Report on NDC tracking Indicators and data gaps for the Energy Sector of Kyrgyzstan

UN environment programme | copenhagen climate centre

Ministry of Resources, Ecology and Technical Supervision of the Kyrgyz Republic

ICAT Initiative for Climate Action Transparency

Initiative for Climate Action Transparency (ICAT)

Result name

Deliverable Del 10: Reports on NDC tracking indicators and data gaps for the energy sector

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DISCLAIMER

PREPARED FOR

The Initiative for Climate Action Transparency (ICAT), supported by Austria, Canada, Germany, Ireland, Italy, and the Children's Investment Fund Foundation.

ICAT is hosted by the United Nations Office for Project Services (UNOPS)

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Introduction

The Nationally Determined Contribution (NDC) submitted by Kyrgyzstan represents an action plan to combat climate change and contributes to global efforts to reduce greenhouse gas (GHG) emissions. It sets the direction for a low-carbon economic transformation through 2030, taking into account national priorities and the Sustainable Development Goals. The Kyrgyz Republic recognizes the importance of adopting a Low-Carbon Development Strategy and a National Adaptation Policy.

Decision 18/CMA.1 of the Paris Agreement notes that each Party shall determine the indicator(s) it has chosen to monitor progress in implementing and achieving its LOI in accordance with Article 4. The indicators shall be consistent with the Party's LOI in accordance with Article 4 and may be either qualitative or quantitative.[1]The information needed to monitor progress in implementing and achieving the nationally determined contribution under Article 4 of the Paris Agreement is contained in Section C, paragraphs 56–79.

Common goal Kyrgyzstan's climate change mitigation target is an unconditional reduction of greenhouse gas emissions by 16.63% by 2025 and by 15.97% by 2030 under the Business as Usual (BAU) scenario "with measures" (WM). With international support, greenhouse gas emissions will be reduced by 36.61% by 2025 and by 43.62% by 2030 under the BAU scenario "with additional measures" (WAM).

1. Indicators and goals

The following definitions are used in this study:

- **Target:** A specific target or commitment set out in an NDC, usually expressed as a quantitative outcome within a specified timeframe (e.g., "reduce emissions by % by 2030"). It represents the final outcome that the country aims to achieve.
- **Indicator:** a metric or parameter used to measure progress toward a goal.

1.1. Kyrgyzstan's NDC Country Indicators

The main **country indicator of the NDC** of the Kyrgyz Republic for mitigation is "**net GHG emissions**" in the metric "kt CO2e".

- Before the Paris Agreement, data collection on this indicator in Kyrgyzstan was carried out in cycles every 5 years during the periods of National GHG Inventories (NGI) for the preparation of National Communications, and after the ratification of the agreement, NGI is carried out every 2 years.
- The methodology for calculating the values of the country indicator is the 2006 IPCC

[1]https://unfccc.int/resource/tet/0/00mpg.pdf

Guidelines for National GHG Inventories.

Along with the country indicator for tracking NDC progress, Kyrgyzstan also has sectoral indicators that are designed to track the main NDC indicators of the Kyrgyz Republic:

1. GHG emissions by source category in the Energy sector (including transport)
2. GHG emissions by source category in the PPPU sector
3. Emissions by source category in the Agriculture sector
4. GHG emissions by source categories in the Waste
5. GHG absorption by waste categories in the LULUCF sector.

The annual sum of the emission and removal values of all these sources and sink categories yields the annual value of the net GHG emissions indicator.

Thus, the assessment of NDC progress is based on and follows the results of the NGI using activity data, including data on mitigation policies and measures and default emission factors from the 2006 IPCC Guidelines.

The basis of the internal performance data tracking system for the NGI is the developed NDC Implementation Plan includes a range of measures and policies and a corresponding set of indicators and targets.

Responsible institutions for the country NDC indicator of Kyrgyzstan.

In accordance with the Law of the Kyrgyz Republic "On State Regulation and Policy in the Field of Greenhouse Gas Emissions and Absorption", **the Ministry of Natural Resources, Ecology and Technical Supervision (MNRETS) of the Kyrgyz Republic is the responsible government body for the UNFCCC and is responsible for conducting the national greenhouse gas inventory (NGI**) and maintaining the National Inventory of GHG emissions and absorption, attracting relevant national and international expertise.[2]

The NDC was developed under the coordination of the Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic (formerly the State Committee on Ecology and Climate).

To coordinate the development of national climate policy documents and ensure the involvement of all stakeholders in the country, **a Coordination Council on Climate Change, Environment, and Sustainable Development was established at the Cabinet of Ministers of the Kyrgyz Republic, chaired by the Prime Minister of the Kyrgyz Republic.** This body reviews and approves national documents of the Kyrgyz Republic for submission to the UNFCCC Secretariat. By decision of this Coordination Council, NDC 2.0 of the Kyrgyz Republic was adopted on September 27, 2021.

Until now, Kyrgyzstan has been conducting NIGPs and developing NDCs with international support from the UNFCCC financial mechanism. The Global Environment Facility (GEF) provided financial resources to Kyrgyzstan through its partner organizations, UNDP and UNEP, which acted as implementing agencies for these projects. Since the process of conducting NIGPs, compiling a GHG emission and removal inventory, and developing NDCs in the Kyrgyz Republic is project-based, it involves a competitive recruitment process for a GHG inventory project team at the beginning of each NIGP and NDC round.

Thus, the Aarhus Centre with a group of sector experts was engaged through a competitive selection process to conduct the NIPG, compile the National Inventory of Greenhouse Gas

[2]Law of the Kyrgyz Republic “On state regulation and policy in the field of emission and absorption of greenhouse gases” dated May 25, 2007 No. 71.

Emissions and Removals and the NDC.

Aarhus Centre In accordance with the 2006 IPCC methodology, it collects data, compiles emissions and removals inventories by gas and source, and converts emissions into CO2-equivalent. It projects future greenhouse gas emissions based on scenarios. It calculates greenhouse gas emission reductions for implemented and planned NDC measures. It prepares project progress reports on NIGS and NDCs.

Data sources for country and sectoral indicators

Coordination and collection of data from the departments and organizations listed below is carried out by the MNRETS and is aimed at achieving the country's NDC target.

The main sources (suppliers) of data for the NIPG and NDC are the following government bodies:

1.**National Statistical Committee**[3], which provides inter-industry data and data on the fuel and energy complex, on the country's fuel and energy balance, and participates in the process of ensuring the quality of reporting on the progress of the NDC project.

2.**Ministry of Energy**[4], which provides data on energy activities, including those of private energy companies, is involved in the quality assurance process for reporting on the progress of the NDC project.

3. **The mayor's offices of the cities of Bishkek and Osh and their municipal enterprises, local governments in the regions**, which provide data on energy efficiency, reduction of coal consumption, transition to gas heating and renewable energy sources, solid waste and wastewater management within their administrative territories.

4. **Ministry of Architecture, Construction and Housing and Public Utilities**,[5]which provides data on energy-efficient construction and urban infrastructure adaptation. It provides information on the achievement of NDC progress indicators and participates in the reporting quality assurance process.

5.**Ministry of Transport and Communications**[6], which provides data on activities in the transport sector. It provides information on the achievement of NDC Implementation Plan indicators and participates in the process of ensuring the quality of reporting on NDC progress.

6.**Ministry of Water Resources, Agriculture and Processing Industry**[7], which provides data on forestry and disaster risk management adaptation measures (DRM). It provides information on the achievement of NDC indicators and participates in the process of quality assurance of NDC progress reporting.

