development of the gas engine fuel market and the development of gas generation. Among the expected results are an expansion of gas-based power generation within the overall energy mix to 27%, an increase in the number of compressed natural gas buses by 90% compared to 2024, and an expansion of the network of liquefied natural gas filling stations by 71%. Among the most significant measures are the modernization of Almaty combined heat and power plants 2 and 3 (CHPP) and the elaboration of the issue of a balanced conversion of CHPP to gas, taking into account the availability of a resource base.

Energy saving and energy efficiency.

The concept for the development of energy conservation and energy efficiency in the Republic of Kazakhstan for 2023-2029 identifies greenhouse gas emission reduction and the achievement of carbon neutrality as its core guiding principles. The document establishes target indicators in the form of annual reductions, reaching by 2029 relative to 2021 levels, of 10% in industrial energy intensity and 5% in the energy sector, a 10% decrease in energy consumption per unit of floor area, and a 5% reduction in energy consumption per capita. Key measures include the modernization of buildings and structures in the public sector in terms of reducing heat loss and interior lighting, major repairs of apartment buildings using energy-saving technologies, and the conversion of public transport to clean fuels.

The concept of housing and communal infrastructure development for 2023-2029 focuses on the modernization of communal infrastructure. A target indicator is provided to reduce the wear of heating, water supply and sanitation networks from 51% to 40% by 2030. Due to the use of energy-efficient technologies, it is expected to reduce heat energy losses in multi-storey residential buildings from 57% to 30% by the end of 2029.

Agro-industrial complex.

The Concept for the development of the agro–industrial complex of the Republic of Kazakhstan for 2021-2030 highlights a high degree of degradation and desertification of pastures, as well as a tendency to pollute the environment and reduce soil fertility. However, measures to implement the Agribusiness Concept focus mainly on food security, the growth of production and its exports. Among the target indicators affecting the level of greenhouse gas emissions, one can only include a reduction in the area of eroded land in agricultural land by 1 million hectares from 29,3 million hectares in 2021 to 28,4 million hectares in 2030. At the same time, only one measure is envisaged for the indicator to create a vertical sustainable land management system under the Land Management Committee. The substantive part of the document mentions the development of roadmaps for the development of certain areas of crop and livestock production, including solving the problems of desertification, soil erosion and restoration of degraded pastures. These roadmaps are approved at the level of joint orders, do not belong to the system of planning documents and are not freely available, which creates risks in terms of their integration with the goals of decarbonization.

Industry and mechanical engineering

The concept of development of the manufacturing industry of the Republic of Kazakhstan for 2023-2029 sets goals for the growth of production and economic indicators of the manufacturing industry without direct linkage to the reduction of product carbon intensity or to improvements in industrial energy efficiency.

Comprehensive plans for the development of the Machine–building industry for 2024-2028; the development of Major oil and gas and petrochemical projects until 2027; and the development of Agricultural Processing for 2024-2028 focus on increasing production and production without reference to climate targets.

## DISCUSSION

The results of the study suggest that incorporating greenhouse gas emission reduction targets into Kazakhstan's state planning system remains partial and incomplete. While top level documents set goals, their reflection in sector specific documents is limited. This is evidenced by the fact that out of 19 analyzed documents only 9 contain climate-related provisions. The rest of the documents show duplication, weak binding, or complete lack of connection with carbon intensity reduction goals. Table 2 shows the Documents contributing to the reduction of greenhouse gas emissions.

Of these 9 documents, 3 provide for a direct decomposition of the greenhouse gas emission reduction indicator, which is shown in Figure 1. Also, for documents in the energy, energy efficiency and energy conservation sectors, matrices for the decomposition of indirect indicators are compiled, shown in Figures 2-3. In the industrial and agricultural sectors, there is no further link to the direct and indirect goals of decarbonization.

Decomposition matrix analysis allows to clarify key structural gaps in climate targets integration. Particularly, the matrix of direct decomposition revels that despite the formal linkage of emission reduction targets, they remain aggregated without a clear allocation of industry specific contributions. This reduces transparency of the decarbonization process and makes it harder to control.

