

Report on NDC tracking indicators in energy sector Deliverable 6



Ministry of Resources, Ecology
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Acronyms

BAU	Business as Usual Scenario
BTR	Biennial Transparency Report
GACMO	Greenhouse Gas Abatement Cost Model
GHG	Greenhouse Gases
GSP CBIT	Global Support Program Capacity Building Initiative for Transparency
NGHGI	National GHG Inventory
ICAT	Initiative for Climate Action Transparency
MNRETS	Ministry of Natural Resources, Ecology and Technical Supervision
MRV	Measurement Reporting and Verification
MT&C	Ministry of Transport and Communications of the Kyrgyz Republic
MEC	Ministry of Economy and Commerce
ME	Ministry of Energy
MF	Ministry of Finance of the Kyrgyz Republic
MDD	Ministry of Digital Development of the Kyrgyz Republic
RES	Renewable Energy Sources
NDC	Nationally Determined Contribution
NGHGI	National GHG Inventory
NSC	National Statistical Committee
HP	Hydro power
NDC	Nationally Determined Contribution
ToR	Terms of Reference
UNEP CCC	United Nations Environment Program Copenhagen Climate Center
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services

Report on NDC tracking indicators in Energy sector

Introduction

This report describes the national and sectoral climate change mitigation indicators for tracking NDCs. The report was prepared in accordance with Outcome 3: NDC tracking framework for the Energy sector, which has been developed as part of the Terms of Reference (ToR).

1. General information

Kyrgyzstan is in the transition phase of implementing the NDC Tracking Tool for the economy, including in the energy sector. The key goals and indicators are defined in Kyrgyzstan's NDC Implementation Plan 3.0, which contains a set of measures and strategies to mitigate climate change for the target period up to 2035.

The NDC tracking tool is based on structured parameters covering institutional and technical aspects. The development of a transparent greenhouse gas emissions inventory, scenario modeling, and institutional coordination in the energy sector are crucial to ensuring transparent and reliable tracking of progress toward achieving NDC goals.

NDCs incorporate national-level parameters (targets, baseline indicators, institutional arrangements) with sectoral indicators (energy, transport, agriculture, industry, waste, land use), which makes it possible to effectively track progress in meeting commitments to reduce GHG emissions.

2. NDC tracking framework in Kyrgyzstan

The Nationally Determined Contribution (NDC) tracking framework for Kyrgyzstan is presented in the table below and includes the following components:

Table 1. Components of NDC tracking framework

Components	Descriptions
NDC Target of Kyrgyz Republic: 2030	<p>Unconditional: The national target for Kyrgyzstan is to reduce net GHG emissions by 18 percent relative to the baseline scenario by 2030 across the entire economy.</p> <p>Conditional: Provided financial, technological, and institutional support is provided, the reduction could reach 30 percent.</p>
NDC Target of Kyrgyz Republic: 2035	<p>Unconditional: By 2035, net GHG emissions will be reduced by 16 percent relative to the baseline</p>

	<p>scenario.</p> <p>Conditional: Provided financial, technological, and institutional support is provided, the reduction could reach 39 percent.</p>
Target value 2030	<p>Unconditional: 18 percent below the baseline scenario</p> <p>Conditional: 30 percent below the baseline scenario</p>
Target value 2035	<p>Unconditional: 16 percent below the baseline scenario</p> <p>Conditional: 39 percent below the baseline scenario</p>
Reference point 2030	Baseline scenario in 2030
Reference point 2035	Baseline scenario in 2035
Key Indicator	Net economy-wide GHG emissions
Tracking methodology	<p>Comparison of the latest "economy-wide net greenhouse gas emissions" data with the 2030 and 2035 targets.</p> <p>Tracking methodology is as follows: Progress is assessed by comparing the actual GHG emission level in the target year with the NDC target value. If emissions are lower than the target level, the NDC is considered achieved. If emissions exceed the target level, the NDC is considered not achieved.</p>
Data is needed to track progress.	<p>Data on baseline scenario - Baseline year emissions (1990, 2000, 2010, 2020, 2023 according to country reporting. Socio-economic data: GDP, population, energy consumption, fuel use statistics.</p> <p>Tools/models for baseline scenario- scenarios of future GHG emissions of the Energy sectors without mitigation measures or the so-called "Business as usual" (BAU) scenarios were calculated using the linear trend equations of the above correlations of the dynamics of sectoral emissions and the dynamics of changes in GDP of PPP per capita.</p> <p>Data from the GHG inventory - GHG emissions in the main categories and subcategories of the sector from the national inventory (cadaster)</p>
Existing gaps in data for tracking progress.	<p>-Lack of activity data for some subcategories</p> <p>-Lack of interdepartmental data exchange between statistical and energy agencies.</p>