7.**State Customs Service of the Ministry of Finance**,[8]which provides data on the import of fuel and energy products and equipment containing F-gases. It is responsible for reducing and phasing out HFC imports.

7. **Private companies** implementing GHG reduction measures within the NDCs provide information on the achievement of NDC performance indicators.

8. In the absence of national data, **international sources** were used (World Bank open data, FAOSTAT, EUROSTAT, IEA, etc.).

[3]https://stat.gov.kg/ru/
[4]https://minenergo.gov.kg/ru
[5]https://minstroy.gov.kg/
[6]https://mtd.gov.kg/glavnaya/
[7]https://agro.gov.kg/
[8]https://www.customs.gov.kg/site/ru/master/customskg

Data collection methodology according to national and sectoral indicators

The data collection process was carried out through the exchange of official letters with the organizations holding the information, which were prepared by inventory experts and sent out by the national focal point of the UNFCCC – the Ministry of Natural Resources, Ecology and Technical Supervision (MNRETS) of the Kyrgyz Republic.

Methodology for calculating sectoral indicator values

In Kyrgyzstan, the NGI was conducted and the National Inventory was prepared based on the **2006 IPCC Guidelines** for National GHG Inventories and using **IPCC software version 2.97**, including analysis of key categories, uncertainties and trend identification.

Tier 1 methods were used to estimate GHG emissions in all sectors, using the standard default emission factors of the 2006 IPCC Guidelines, as national factors have not yet been developed. Activity data were obtained from national sources, international organizations, and other literature identified for each sector. Where data were unavailable, indirect data, splicing, interpolation, extrapolation, and expert judgment were used.

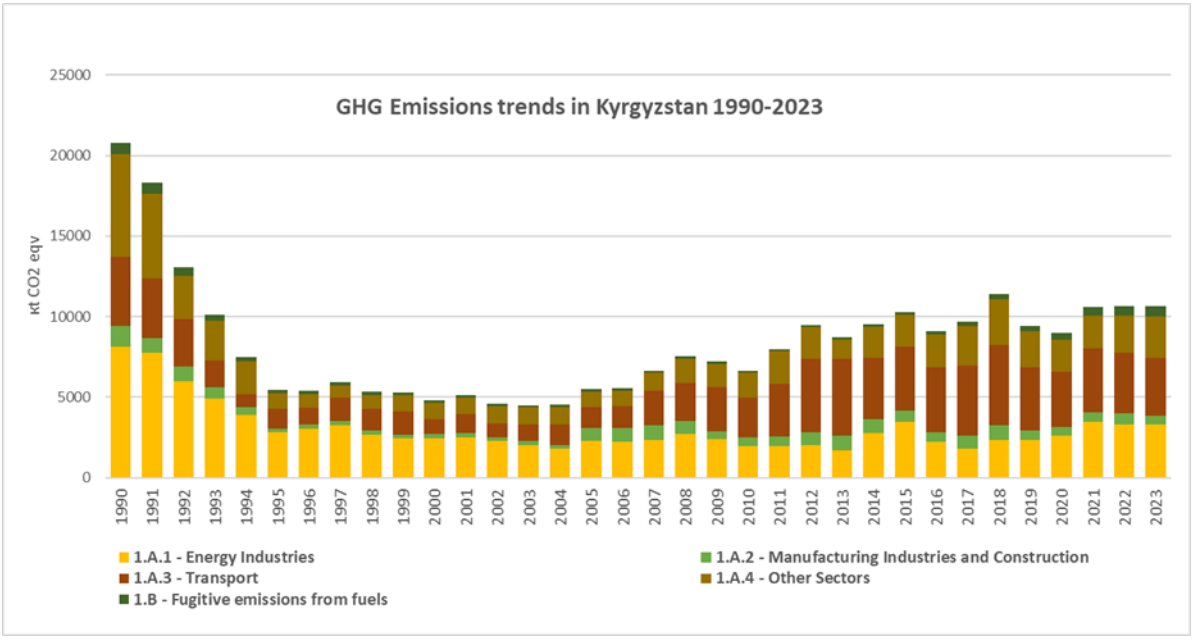

Figure 1: Greenhouse gas emissions in the energy sector. Inventory 1990-2023.

Frequency of data collection for national and sectoral indicators

The data collection frequency for the national and sectoral indicators coincides with the cycles of the National Greenhouse Gas Inventory in Kyrgyzstan and is held every two years.[9] This

[9]https://mnr.gov.kg/ru

process involves collecting data and compiling national greenhouse gas emissions reports. The greenhouse gas inventory covers the year 2023 with a time series for 2021-2022 and a 1990 baseline. The emissions inventory covers the entire period 1990-2022 with a one-year time interval.

It is possible that the subsequent legitimization of the national NGI system for monitoring **NDC Implementation Plans will be carried out, which will be updated every five years t**aking into account the capabilities of each country. The NGI and, accordingly, the collection of data on country and sectoral indicators will be carried out annually.[10] Currently, the NDC 3.0 of Kyrgyzstan is being approved by the Government of the Kyrgyz Republic and covers the period from 2025 to 2030, 2035.

Problems with data collection

During the inventory of greenhouse gases in the Energy sector, a lack of data from the National Statistics Committee was noted for the following categories:

- "1.A.4.c. Agriculture/Forestry/Fisheries (CRT 1.A.4.c.)

This category should represent all fuel consumption in "Agriculture, Forestry, and Fisheries." However, this category only presents fuel consumption for the "Stationary" subcategory 1.A.4.ci as a source of GHG in this sector. There is insufficient data for mobile fuel consumption in Kyrgyzstan in this sector, as it is not collected, so these volumes are included in the "Transport" sector.

- Solid Fuel (1.B.1)

In this category, CH4 emissions from abandoned coal mines and quarries were not estimated due to lack of necessary data, since they are not collected. It should be noted that information on disaggregation by type of coal production (quarry/mine) is not provided by the NSC, and therefore additional requests were sent to the relevant departments.

Processing, documentation and archiving of data on country and sectoral indicators

The Aarhus Centre's expert group, in accordance with the IPCC 2006 methodology, processes data obtained with the support of the Ministry of Natural Resources, Ecology and Technical Supervision (MNRETS). It prepares reports on the progress of NDC implementation. These reports are submitted to the MNRETS for appropriate documentation and archiving of country- and sector-specific indicator data.

1.2. NDC sectoral target and energy indicators

Sectoral target In the Energy sector, the NDC target (see Appendix 1) also includes a 13.38% reduction in GHG emissions by 2025 and a 12.76% reduction by 2030 in the Business as Usual (BAU) "with measures" (WM) scenario. With international support, GHG emissions would be reduced by 19.49% by 2025 and by 27.63% by 2030 in the BAU "with additional measures" (WAM) scenario. To track NDCs within the Energy sector, sectoral target indicators were developed to determine the sector's potential contribution to GHG emission reductions and quantify them.

[10]https://www.un.org/ru/climatechange/all-about-ndcs#:~:text=%D0%9E%D0%9D%D0%A3%D0%92%20%D0%BA%D0%B0%D0%B6%D0%B4%D0%BE%D0%B9%20%D1%81%D1%82%D1%80%D0%B0%D0%BD%D1%8B%20%D0%BE%D0%BF%D0%B8%D1%81%D1%8B%D0%B2%D0%B0%D0%B5%D1%82%20%D0%BC%D0%B5%D1%80%D1%8B,%D0%B4%D0%BB%D1%8F%20%D0%BB%D1%8E%D0%B4%D0%B5%D0%B9%20%D0%B2%D0%BE%20%D0%B2%D1%81%D0%B5%D0%BC%20%D0%BC%D0%B8%D1%80%D0%B5.