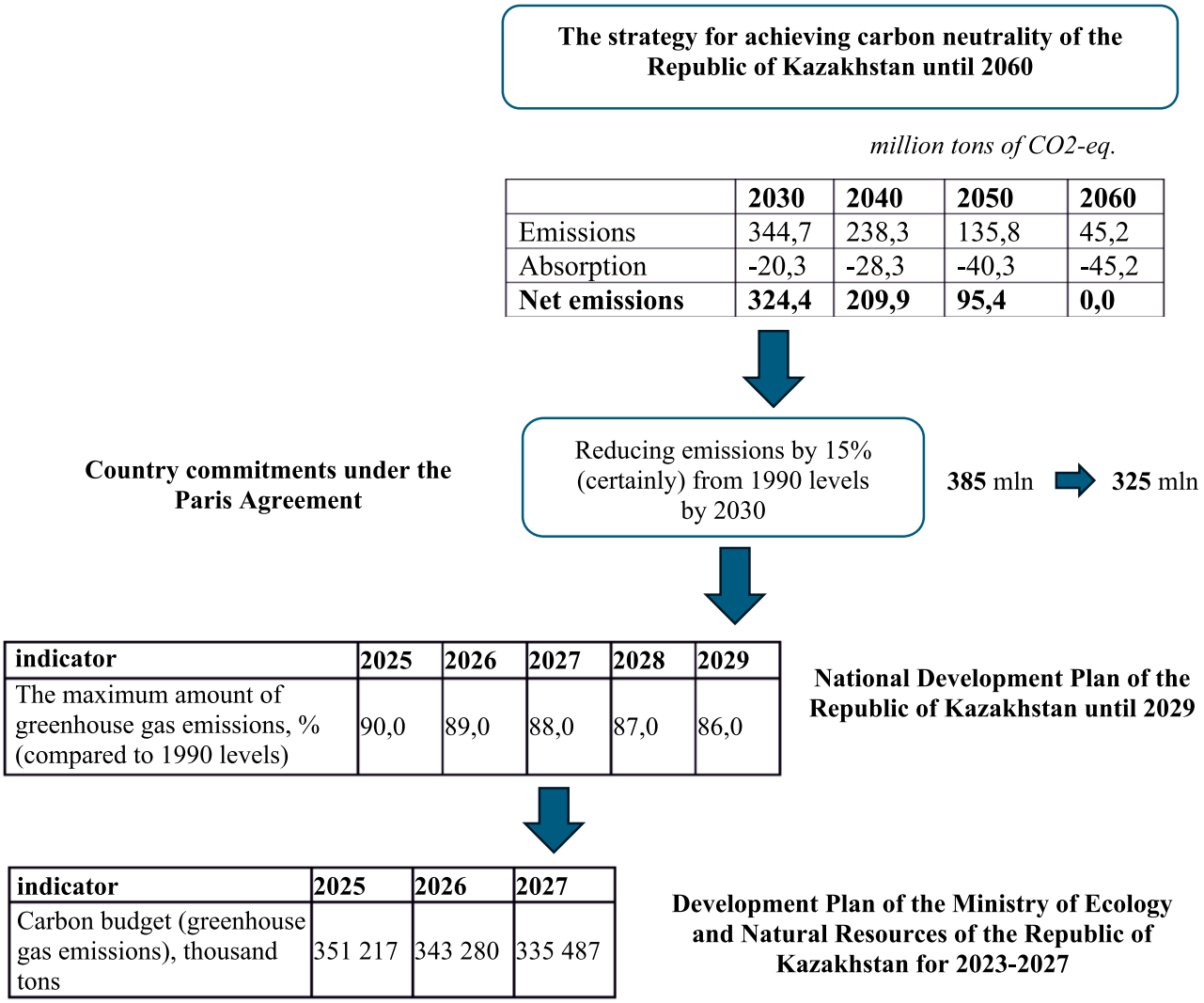
**Table 2. Documents contributing to the reduction of greenhouse gas emissions**

| № | Document | Quantitative goals | Measures |
|---|---|---|---|
| **Top-level documents** | | | |
| 1 | "Kazakhstan-2050" Strategy | Directions: rational use of resources, transition to a low-carbon economy and a "green" development path | Not provided |
| 2 | The strategy for achieving carbon neutrality until 2060 | Greenhouse gas emissions and absorption trajectory for 2030, 2040 and 2050 | Supposed to be included in a special roadmap |
| 3 | The concept of transition of the Republic of Kazakhstan to a "green economy" | - increasing the share of renewable energy sources,<br>- reducing the energy intensity of the economy<br>- abandonment of electric generation based on coal burning | Missing |
| **Medium-term country documents** | | | |
| 4 | National Development Plan of the Republic of Kazakhstan until 2029 | - the maximum amount of greenhouse gas emissions, % (compared to 1990 levels),<br>- the share of electricity from renewable energy sources,<br>- energy intensity of GDP | decomposition into subordinate documents is assumed |
| **Concepts by industry** | | | |
| 5 | Development of the fuel and energy complex for 2023-2029 | - share of electricity from renewable energy sources,<br>- the level of gasification of the country,<br>- reduction of energy intensity in the energy sector | Provided |
| 6 | Development of hydrogen energy in the Republic of Kazakhstan until 2030 | Targets until 2030 for:<br>- the share of hydrogen in the energy sector, - reducing the share of fossil fuels,<br>- reduction of CO2 emissions. | Provided |
| 7 | Development of energy saving and energy efficiency improvement for 2023-2029 | Reduction of:<br>- energy intensity of industry,<br>- energy intensity of the energy sector,<br>- energy consumption per unit area of premises,<br>- energy consumption per capita. | provided |
| **Development plans of central government agencies** | | | |
| 8 | Ministry of Ecology and Natural Resources for 2023-2027 | Carbon budget, mln. tonnes CO2 | Provided |
| 9 | Ministry of Energy for 2023-2027 | - share of electricity from renewable energy sources,<br>- the level of gasification of the population | Provided |