	- Lack of data collection on an ongoing basis.
<p>Institutional arrangements for NDC tracking framework</p> <p>(Resolution No. 133 of the Cabinet of Ministers of February 24, 2026, on the National System for Greenhouse Gas Inventory, Monitoring, Reporting, Verification, and Circulation of Carbon Units of the Kyrgyz Republic)</p>	<p>- The Ministry of Natural Resources, Ecology, and Technical Supervision of the Kyrgyz Republic is the responsible body for maintaining the National GHG Inventory System, monitoring, reporting, verification, and circulation of carbon units in the Kyrgyz Republic.</p> <p>- Department of the State Cadaster of GHG Emissions and Absorptions of the Ministry of Natural Resources and Environmental Safety. Cadaster maintenance, administration of the MRV system, and operational management of the Registry.</p> <p>- Ministry of Energy of the Kyrgyz Republic sectoral coordinator. Collection, verification, and submission of reliable and complete data for assigned sectors within established deadlines.</p> <p>- Business entities classified as significant emission sources; The system of primary emission accounting based on approved methodologies; to submit reliable reports annually within the established deadlines.</p>
QA/QC procedures	<p>QA/QC base of IPCC 2006.</p> <p>Procedures Quality control in the National System:</p> <ul style="list-style-type: none"> - Internal quality control; External quality control and verification; International quality control (peer review).
Data flows, data collection protocols	<p>A unified state information platform is being created and maintained, ensuring: centralized data collection, storage, and protection through an electronic portal;</p> <ul style="list-style-type: none"> -reporting protocols in established national and international formats;

2.1. Key indicator

National Indicator for Tracking NDCs

Kyrgyzstan's National Indicator - Economy-Wide Net Greenhouse Gas Emissions. The *national target* for Kyrgyzstan is to reduce net GHG emissions by 18 percent relative to the baseline scenario by 2030 across the entire economy. Provided financial, technological, and institutional support is provided, the reduction could reach 30 percent. By 2035, net GHG emissions will be reduced by 16 percent relative to the baseline scenario. Provided financial, technological, and institutional support is provided, the reduction could reach 39 percent.

If both the unconditional and conditional targets are achieved, net GHG emissions will be reduced by 48.10% in 2030 and by 54.87% in 2035, with the target level in 2030 potentially reaching 9,227.33 kt CO₂e and in 2035 – 10,808.94 kt CO₂e. This indicator covers all sectors of the Kyrgyz economy.

Additional(sectoral) indicators

Additional indicators for monitoring ensure that mitigation actions cover the sectors "entire economy" of the Kyrgyz Republic in accordance with the international sectoral division of the economy by categories of GHG emission and removal sources. These are GHG emissions in each sector. Target in each sector - amount of GHG emission reductions.

The goals and indicators for mitigation potential are based on the performance indicators. Sectoral mitigation indicators are total GHG emissions for the following sectors: "Energy"; "Transport"; "Industrial Processes"; "Agriculture"; "Forestry, and Other Land Use"; "Waste".