For the Energy sector, a sectoral indicator, Greenhouse Gas Emissions, was defined for all source categories.

Responsible institutions for the sectoral indicator

Since the energy sector accounts for about 60% of all greenhouse gas emissions in the country.[11] , then the main bodies are the relevant departments responsible for implementing policies and specific measures in the Energy sector to achieve sectoral goals. These are primarily:

- **Ministry of Energy of the Kyrgyz Republic**.[12]

Implements and coordinates NDC mitigation measures in the sector, engaging all energy market participants in the country, including private energy companies. Provides information on the achievement of NDC mitigation and adaptation indicators. Also participates in the quality assurance process for reporting on the NDC project's progress.

- **Ministry of Architecture, Construction and Housing and Communal Services**.[13]

Implements and coordinates mitigation measures for energy-efficient construction and adaptation of urban infrastructure. Provides information on the achievement of NDC progress indicators. Participates in the reporting quality assurance process.

- **Mayor's offices of the cities of Bishkek and Osh and their municipal enterprises, local governments in the regions**.

Implements and coordinates climate change mitigation measures in the areas of energy efficiency, coal consumption reduction, transition to gas heating and renewable energy, and solid waste and wastewater management within their administrative territories. Provides information on the achievement of NDC progress indicators. Participates in the quality assurance process for reporting on the NDC project's implementation.

- **National Statistical Committee**

Provides inter-industry data and data on the fuel and energy complex, on the country's fuel and energy balance, and participates in the process of ensuring the quality of reporting on the progress of the NDC project.

- **Private enterprises.**

Implement measures to reduce GHG emissions within the framework of NDCs and provide information on the achievement of NDC performance indicators.

The activities of the above-mentioned departments and organizations are coordinated by the MNRETS and Ministry of Energy and are aimed at achieving the sectoral goal of the NDC in the Energy sector.

Data sources

The source of data for the Energy sector indicator is:

- Ministry of Energy of the Kyrgyz Republic.
- Ministry of Architecture, Construction and Housing and Communal Services.
- Mayor's offices of the cities of Bishkek and Osh and their municipal enterprises, local

[11]https://unfccc.int/sites/default/files/NDC/2022-06/%D0%9E%D0%9D%D0%A3%D0%92%20ENG%20%D0%BE%D1%82%2008102021.pdf
[12]https://minenergo.gov.kg/ru
[13]https://minstroy.gov.kg/

governments in the regions.

- Private enterprises.
- Research institutes and universities.

The activities of the above-mentioned departments and organizations in collecting information are also coordinated by the MNRETS and Ministry of Energy and are aimed at achieving the sectoral goal of the NDC in the Energy sector.

Data collection methodology

The data collection process was carried out through the exchange of official letters with the organizations holding the information, which were prepared by inventory experts and sent out by the national focal point of the UNFCCC – the Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic.

Periodicity and gaps in data

Nationally Determined Contributions (NDCs) are national climate action plans developed by each country under the Paris Agreement. Under the Paris Agreement, NDCs are updated every five years to reflect increasingly ambitious targets and each country's capabilities. Accordingly, the NDC sectoral target and the Energy sectoral indicator, as part of a country's NDC, are updated every five years.

The gaps in the NGI data are consistent with those noted earlier for the energy sector.

Processing, documentation and archiving of data on country and sectoral indicators

The Aarhus Centre's expert group, in accordance with the IPCC 2006 methodology, processes data obtained with the support of the Ministry of National Ecological and Technical Regulation and Emissions (MEETR). It prepares reports on the progress of NDC implementation. These reports are submitted to the MEETR for appropriate documentation and archiving of country- and sector-specific indicator data.

1.3. Indicators for tracking progress in implementing specific policies and measures

This type of indicators is "**Intra-sector indicators**" which are defined in the NDC Implementation Plan.

The selection of indicators and metrics is consistent with policy, stakeholder needs, data availability, and cost of data collection.

Typically, internal indicators are described by quantitative indicators, for example, for NDC 2 Kyrgyzstan the following performance indicators can be identified:

- Coal consumption in households (tons per year)

- Coal consumption in boiler houses (tons per year)
- Energy consumption in buildings (kWh per square meter per year)
- Installed capacity (hydroelectric power plants, wind power plants and photovoltaic station); (MW)
- Volume of biogas plant reactors; (cubic meters)
- Number and capacity of heat pumps in households and public buildings; (MW, pcs.)
- Energy losses in electric and heating networks during energy supply; (kWh and Gcal)
- Area of multi-apartment residential buildings constructed according to new building codes and regulations SNIP (sq.m.)
- Electricity consumption in heating networks during energy distribution; (kWh)

Sources of intra-industry indicators

Collecting data and indicator parameters is a crucial step in monitoring progress in implementing climate change mitigation measures in the energy sector. The final indicator for each measure is the reduction in greenhouse gas emissions resulting from its implementation over a specified period, which contributes to achieving the sectoral NDC indicator for Energy.

Collection methodology

The data collection process was carried out through the exchange of official letters with the organizations holding the information, which were prepared by inventory experts and sent out by the national focal point of the UNFCCC – the Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic.

Periodicity and gaps in data

Data on internal indicators are provided by relevant ministries, departments, local government bodies (city halls, etc.), as well as organizations involved in the implementation of planned measures to mitigate the effects of climate change in the energy sector, once at the end of each year at the request of the Ministry. natural resources, ecology and technical supervision.

Typically, data is provided, but in some cases, indicators are provided in a generalized format, and experts perform the necessary disaggregation by integrating additional information from open sources. More detailed information is provided in the description of each measure below.

Processing, documentation and archiving of data on country and sectoral indicators

The Aarhus Centre's expert group, in accordance with the IPCC 2006 methodology, processes data obtained with the support of the Ministry of National Ecological and Technical Supervision (MNRETS). It prepares reports on the progress of NDC implementation. These reports are submitted to the MNRETS for appropriate documentation and archiving of country- and sector-specific indicator data.

Problems with collecting data on these indicators

Kyrgyzstan has not yet established an institutional system for collecting and processing data for indicators and tracking progress.in the implementation of climate change mitigation measures. The creation of such a system is planned for the coming years. Therefore, responsibility for providing data has been assigned to relevant ministries, agencies, local government bodies (city mayors' offices, etc.), as well as organizations involved in implementing planned climate change mitigation measures in the energy sector.

Currently, data analysis is being conducted by a team of experts from the Aarhus Centre, as part of projects supported by international organizations (UNDP, UNEP, GEF, and others). It is planned that trained specialists from authorized bodies will be involved in ongoing data analysis and collection in the future.

The NDC implementation plan defines the activities for their implementation, as well as the responsible implementers—ministries, agencies, and departments of Kyrgyzstan. They are also responsible for collecting and reporting data for each indicator. All data is transferred to experts for analysis and then to the Ministry of Natural Resources, Environment and Technical Supervision, which is the coordinating body for NDC monitoring.

Intra-sectoral NDC indicators 3

It should be noted that as part of the development of NDC 3.0, climate change mitigation measures in Kyrgyzstan may be revised, since the previous NDC failed to mobilize external support for measures under the WAM scenario.

Below are the intra-sector indicators for tracking NDC 2 presented in the format of Tables 1 and 2.