*Note: developed by the author of the study*

The energy sector exhibits a coherent system of targets with a positive development trend. However, the energy sector matrix demonstrates that translating strategic objectives between different level documents is accompanied by a change in a content of indicators, including differences in their definitions and target values. The development of gasification (up to 65% in 2030) provides opportunity to reduce GHG emissions but remains transitional measure rather than a long-term basis for decarbonization. The targets for renewable energy development (share of RES – 10-12,5% by 2029) indicate gradual diversification of energy balance, yet they suffer from differences in definitions and planning horizons which reduces their comparability.

**Figure 1. Reduction of greenhouse gas emissions in planning documents**

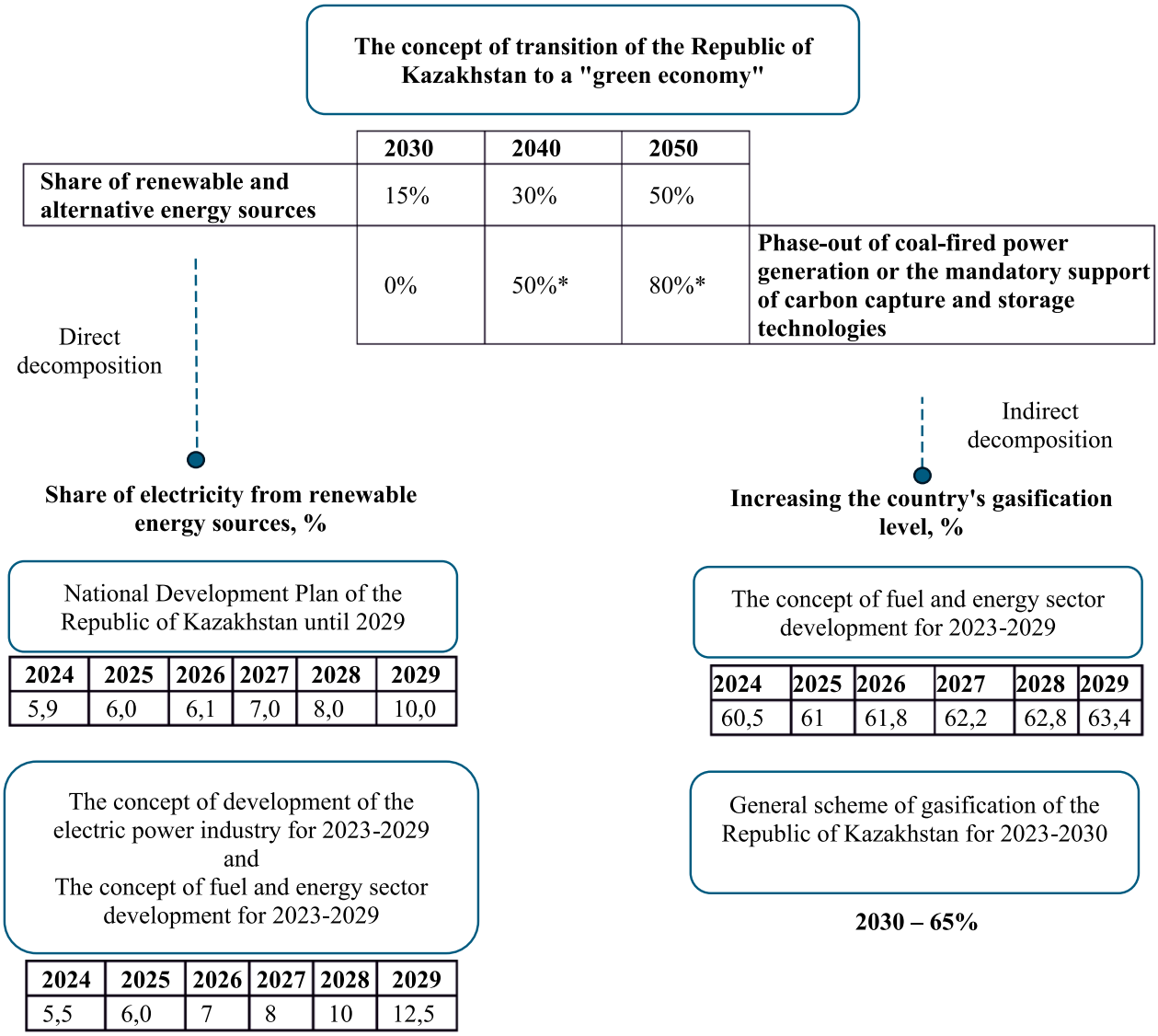



*Note: developed by the author of the study*

In the energy efficiency and energy saving sector a set of targets is also established, but their decomposition through planning documents is accompanied by a lack of alignment in metrics (relative, absolute and sector specific), which weakens the possibility to verify the contribution of sectoral progress to a national goal. Furthermore, the targets of reducing energy intensity in industry and energy sectors by 10% and 5% (by 2029 from 2021 level) respectively reflect positive trend, but remain modest given the still high baseline intensity.

While there is a target for reduction of industrial energy intensity in energy saving documents, the sector specific documents tend to focus on production growth. This indicates that climate agenda remains a secondary priority. Similarly, in agriculture the climate agenda is presented mainly indirectly with policy priorities focused on food security and production growth as well. As a result, it is difficult to assess effectiveness of climate policy inclusion and consistency in these sectors.

**Figure 2. The system of indirect industry indicators in the energy sector**




*Note: developed by the author of the study*

These results are consistent with Jahn (2024) findings, regarding that diluted importance of climate policy within a broader policy scope diminishes its effectiveness, as well as with arguments by Mickwitz et al. (2009) about challenges of climate policy integration across different sectors. Furthermore, the results refine the approach proposed by Adelle and Russel (2013). While they state that climate policy integration is more about focusing on narrow set of sectors, our research demonstrates that reliance on indicators without their systemic linkage restricts the ability to asses sectoral contribution.