2.2.. Sectoral data needs for the Kyrgyzstan NDC Tracking Tool For the NDC tracking tool in Kyrgyzstan, input data must be structured so that the tool can track progress, compare targets, and assess transparency. To provide data for the NDC tracking tool in Kyrgyzstan, a description of the main datasets is provided below:

- **National Context Data**
 - Baseline year emissions (1990, 2000, 2010, 2020, 2023 according to country reporting).
 - Current GHG inventory (sectoral breakdown: energy, transport)
 - Socio-economic indicators: GDP, population, energy consumption, fuel use statistics.
- **Mitigation Targets & Scenarios Data**
 - NDC targets (% reduction vs BAU baseline, carbon neutrality year).
 - Conditional and unconditional targets (related to funding, technology or capacity support).
 - Sectoral mitigation measures (renewables, energy efficiency, transport electrification).
 - Scenario projections (BAU, mitigation, enhanced ambition).
- **Sectoral Data Inputs**
 - Energy: fuel mix, renewable share, efficiency measures.
 - Transport: vehicle fleet composition, modal share, electrification plans.
- **Finance & Implementation Data**
 - Climate finance flows (domestic + international).
 - Carbon market participation (if applicable: Article 6, voluntary markets).
 - Policy instruments (carbon tax, ETS, subsidies, regulations).
 - Capacity-building and technology transfer data.
- **Transparency & Reporting**
 - MRV systems (Monitoring, Reporting, Verification frameworks).
 - Institutional arrangements (responsible ministries, agencies).
 - Progress indicators (renewable capacity installed, emissions reduced).
 - Alignment with global frameworks (Paris Agreement MPG, IPCC guidelines).

2.3. GHG Emissions Projections

The Figure 1. from the cited GIZ publication shows a basic approach to estimating future GHG emissions using an activity driver.

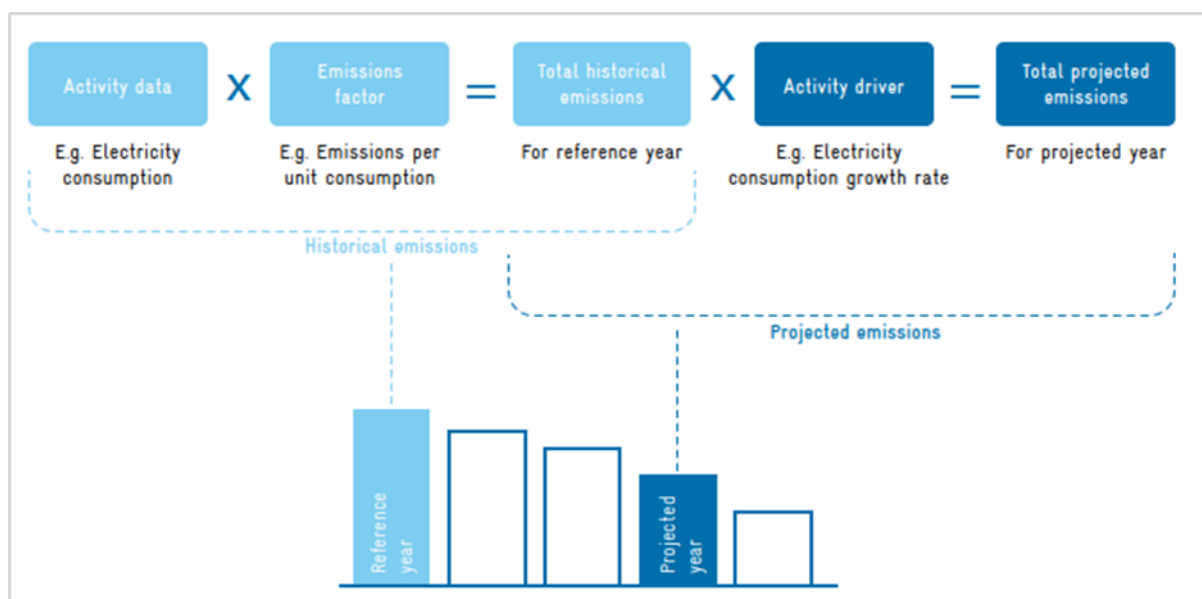


Figure 1. Basic approach to calculating projection¹

GHG projections are developed by considering today's GHG emissions – which are based on activity data and emission factors – and estimating how these will develop in the future. The historical GHG emission data use activity data from statistics and estimations.