No. Measures	Policies and measures	Indicators for tracking progress	Target indicators	Implementation period, years	Expected reduction, kt CO2-eq.
Policy 1. Reducing greenhouse gas emissions in the energy sector					
With measures (WM)					
Task 1.1. Improving the energy efficiency of new buildings and households					
1.1.1.	Construction of new apartment buildings according to energy-efficient building codes	square meters of housing	1,165,055 thousand square meters per year	2021-2030	In 2025 – 38,025 In 2030 – 44,976
Task 1.2. Reducing coal consumption through gasification of households and boiler houses.					
1.2.1.	Implementation of Gazprom Kyrgyzstan projects for gasification of the population	*% of household gasification in the country*	2020 – 33% 2025 – 44% 2030 – 60%	2021-2030	In 2025 – 810,847 In 2030 – 1135.186
Task 1.3 Development of hydropower					
1.3.1.	Increasing the capacity of existing hydroelectric power plants	Capacity of existing hydroelectric power plants	360 MW.	2021-2030	In 2025 – 108,719 In 2030 -108,719
1.3.2.	Electricity generation at existing private small hydroelectric power plants	Total capacity of existing private small hydroelectric power plants	84.46 MW.	2021-2030	In 2025 - 22,956 In 2030 – 22,956
1.3.3.	Construction and launch of new small hydroelectric power plants	Capacity of newly built and commissioned small hydroelectric power plants	100 MW	2021-2030	In 2025 – 0 In 2030 – 29,167

No. Measures	Policies and measures	Indicators for tracking progress	Target indicators	Implementation period, years	Expected reduction, kt CO2-eq.
1.3.4.	Reduction of losses in the national power grid (transmission)	Total annual electricity transmission losses	4.7%	2021-2030	In 2025 9280 In 2030 - 9280
Task 1.4. Reducing electricity losses during distribution					
1.4.1.	Reducing electricity losses in the national grid (distribution)	Electricity distribution losses per year	9-10%	2021-2030	In 2025 10,763 In 2030 - 30,275
Task 1.5. Improving the heating systems of Bishkek					
1.5.1.	Modernization of heating systems to improve energy efficiency	Reduction in electricity consumption for heating in Bishkek over the year	24-25%	2021-2030	In 2025 – 3754 In 2030 – 3754
1.5.2.	Modernization of heating networks to improve energy efficiency. SM	Reducing electricity consumption by heating network pumps	33%	2021-2030	In 2025 – 0.571 In 2030 – 0.571

Table 1. Internal indicators in the NDC-with measures (WM) scenario

No. Measures	Policies and measures	Indicators	Target indicators	Implementation period, years	Expected reduction, kt CO2-eq.
Policy 1. Reducing greenhouse gas emissions in the energy sector					
WITH additional measures (WAM)					
Task 1.6 Improving the energy efficiency of existing buildings and households					
1.6.1.	Expanding the installation of energy-efficient coal stoves in households	Number of energy-efficient stove installations in households	127 thousand units per year	2021-2030	In 2025 – 177,914 In 2030 – 1,067,484
1.6.2.	Increasing the energy efficiency of small boiler houses by replacing coal boilers with gas boilers	Number of small boiler houses converted to gas	48 boiler houses BTE, 136 public and private boiler houses, pcs.	2021-2030	In 2025 – 198,167 In 2030 – 236,464
1.6.3.	Improving the energy efficiency of existing buildings	square meters of public buildings	1000,161 thousand	2021-2030	In 2025 – 0 In 2030 – 10,868
Task 1.7. Development of renewable energy sources					
1.7.1	Installation and operation of biogas plants (BGP) in Kyrgyzstan	Total capacity of biogas reactors in agricultural regions	15 thousand m3	2021-2030	In 2025 – 3785.217 In 2030 – 4,346,861
1.7.5.	Expanding the use of solar thermal collectors for hot water supply.	Total capacity of installations	50 MW.	2021-2030	In 2025 – 0 In 2030 – 78,400
		Number of flat-plate collectors	Install 35,715 flat-plate collectors		
1.7.6.	Development of solar energy.	Solar power plants with total installed capacity	300 MW.	2021-2030	In 2025 – 0 In 2030 – 13,000
1.7.7	Expansion of the use of geothermal energy (installation of heat pumps).	Total capacity of heat pump units Number of heat pumps	50.00 MW. 2 thousand heat pumps, 25 kW each.	2021-2030	In 2025 – 0 In 2030 – 38,590
1.7.8	Implementation of the wind farm project of JSC	Total capacity of installations	600 MW.	2021-2030	In 2025 – 0 In 2030 – 3594

No. Measures	Policies and measures	Indicators	Target indicators	Implementation period, years	Expected reduction, kt CO2-eq.
	"Kyrgyz Wind Systems" (wind energy).				
Task 1.8 Development of large-scale hydropower					
1.8.1.	Construction of new hydroelectric power plants / Upper Naryn Cascade.	Capacity of hydroelectric power plants built since 2021	237.7 MW.	2021-2030	In 2025 – 0 In 2030 – 64,606

1.4. Evaluation of the results of using intra-industry indicators.

To assess and track the implementation results of individual measures through 2025, data on the internal indicators of these measures was collected. An analysis and calculation of greenhouse gas emission reductions at this stage were conducted. The results were compared with the planned indicators for each indicator for 2025.

It should be noted that the assessment was conducted as part of a greenhouse gas emissions inventory for the period 1990–2023, and the NDC achievement assessment values were also obtained for this period. If NDC implementation were sustained, it was assumed that these targets would be achieved by 2025.

As part of NDC stakeholder discussions, it was decided to apply the following traceability assessment levels:

• “Achieved” — when the target indicator at the time of taking the measure is achieved and the internal greenhouse gas emission reduction indicator at the time of taking the measure is consistent with the energy plans of the National Energy Resources Control Center;

• “Partially achieved” - when the target indicator for the measure is not achieved and the internal indicator of the volume of greenhouse gas emission reductions for the measure does not correspond to the NDC energy plans, but intermediate indicators for the activities within the measure have been recorded;

• “Not achieved” — when the target indicator for the measure is not achieved and the internal indicator of the volume of greenhouse gas emission reductions for the measure does not correspond to the NDC energy plans and no activities for the measure were carried out;

The results of this assessment approach applied to Kyrgyzstan’s NDC 2.0 measures in the energy sector are presented below in Tables 3 and 4.

No. Measures	Policies and measures	Indicators	Target indicators	Implementation period, years	Expected reduction, kt CO2-eq.	Progress Assessment (2023)		Grade
						Target indicators	NDC Mitigation Indicators, kt CO2-eq.	- Achieved -Not achieved -Partially
Policy 1. Reducing greenhouse gas emissions in the energy sector								
With measures (WM)								
Task 1.1. Improving the energy efficiency of new buildings and households, taking into account the needs of vulnerable groups, including women.								
1.1.1.	Construction of new apartment buildings according to energy-efficient building codes	square meters of housing	1,165,055 thousand square meters per year	2021-2030	In 2025 – 38,025 In 2030 – 44,976	415,714	12:58	Partially
Task 1.2. Reducing coal consumption through gasification of households and boiler houses.								
1.2.1.	Implementation of Gazprom Kyrgyzstan projects for gasification of the population	*% of household gasification in the country*	2020 – 33% 2025 – 44% 2030 – 60%	2021-2030	In 2025 – 810,847 In 2030 – 1135.186	38%	341.41	Achieved*
Task 1.3 Development of hydropower								
1.3.1.	Increasing the capacity of existing hydroelectric power plants	Capacity of existing hydroelectric power plants	360 MW.	2021-2030	In 2025 – 108,719 In 2030 -108,719	4 MW	1.09	Partially
1.3.2.	Electricity generation at existing private small hydroelectric power plants	Total capacity of existing private small hydroelectric power plants	84.46 MW.	2021-2030	In 2025 - 22,956 In 2030 – 22,956	88 MW	22.95	Reached **
1.3.3.	Construction and launch of new small hydroelectric power plants	Capacity of newly built and commissioned small hydroelectric power plants	100 MW	2021-2030	In 2025 – 0 In 2030 – 29,167	Not installed	No rating	No rating
1.3.4.	Reduction of losses in the national power grid (transmission)	Total annual electricity transmission losses	4.7%	2021-2030	In 2025 - 9280 In 2030 - 9280	5.35%	5.33	Partially