Overall, the key limitation lies in structural inconsistency and uneven integration of targets across economic sectors and governance levels. This underscores the importance of comparability and traceability of indicators in achieving long term climate commitments.

**Figure 3. System of indirect industry indicators in the energy saving and energy efficiency sector**

**The concept of transition of the Republic of Kazakhstan to a "green economy"**

| Indicator | 2030 | 2040 | 2050 |
|---|---|---|---|
| Reducing the energy intensity of GDP from the level of 2021 | 15% | 25% | 35% |

**National Development Plan of the Republic of Kazakhstan until 2029**

| indicator | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
|---|---|---|---|---|---|---|
| Energy intensity of GDP, tons of oil equivalent /thousand US dollars in 2015 prices | 0,315 | 0,307 | 0,299 | 0,291 | 0,284 | 0,276 |

**The concept of development of energy saving and energy efficiency improvement for 2023-2029**

| Indicator | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | |
|---|---|---|---|---|---|---|---|
| Reducing the energy intensity of industry from the level of 2021, % | 2,86 | 4,29 | 5,71 | 7,14 | 8,57 | 10 | |
| Reducing the energy intensity of the energy sector from the level of 2021, % | 1,428 | 2,143 | 2,857 | 3,571 | 4,285 | 5 | |
| Reduction of energy consumption per room area from the level of 2021, % | 2,86 | 4,29 | 5,71 | 7,14 | 8,57 | 10 | **The concept of fuel and energy sector development for 2023-2029** |
| Reduction of energy consumption per capita from the level of 2021, % | 1,428 | 2,143 | 2,857 | 3,571 | 4,285 | 5 | |

*Note: developed by the author of the study*

## CONCLUSION

The results of the study reveal that current system of strategic planning do not fully support consistent integration of climate goals into policy documents. Despite the inclusion of climate objectives into top level documents, their translation into sectoral documents varies from direct implementation to partial and indirect integration, demonstrating the lack of a uniform methodological approach. These findings are consistent with hypothesis that insufficient disaggregation of climate objectives in policy documents restricts the coherence of their integration within state planning system.