Activity data and emission factors

According to the 2006 IPCC, activity data in this case refers to the amount of fossil fuel burned in each individual GHG source category, obtained from the national statistical committee. The emission factor is the volume of GHG generated by burning one unit of fuel. In Kyrgyzstan, the factors recommended by the 2006 IPCC are used for calculations, as national ones have not yet been developed.

Emission factors in the future could be the same or similar to those in the past – but technological improvements could mean these factors might be different. This approach was used by Kyrgyzstan with only one and activity driver, i.e. GDP PPP per capita. The correlation and regression analysis of the historical GDP growth and GHG emissions dynamics has been conducted and the equation of linear trend was used to calculate future values of GHG emissions. Following MPG provisions, Kyrgyzstan should develop GHG emissions projections from the last year 2023 of GHG inventory available.

Kyrgyzstan plans to use a new energy approach for forecasting greenhouse gas emissions—the Greenhouse Gas Abatement Cost Model (GACMO), developed by the UNEP CCC.

¹ Sina Wartmann, Dominic Sheldon, John Watterson (Ricardo E&E). 2021. Projections of Greenhouse Gas Emissions and Removals: An Introductory Guide for Practitioner. GIZ.

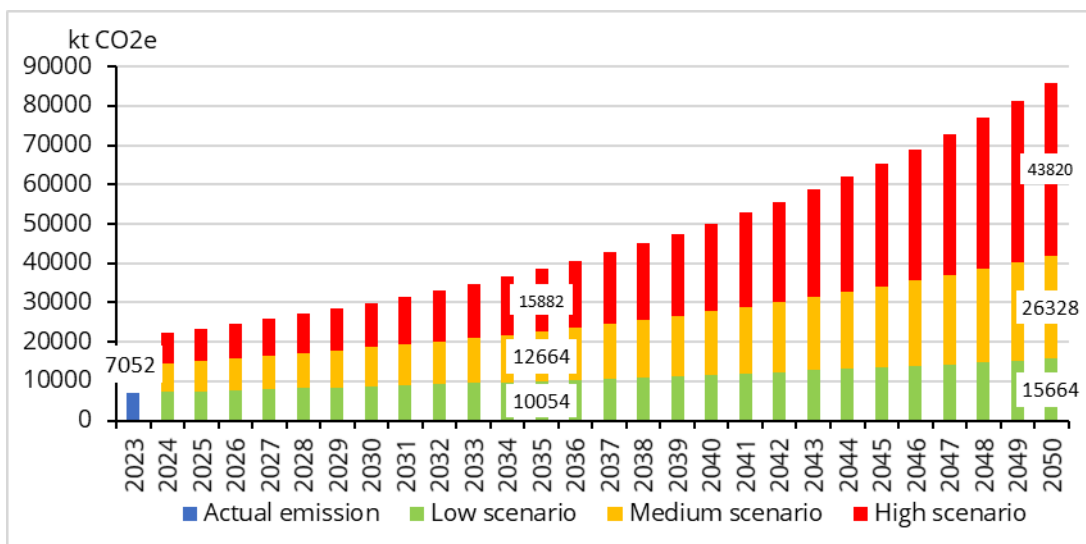


Figure 2. GHG emissions projections by scenarios for the Energy sector without the Transport subsector till 2050.

2.4. Tracking methodology

Below in Figure 3 the graph shows how the actual inventory data "economy-wide GHG emissions" is compared with the target value (emission reduction target).