No. Measures	Policies and measures	Indicators	Target indicators	Implementation period, years	Expected reduction, kt CO2-eq.	Progress Assessment (2023)		Grade
						Target indicators	NDC Mitigation Indicators, kt CO2-eq.	- Achieved -Not achieved -Partially
Task 1.4. Reducing electricity losses during distribution								
1.4.1.	Reducing electricity losses in the national grid (distribution)	Electricity distribution losses per year	9-10%	2021-2030	In 2025 10,763 In 2030 - 30,275	10.29%	10:45	Partially
Task 1.5. Improving the heating systems of Bishkek								
1.5.1.	Modernization of heating systems to improve energy efficiency	Reduction in electricity consumption for heating in Bishkek over the year	24-25%	2021-2030	In 2025 – 3754 In 2030 – 3754	25.7%	3.09	Partially
1.5.2.	Modernization of heating networks to improve energy efficiency. SM	Reducing electricity consumption by heating network pumps	33%	2021-2030	In 2025 – 0.571 In 2030 – 0.571	33%	0.57	Achieved

* According to Gazprom Kyrgyzstan, the gasification level for 2024 was 44%.

** According to the Ministry of Energy of the Kyrgyz Republic, small hydroelectric power plants with a total capacity of 88 MW will be commissioned by 2024.

Table 3: Assessment of the implementation of NDC mitigation measures in the WM scenario

No. Measures	Policies and measures	Indicators	Target indicators	Implementation period, years	Expected reduction, kt CO2-eq.	Progress Assessment (2023)		Grade
						Target indicators	Mitigation indicators, kt CO2-eq.	- Achieved -Not achieved -Partially
Policy 1. Reducing greenhouse gas emissions in the energy sector								
WITH additional measures (WAM)								
Task 1.6 Improving the energy efficiency of existing buildings and households, taking into account the needs of vulnerable groups								

No. Measures	Policies and measures	Indicators	Target indicators	Implementation period, years	Expected reduction, kt CO2-eq.	Progress Assessment (2023)		Grade
						Target indicators	Mitigation indicators, kt CO2-eq.	- Achieved -Not achieved -Partially
1.6.1.	Expanding the installation of energy-efficient coal stoves in households	Number of energy-efficient stove installations in households	127 thousand units per year	2021-2030	In 2025 – 177,914 In 2030 – 1,067,484	89 pcs.	0.12	Partially
1.6.2.	Increasing the energy efficiency of small boiler houses by replacing coal boilers with gas boilers	Number of small boiler houses converted to gas	48 boiler houses BTE, 136 public and private boiler houses, pcs.	2021-2030	In 2025 – 198,167 In 2030 – 236,464	19 BTE boiler houses and 36 private boiler houses	59.23	Partially
1.6.3.	Improving the energy efficiency of existing buildings	square meters of public buildings	1000,161 thousand	2021-2030	In 2025 – 0 In 2030 – 10,868	Not installed	No rating	No rating
Task 1.7. Development of renewable energy sources								
1.7.1	Installation and operation of biogas plants (BGP) in Kyrgyzstan	Total capacity of biogas reactors in agricultural regions	15 thousand m3	2021-2030	In 2025 – 3785.217 In 2030 – 4,346,861	Not installed	No rating	No achieved
1.7.5.	Expanding the use of solar thermal collectors for hot water supply.	Total capacity of installations	50 MW.	2021-2030	In 2025 – 0 In 2030 – 78,400	Not installed	No rating	No rating
		Number of flat-plate collectors	Install 35,715 flat-plate collectors			Not installed	No rating	No rating
1.7.6.	Development of solar energy.	Solar power plants with total installed capacity	300 MW.	2021-2030	In 2025 – 0 In 2030 – 13,000	Not installed	No rating	No rating
1.7.7	Expansion of the use of geothermal energy (installation of heat pumps).	Total capacity of heat pump units Number of heat pumps	50.00 MW. 2 thousand heat pumps, 25 kW each.	2021-2030	In 2025 – 0 In 2030 – 38,590	installed	No rating	No rating
1.7.8	Implementation of the wind farm project of JSC "Kyrgyz Wind Systems" (wind energy).	Total capacity of installations	600 MW.	2021-2030	In 2025 – 0 In 2030 – 3594	Not installed	No rating	No rating

No. Measures	Policies and measures	Indicators	Target indicators	Implementation period, years	Expected reduction, kt CO2-eq.	Progress Assessment (2023)		Grade
						Target indicators	Mitigation indicators, kt CO2-eq.	- Achieved -Not achieved -Partially
Task 1.8 Development of large-scale hydropower								
1.8.1.	Construction of new hydroelectric power plants / Upper Naryn Cascade.	Capacity of hydroelectric power plants built since 2021	237.7 MW.	2021-2030	In 2025 – 0 In 2030 – 64,606	Not installed	No rating	No rating

Table 4: Assessment of the implementation of NDC mitigation measures in the WAM scenario

2. Conclusions and Recommendations

2.1. Conclusions

Conclusions on country indicator and target of Kyrgyzstan's NDC.

The conducted analysis of the country indicator allows us to draw the following conclusions:

- **The main indicator** used to track progress toward achieving NDC targets is "net GHG emissions," which is consistent with IPCC reporting guidelines. This indicator directly measures greenhouse gas (GHG) emissions into the atmosphere, providing a quantitative metric for assessing Kyrgyzstan's climate mitigation efforts.
- **By choosing a target percentage reduction the net GHG** emissions metric, which measures the change in emissions in 2025 and 2030 compared to the baseline emissions trajectory under the no-action scenario, allows for monitoring national emissions trends. This ensures transparency in tracking progress and compliance with the Kyrgyz Republic's NDC commitments under the Paris Agreement.
- **This indicator is consistent with the IPCC methodology**, in which net GHG emissions serve as a benchmark for determining how well a country is meeting its climate change mitigation targets under the UNFCCC.
- Given that the **Kyrgyz Republic's net emissions reduction target** is expressed as a percentage relative to the baseline, using net GHG emissions as a tracking metric allows for comparison over time.
- **There are data gaps** to conduct a national statistical analysis for the "Solid Fuel" category (1.B.1). In this category, CH4 emissions from abandoned coal mines and quarries were not assessed due to a lack of data on the number of mines, as these are not collected. The national statistical system also lacks information disaggregated by coal production type (quarry/mine), necessitating additional research from open sources.
- Kyrgyzstan uses fuel combustion emission factors in accordance with IPCC 2006. **National emission factors have not yet been developed.**
- **Development of BAU forecasts** using linear regression to correlate data arrays, calculating correlations, calculating emission reductions for each NDC measure, generating emission reduction projections, and tracking indicators by measure to determine the magnitude of emission reductions at a given stage—all of these calculations and data analysis rely heavily on human error, as well as the qualifications and experience of the expert working with such a large volume of data. This situation is one of the obstacles to engaging mid-level specialists from responsible agencies in ongoing work on this topic. In the future, after building national expertise, Kyrgyzstan plans to transition to the use of widely used digital tools for projecting future GHG emissions.