The analysis indicates further key major constraints. First, the integration of decarbonization goals is characterized by weak intersectional coordination. Second, industry-specific policies are focused mostly on indirect indicators, which only partially demonstrate their efforts in GHG emissions reduction. Third, some high-emission sectors such as agriculture remain to be insufficiently integrated in climate policy framework.

The scientific importance of this work lies in the development of the decomposition and matrix-based approaches to analyze policy documents, which allows to identify and classify direct and indirect climate policy

indicators. This methodology provides a systematic basis to assess the extent of integration between strategic climate objectives and sectoral targets.

From a policy perspective, the results reveal the necessity to enhance intersectoral coordination, strengthen alignment between top level and sectoral documents, develop a methodology for assessing the impact of indirect indicators on the achievement of country goals for reducing greenhouse gas emissions.

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## ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ЖОСПАРЛАУ ЖҮЙЕСІНЕ КЛИМАТТЫҚ МАҚСАТТАРДЫ ИНТЕГРАЦИЯЛАУ

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**Аңдатпа**

Мақалада мемлекеттік жоспарлау жүйесінің құжаттары және басқа да жоспарлау құжаттары олардың Қазақстан Республикасының декарбонизация мақсаттарымен байланысына қатысты қарастырылған. Мақала мақсатына қол жеткізу үшін стратегиялық және бағдарламалық құжаттардың мәтіндерін сапалы мазмұнды талдау және аналитикалық салыстыру әдістері, сондай-ақ сандық деректерді динамикалық және салыстырмалы талдау әдістері қолданылды. Жоғары деңгейдегі құжаттар, салааралық және салалық тұжырымдамалар, мемлекеттік органдардың даму жоспарлары декарбонизацияға қатысты тікелей немесе жанама шаралардың, саясаттардың немесе көрсеткіштердің бар болуына байланысты зерделенді. Талдау нәтижелері жоғары деңгейдегі құжаттар төменгі құжаттарда парниктік газдар шығарындыларын азайту саясатын одан әрі егжей-тегжейлі көрсету үшін қажетті стратегиялық негізді қамтамасыз ететінін көрсетеді. Дегенмен, кейбір салалық құжаттар декарбонизация мақсаттарына дәйекті сілтеме бермейді. Көр-

сеткіштердің тікелей декомпозициясы Экология және табиғи ресурстар министрлігінің даму жоспарында көрсетілген. Жанама көрсеткіштер энергетика, энергия үнемдеу және энергия тиімділігі салаларында қарастырылған. Талдау негізінде матрицалар түрінде тура және жанама көрсеткіштердің декомпозициялық архитектурасы жасалды. Алдағы жоспарлы кезеңге арналған құжаттарда салааралық үйлестіруді күшейту және декарбонизация көрсеткіштері мен құралдарын егжей-тегжейлі көрсету қажеттілігі туралы қорытынды шығарылды.

**Түйін сөздер:** парниктік газдар; мемлекеттік реттеу; климаттық саясат; стратегиялық жоспарлау; индикаторлардың декмопозициясы.

## ИНТЕГРАЦИЯ КЛИМАТИЧЕСКИХ ЦЕЛЕЙ В СИСТЕМУ ПЛАНИРОВАНИЯ РЕСПУБЛИКИ КАЗАХСТАН

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**Аннотация**
В статье рассмотрены документы системы государственного планирования и иные документы планирования на предмет их увязки с целями Республики Казахстан по декарбонизации. Для достижения цели использовались методы качественного контент-анализа и аналитического сопоставления текстов стратегических и программных документов, а также методы динамического и сравнительного анализа количественных данных. На предмет содержания прямых или косвенных мер, политик или индикаторов по декарбонизации проанализированы документы верхнего уровня, отраслевые и смежные концепции, планы развития государственных органов. Итоги анализа показали, что документами верхнего уровня предусмотрена необходимая стратегическая основа для дальнейшей детализации политики по снижению выбросов парниковых газов в нижестоящих документах. Несмотря на это не во всех отраслевых документах осуществлена качественная привязка к целям по декарбонизации. Прямая декомпозиция отражена в Плане развития Министерства экологии и природных ресурсов. Косвенные показатели проработаны в секторах энергетики, энергосбережения и энергоэффективности. По итогам анализа составлена архитектура декомпозиции прямых и косвенных индикаторов в виде соответствующих матриц. Сделан вывод о необходимости усиления межотраслевой координации и детализации индикаторов и инструментов по декарбонизации в документах следующего планового периода.

**Ключевые слова:** парниковые газы; государственное регулирование; климатическая политика; стратегическое планирование; декомпозиция индикаторов.