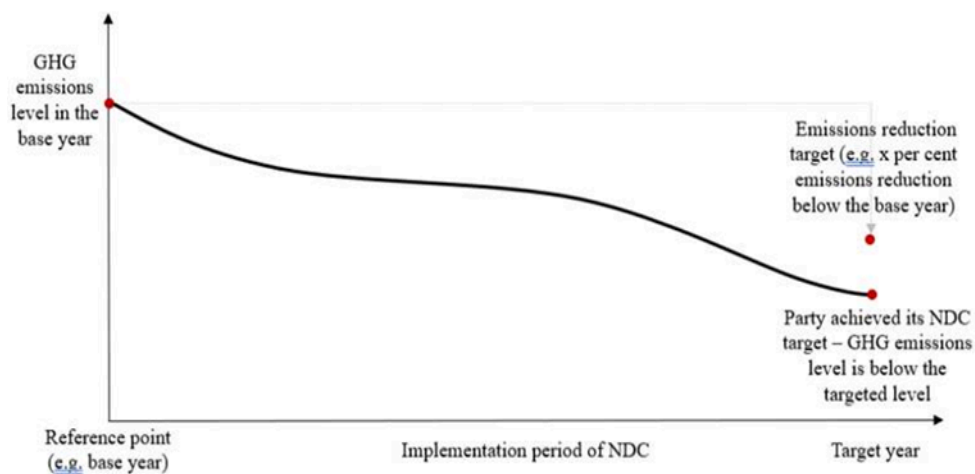


Figure 3. Inventory data "economy-wide GHG emissions" is compared with the target value²

The latest economy-wide net greenhouse gas emissions are compared with the target for 2030 and 2035.

The tracking methodology is as follows: progress is assessed by comparing actual greenhouse gas emissions in the target year with the NDC target. If emissions are below the target, the NDC is

² Explanations of the GASMO project

considered achieved. If emissions are above the target, the NDC is considered not achieved.

3. Institutional arrangements for implementing the NDC tracking framework.

In accordance with the latest Resolution of the Cabinet of Ministers No. 133 of February 24, 2026 "On the National System of Accounting, Monitoring, Reporting, Verification and Circulation of Carbon Units of the Kyrgyz Republic", it is proposed to create institutional mechanisms for the implementation of a system for tracking nationally determined contributions (NDC).

Coordinating Committee on Carbon Market Issues under the Cabinet of Ministers of the Kyrgyz Republic:

- ensures state coordination and control over the functioning of the National System.

The Ministry of Natural Resources, Ecology, and Technical Supervision:

- us of national authorized body and regulator of the carbon market
- provides general management
- coordinates the operation of the National System
- provides methodological support

Department of the State Cadaster of Greenhouse Gas Emissions and Absorptions under the Ministry.

- maintains a national information and analytical system for the systematic collection, accounting, analysis and presentation of data on greenhouse gas emissions and absorption in the territory of the Kyrgyz Republic (**Cadaster**).
- administration of the monitoring, reporting and verification (**MRV**) **system** – a set of organizational, legal, institutional, technical and information mechanisms that ensure the systematic collection, analysis, presentation and verification of data on greenhouse gas emissions and removals, as well as on measures to reduce them.
- operational management of the National Registry of Carbon Units (**Registry**) – a state electronic information system that is an integral part of the National System for the Circulation of Carbon Units (**NSCCU**), designed for the registration, accounting, storage, circulation and cancellation of carbon units, as well as for ensuring the transparency and reliability of operations.

A system of sector coordinators in the relevant ministries:

- **The Ministry of Energy of the Kyrgyz Republic (Energy sector);**
- **The Ministry of Transport and Communications of the Kyrgyz Republic (transport component of the Energy sector).**

Sector Coordinators implement and are responsible for:

- collection, verification, and submission of reliable and complete data for assigned sectors within established deadlines
- advisory support on issues within their competence;
- participation in the work of the Interdepartmental Technical Working Group on the National System;
- quality control of the submitted data;
- analysis of industry emissions dynamics and preparation of corresponding proposals.