Conclusions on the sectoral target and indicator

The conducted analysis of the sectoral target and the sectoral indicator of the energy sector, reflected in the NDC (see Appendix), allows us to conclude that, in general, they coincide with the conclusions on the country indicator and the NDC indicator, which are as follows:

- **The primary sectoral indicator for tracking progress** toward achieving NDC targets in the energy sector is "GHG Emissions," which is consistent with IPCC reporting guidelines. This indicator directly measures greenhouse gas (GHG) emissions into the atmosphere in the energy sector, providing a quantitative metric for assessing Kyrgyzstan's climate mitigation efforts.
- **There are data gaps** to conduct the National Statistics Committee (NSC) for the "Solid Fuel" category (1.B.1). In this category, CH4 emissions from abandoned coal mines and quarries were not assessed due to a lack of data on the number of mines, as they are not collected. The National Statistics Committee also lacks information on disaggregation by type of coal production (quarry/mine), so additional information must be collected from open sources.
- **Development of BAU forecasts for the energy sector** using linear regression to correlate data sets, calculating correlations, calculating emission reductions for each NDC measure, generating emission reduction projections, and tracking indicators by measure to determine the magnitude of emission reductions at a given stage—all of these calculations and data analysis rely heavily on human error, as well as the qualifications and experience of the expert working with such a large volume of data. This situation is one of the obstacles to engaging mid-level specialists from responsible agencies in ongoing work on this topic.

Conclusions on intra-industry indicators for tracking progress

The conducted analysis of internal indicators allows us to draw the following conclusions:

- **"Intra-industry indicators"** are used to track progress in implementing the mitigation measures included in the NDC Implementation Plan, which contributes to the achievement of the Energy NDC sectoral indicator.
- **Indicators and quantity/metrics correspond to the policy implemented by the measure**, the technology used and the fuel used (MW, kWh, tons, cubic meters, etc.)
- **Kyrgyzstan has not yet established an institutional system for collecting and processing data for indicators and tracking progress i**n implementing climate change mitigation measures, responsibility for providing data lies with relevant ministries, agencies, local governments (city halls, etc.), and organizations involved in implementing planned climate change mitigation measures in the energy sector. Therefore, data requested through the Ministry of Energy and the Environment is not always provided correctly and in the required format. The Ministry of Energy and the Environment also needs to build capacity and create a structure to continuously collect and analyze internal NDC indicators. This situation also applies to the Ministry of Energy, where climate issues are also not addressed on a regular basis.
- **Data gap** to track progress, the NSC has the following measures:
  1) *Measure 1.1.1. Construction of new buildings in accordance with energy-efficient building codes***. -**The National Construction Council does not provide separate data on the area of apartment buildings constructed according to the new SNiP standards; it provides general data on the area of constructed housing.
  2) *Measure 1.2.1. Reduction of coal consumption through gasification of households and boiler houses through the implementation of Gazprom Kyrgyzstan projects on gasification of households.* NSC does not have data on the number of households newly connected to gas.
  3) *Measure 1.6.2. Increasing the energy efficiency of small boiler houses by replacing coal boilers with gas boilers.* -NSC does not have data on the number of replaced boiler houses.
  4) *Measure 1.6.3. Improving the energy efficiency of existing buildings.* -The NSC does not have

data on the area of rehabilitated public buildings.

5) *Measure 1.7.5. Expanding the use of solar thermal collectors for hot water supply.* -NSC does not have data on the capacity and number of installed solar collectors.
6) *Measure 1.7.7 Expansion of the use of geothermal energy (installation of heat pumps).* -NSC does not have data on the capacity and number of installed heat pumps.

- Collecting data to track internal indicators of progress in implementing mitigation measures revealed a low level of technical capacity among specialists in agencies responsible for providing the necessary information.

2.2. Recommendations

Recommendations for the country indicator and target of the NDC for Kyrgyzstan.

- The Ministry of Natural Resources and Environmental Safety, as the agency responsible for conducting the National Institute of Geophysical Surveys, shall submit an official request to the National Statistical Committee of the Kyrgyz Republic and the State Enterprise Kyrgyzkomur to organize the ongoing collection of data:
  - on the number of abandoned coal mines and quarries on the territory of the republic, indicating their technical parameters;
  - by disaggregation of volumes by type of coal mined (quarry/mine).
  Use the obtained data in calculations to clarify the volumes of methane (CH4) emissions for the category "Solid fuel" (1.B.1).
- The Ministry of Energy and Environmental Protection shall develop an action plan for calculating national calorific value factors and emission factors from fuel combustion to improve the quality of GHG inventories in Kyrgyzstan.
- To overcome the barrier associated with developing the BAU forecast, the Ministry of Energy and Natural Resources of Kyrgyzstan will transition to the modern digital tool GACMO for calculating and constructing forecasts and scenarios for reducing greenhouse gas emissions in the energy sector.

Recommendations for sectoral target and indicator.

An analysis of the sectoral target and sectoral indicator for the energy sector reflected in the NDC (see Appendix) suggests that they are generally consistent with the findings for the country-specific target and NDC indicator. Therefore, the recommendations for this target are also consistent with those for the country-specific target and NDC indicator.

Recommendations for internal indicators to track progress.

The main problem with the gaps in internal data is that the primary implementing agency is the Ministry of Natural Resources, Environment, and Technical Supervision (MNRES). Meanwhile, the primary implementers of the NDC Plan are existing energy, construction, and municipal authorities in cities, etc., which are not directly linked to the MNRES. Therefore, it is recommended:

- Establish an institutional system in Kyrgyzstan for collecting and processing data for indicators and tracking progress in implementing climate change mitigation measures. This could be based on permanent units within the Ministry of Energy and Natural Resources responsible for

collecting, analyzing, and tracking progress in implementing mitigation measures in the energy sector.

- The Ministry of Energy and the Environment, as the agency responsible for conducting the Scientific and Information Survey, shall submit an official request to the National Statistical Committee of the Kyrgyz Republic, the Ministry of Energy, the Ministry of Construction, and other agencies involved to organize the ongoing collection of data:

  - data on the area of constructed apartment buildings, which were built according to the new SNiP;

  - data on the number of small coal boilers replaced with gas ones;

  - data on the area of rehabilitated public buildings for energy efficiency;

  - data on the capacity and number of installed solar panels collectors for hot water supply and heating;

  - data on the capacity and number of installed heat pumps;

- The Ministry of National Economy and Public Utilities (MNRETN) will submit a request to international organizations for technical support in resolving the issue of training and capacity building for local specialists in data collection for tracking indicators and their analysis, and the implementation of the GASMO tool in Kyrgyzstan, taking into account national aspects.

3. Selecting the NDC tracking tool (GACMO) to be used as the NDC tracking tool.

Developing a business-as-usual emissions scenario

The standard approach to developing the BAU scenario emissions projection and constructing it in Kyrgyzstan involves using correlation and regression analysis of NIPG data for the period 1990–2023 and data on the main development indicator—GDP per capita at purchasing power parity (PPP) in 2017 US dollars for the same period. Calculations and modeling of GDP changes at PPP are conducted using three scenarios: baseline (medium), optimistic (high), and pessimistic (low).

Next, based on the analysis results, linear regression equations are derived to correlate both data sets (NIPG and GDP) for the period from 1990 to 2023. A greenhouse gas emissions forecast is then constructed for the BAU scenario up to 2050 for the Energy sector, revealing a strong correlation with GDP growth in PPP per capita. A similar approach is used for other economic sectors.

Taking into account the planned mitigation measures of the NDC, calculations are performed for the With Measures (WM) and With Additional Measures (WAM) scenarios, and then projections of GHG emission reductions are constructed compared to the BAU scenario in the energy sector. (

Developing an Emissions Scenario with the GACMO Tool

Currently supported by UNEP-CCC[14]The use of the GACMO digital tool is being promoted. In this regard, a transition to the GACMO tool in Kyrgyzstan's energy sector is planned for calculating and constructing greenhouse gas emission reduction forecasts and scenarios for preparing and

[14] https://unepccc.org/gacmo-tool/

updating Nationally Determined Contributions (NDCs).

It should be noted that the analysis of the GACMO tool revealed the following areas of its application:

1. The GACMO tool can be used to develop baseline scenarios (BAU).

2. Construct forecasts of greenhouse gas emissions for the VNU under various measures.

3. GACMO can be used to assess the actual and planned impact on greenhouse gas emissions resulting from the implementation of policies and measures aimed at achieving NDCs. Thus, GACMO can also be used as a tool for tracking progress in implementing climate change mitigation measures.

4. Using the GACMO results to prepare the Biennial Transparency Report (BTR). To complete the Common Tabular Formats (CTF), which are an integral part of the BTR in accordance with the Paris Agreement.

5. The GACMO tool allows you to construct a marginal abatement cost curve (MACC) or a marginal abatement revenue curve (MARC). The MACC/MARC reflects the costs or savings associated with emission reduction measures, the expected emission reductions resulting from these measures, and the economic feasibility of these measures.

One of the features of the GACMO tool is that it can be used at the national (country) level, but it can also be adapted for use at the subnational (regional or city) level.

The GACMO tool contains a table with 119 mitigation options, grouped by category or activity type. All 119 mitigation options are displayed by default. If the user wishes to view only mitigation options for a specific group of categories or activity types, they can select the relevant category(ies) or activity type.

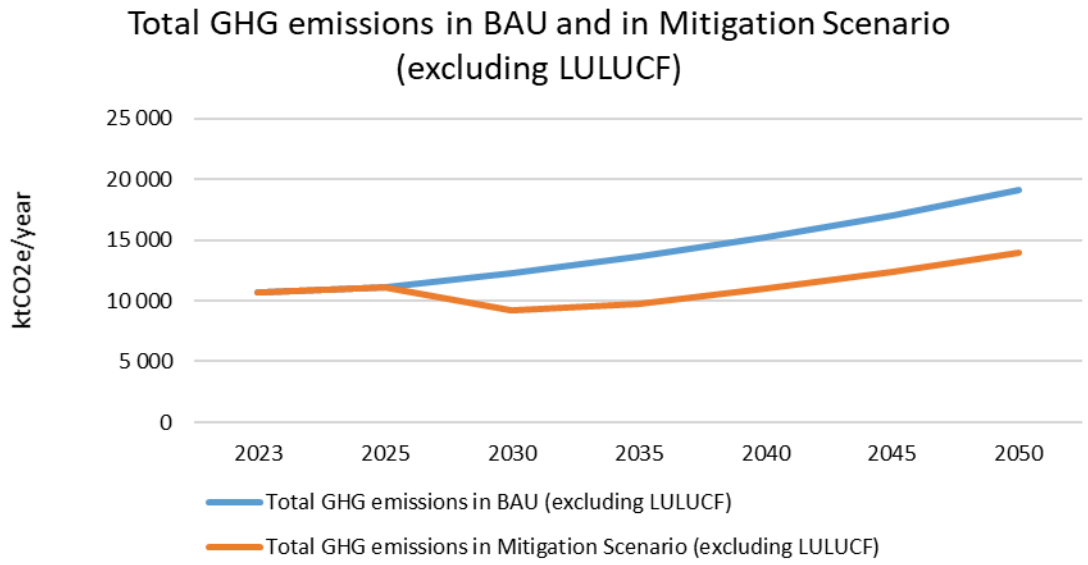

Figure 2: GASMO – scenario building in energy

Conclusion

Existing problems.1. One of the main challenges in using the GASMO tool in Kyrgyzstan is the need to refine the parameters of existing climate change mitigation measures, taking into account national conditions. 2. The list of climate change mitigation measures also needs to be

supplemented with measures from the Kyrgyz Ministry of Internal Affairs. 3. To improve the reliability of growth forecasts in individual industrial subsectors, closer cooperation with the Ministry of Economy and Trade of the Kyrgyz Republic is necessary.

Resolving these issues will enable GACMO to be used in the near future for Kyrgyzstan's needs and will improve the quality, speed, and effectiveness of reporting on greenhouse gas emission reductions in the energy sector.

National Energy Expert

Edilbek Bogombaev

Appendix 1

Sectoral goals economies in achieving the country's NDC 2.0 indicator in 2025 and 2030.

2025

Sector	Contribution from internal resources (WM)		Contribution through international support (WAM)		Total contributions from internal and international resources	
	Reduction in 1000 tons of CO_2 eq.	% reduction relative to BAU	Reduction in 1000 tons of CO_2 eq.	% reduction relative to BAU	Reduction in 1000 tons of CO_2 eq.	% reduction relative to BAU
Energy	1 215,120	13,38	1 810,941	19,49	3 026,061	33,32
IPPU	NE	NE	NE	NE	NE	NE
Agriculture	95,777	1,05	NE	NE	95,777	1,05
LULUCF	199,561	2,20	3,470	0,04	203,031	2,24
Waste	NE	NE	NE	NE	NE	NE
Total	**1 510,458**	**16,63**	**1 814,411**	**19,98**	**3 324,868**	**36,61**

2030

Sector	Contribution from internal resources (WM)		Contribution through international support (WAM)		Total contributions from domestic and international resources	
	Reduction in 1000 tons of CO_2 eq.	% reduction relative to BAU	Reduction in 1000 tons of CO_2 eq.	% reduction relative to BAU	Reduction in 1000 tons of CO_2 eq.	% reduction relative to BAU
Energy	1 899,783	12,76	4 111,827	27,63	6 011,610	40,39
IPPU	NE	NE	NE	NE	NE	NE
Agriculture	165,436	1,11	NE	NE	165,436	1,11
LULUCF	311,771	2,09	3,470	0,02	315,241	2,12
Waste	NE	NE	NE	NE	NE	NE
Total	**2 376,990**	**15,97**	**4 115,297**	**27,65**	**6 492,287**	**43,62**

NDC Implementation Plan for Mitigation in the Energy Sector

No.	Political measures and actions	Responsible government agencies and partners	Indicators	Target indicators	Resource provision, million US dollars in 2023			Implementation period, years	Expected reductions, thousand tonnes CO2-eq.
					Necessary	Own funds	International support		
Task 1.1. Improving the energy efficiency of buildings and households, taking into account the needs of vulnerable groups, including women.									
1.1.1.	Scaling up the installation of energy-efficient stoves in households. WAM.	ME, donors	Number of installations (of which at least 50% of households are headed by women and/or include members of other vulnerable groups)	127 thousand units per year	431.87	0.00	431.87	2021-2030	In 2025 – 177,914 In 2030 -1067,484
1.1.2.	Improving the energy efficiency of small boiler houses by replacing coal-fired boilers with gas-fired ones. WAM	ME, Gazprom Kyrgyzstan, WB	Number of small boiler houses converted to gas	48 boiler houses BTE, 136 public and	34.32	0.03	34.28	2021-2030	In 2025 – 198,167 In 2030 –

No.	Political measures and actions	Responsible government agencies and partners	Indicators	Target indicators	Resource provision, million US dollars in 2023			Implementation period, years	Expected reductions, thousand tonnes CO2-eq.
					Necessary	Own funds	International support		
				private boiler houses, pcs.					236,464
1.1.3.	Construction of new buildings according to energy-efficient SNiP.VM.	GAAS and Housing and Public Utilities, construction companies	square meters of housing	1,165,055 thousand square meters per year	1318.09	1318.09	0.00	2021-2030	In 2025 – 38,025 In 2030 – 44,976
1.1.4.	Improving the energy efficiency of existing buildings. WAM.		square meters of housing	1000 161 thousand square meters of public buildings	1,085.00	36.00	1,049.00	2021-2030	In 2025 – 0 In 2030 – 10,868
Task 1.2. Reducing coal consumption through gasification of households and boiler houses.									
1.2.1.	Implementation of Gazprom Kyrgyzstan projects to provide gas to the population. WAM	ME, Gazprom Kyrgyzstan	% of gasification of the country	2020 – 33% 2025 – 44% 2030 – 60%	90.66	90.66	0.00	2021-2030	In 2025 – 810,847 In 2030–1135, 186
Task 1.3. Development of renewable energy sources									

No.	Political measures and actions	Responsible government agencies and partners	Indicators	Target indicators	Resource provision, million US dollars in 2023			Implementation period, years	Expected reductions, thousand tonnes CO2-eq.
					Necessary	Own funds	International support		
1.3.1	Installation and use of biogas plants (BGU) in agriculture ZAM	Member of the European Parliament, investors	Total volume of BGP reactors	15 thousand m3	32.05	0.04	32.01	2021-2030	In 2025 - 3785.217 In 2030 - 4346,861
1.3.2	Installation of biogas plants at sanitary landfills in Bishkek and Osh. WAM .		Total volume of BGP reactors	1 thousand m3	2.15	0.04	2.11	2021-2030	
1.3.3.	Installation of biogas plants at wastewater treatment plants in Bishkek and Osh.		Total volume of BGP reactors	2 thousand m3	4.29	0.02	4.27	2021-2030	
1.3.4	Installation of a biogas plant at a food industry plant. WAM.		Total volume of BGP reactors	10 thousand m3	21.3	0.02	21.34	2021-2030	
1.3.5	Conducting research and developing solar energy projects that take into account gender aspects and the interests of vulnerable groups. WAM.		Scientific publications	Insolation map	0.095	0.009	0.086	2021-2030	NO

No.	Political measures and actions	Responsible government agencies and partners	Indicators	Target indicators	Resource provision, million US dollars in 2023			Implementation period, years	Expected reductions, thousand tonnes CO2-eq.
					Necessary	Own funds	International support		
1.3.6.	Expanding the use of solar thermal collectors for hot water supply. TO YOU.	ME, investors	Total capacity of installations Number of flat-plate collectors	50 MW. 35,715 flat-plate collectors with a capacity of 1.4 kW h	196.80	0.00	196.80	2021-2030	In 2025 – 0 In 2030 – 78,400
1.3.7.	Solar energy development. WAM.	ME, investors, FES project, Bishkek Solar LLC	Total capacity of installations	300 MW.	119.79	0.00	119.79	2021-2030	In 2025 – 0 In 2030 – 13,000
1.3.8	Conducting research and developing projects in the field of geothermal energy, taking into account gender aspects and the interests of vulnerable groups. WAM.	ME, investors	Scientific publications	Map of possible objects	0.092	0.006	0.086		NO
1.3.9	Expansion of the use of geothermal energy (installation of heat pumps). WAM.	ME, investors	Total capacity of installations	50.00 MW.	171.02	0.04	170.98	2021-2030	In 2025 – 0 In 2030 – 38,590

No.	Political measures and actions	Responsible government agencies and partners	Indicators	Target indicators	Resource provision, million US dollars in 2023			Implementation period, years	Expected reductions, thousand tonnes CO2-eq.
					Necessary	Own funds	International support		
			Number of heat pumps	2 thousand heat pumps, 25 kW each.					
1.3.10	Conducting research and developing wind energy projects that take into account gender aspects and the interests of vulnerable groups. WAM,.	ME, investors	Scientific publications	Wind map	0.095	0.009	0.086	2021-2030	NO
1.3.11	Implementation of the wind farm project of JSC "Kyrgyz Wind Systems" for the development of wind energy. WAM	ME, investors	Total capacity of installations	600 MW.	900.00	0.00	900.00	2021-2030	In 2025 – 0 In 2030 – 3594
Task 1.4 Development of hydropower									
1.4.1.	Increasing the capacity of existing hydroelectric power plants. WAM.	ME, investors	Power	360 MW.	328.48	328.48	0.00	2021-2030	In 2025 -108,719 In 2030 -108,719

No.	Political measures and actions	Responsible government agencies and partners	Indicators	Target indicators	Resource provision, million US dollars in 2023			Implementation period, years	Expected reductions, thousand tonnes CO2-eq.
					Necessary	Own funds	International support		
1.4.2.	Construction of new hydroelectric power plants / Upper Naryn Cascade. WAM.		Power	237.7 MW.	727.65	0.00	727.65	2021-2030	In 2025 – 0 In 2030 – 64,606
1.4.3.	Electricity generation at existing private small hydroelectric power plants. VM.	ME, investors	Power	84.46 MW.	4.54	0.00	4.54	2021-2030	In 2025 –22,956 In 2030 –22,956
1.4.4.	Construction and commissioning of new small hydroelectric power plants. VM.		Power.	100 MW	450.00	0.00	450.00	2021-2030	In 2025 – 0 In 2030 –29,167
Task 1.5. Reducing electricity losses during transmission National Electric Grid (NESK)									
1.5.1	Reducing NESC.WM losses.	ME, NESC	Losses	4.7%	55.46	55.46	0.00	2021-2030	In 2025 9280 In 2030 -9280
Task 1.6. Reducing electricity losses during distribution in the branches of the National Electric Grid (NESK)									
1.6.1.	Reduction of electricity losses at	ME, distribution companies	Losses	9-10%	166.09	166.09	0.00	2021-2030	In 2025 10,763

No.	Political measures and actions	Responsible government agencies and partners	Indicators	Target indicators	Resource provision, million US dollars in 2023			Implementation period, years	Expected reductions, thousand tonnes CO2-eq.
					Necessary	Own funds	International support		
	NESK (Severelectro). VM.								In 2030 -16,996
1.6.2.	Reduction of electricity losses in NESK (Vostokelectro). VM.		Losses	9-10%	37.29	37.29	0.00	2021-2030	In 2025 2267 In 2030 -5,774
1.6.3.	Reduction of electricity losses at NESK (Oshenergo). VM.		Losses	9-10%	37.06	37.06	0.00	2021-2030	In 2025 3572 In 2030 -9,386
1.6.4.	Reduction of electricity losses at NESK (Jalal-Abad Electro). VM.		Losses	9-10%	90.57	90.57	0.00	2021-2030	In 2025 2930 In 2030 -5910
Task 1.7. Improving the heating systems of Bishkek									
1.7.1	Reducing distribution losses. WM.	MP, OJSC "Bishkek Teploset"	Losses	24-25%	20.95	20.95	0.00	2021-2030	In 2025 – 3754
1.7.2	Modernization of heating networks to		Reducing energy consumption	33%	20.95	20.95	0.00	2021-2030	

No.	Political measures and actions	Responsible government agencies and partners	Indicators	Target indicators	Resource provision, million US dollars in 2023			Implementation period, years	Expected reductions, thousand tonnes CO2-eq.
					Necessary	Own funds	International support		
	improve energy efficiency VM.								In 2030 – 3754
Total for the sector:					6348.02	2201.88	4146.14	2023-2030	In 2025 – 2146 518 In 2030 - 4177,025

VM - with measures of own financing
WAM - with additional measures to attract international funding