Business entities classified as significant emission sources are required to:

- submit accurate reports annually within the established deadlines via the electronic portal;
- ensure access for verification by accredited organizations;

The methodological basis of the National System is: – the IPCC Guidelines for National Greenhouse Gas Inventories (2006) and the updated 2019 IPCC Guidelines; – the United Nations Framework Convention on Climate Change (UNFCCC) guidelines for reporting inventory data and the MRV system; – the international standards ISO 14064, ISO 14065, and ISO 14066; – national standards and guidelines developed by the authorized body.

4 Mitigation indicators in sector

A list of indicators for internal monitoring, based on objectives and resource availability, ensures the coverage of mitigation actions in the Kyrgyz energy sector. Furthermore, the objectives and indicators for mitigation potential are based on the performance indicators.

Among the list of sectoral mitigation indicators, there is an indicator: Total GHG emissions by the Energy sector,

4.1. The indicator "Total GHG emissions by the Energy sector".

This indicator is designed to track progress in the sector and allows for the assessment of the effectiveness of implemented policies and NDC 3 measures in this sector. Like the national net emission reduction target, this indicator is quantified both by baseline emissions in the target years (2030 and 2035) and by target levels of GHG emissions reduced by NDC measures for these same years.

The percentage reductions in this indicator of total GHG emissions for the Energy sector are indicators of mitigation actions being implemented in the sector. They represent the combined contribution of all sector categories to achieving the NDC 3 targets relative to the national net baseline emissions in 2030 and 2035.

According to the updated baseline, Kyrgyzstan's net GHG emissions will be 17,778.09 kt CO₂e, and in 2035 it will reach 23,951.5791 kt CO₂e.

4.2. Unconditional targets of NDC 3 for the Energy sector

These represent reductions in national net GHG emissions of 15.39% in 2030 and 11.92% in 2035 through the implementation of mitigation measures in the target years of 2030 and 2035, which Kyrgyzstan can achieve on its own using domestic resources. This represents the sector's contribution to achieving Kyrgyzstan's core national NDC target, NDC 3.

4.3. Conditional indicators of reduction

The sector's GHG emissions are defined as 27.48% for 2030 and 35.19% relative to the baseline values of net GHG emissions for the same years.

However, we note that intra-sectoral reduction targets are adopted relative to the total emissions of the sector itself, and here the baseline, the target emission reduction targets in target years, and the target (after measures) level of GHG emissions are already different.

According to the updated baseline for the Energy sector, based on the NIPG results for the period 1990–2023, the total baseline emissions of the sector in 2030 are determined to be 16,138.48 kt

CO₂e for 2030 and 19,625.34 kt CO₂e in 2035.

To ensure tracking of NDC progress in the Energy sector¹⁰

The target level of GHG emissions for 2030 and 2035 was calculated for unconditional and conditional targets, as well as the possible sum of the effects of both categories of measures.

For the unconditional target, which is the reduction of total GHG emissions of the sector, the target level of GHG emissions after measures in 2030 will be 13,402.52 kt CO₂e and 16,769.98 kt CO₂e in 2035.

For provisional purposes, the NDC 3 progress indicator is a target level of GHG emissions of 11,253.07 kt CO₂e in 2030 and 11,197.04 kt CO₂e in 2035.

Table 1. Example of a sectoral indicator for progress on NDC 3 in the Energy sector, including transport.

Energy and Transport	2030	2035	2030	2035
2023 baseline emissions (kt CO₂e)	16138.48	19625.34		
Unconditional contribution from internal resources				
Relative (%) and absolute reductions in GHG emissions (kt CO ₂ e)	16.95%	14.55%	2735.96	2855.36
Target level of sector emissions (kt CO ₂ e)			13283.12	16769.98
Contribution subject to international support				
Relative (%) and absolute reductions in GHG emissions (kt CO ₂ e)	30.27%	42.95%	4885.40	8428.29
Target level of sector emissions (kt CO ₂ e)			11253.07	11197.04
Total contributions from domestic and international resources				
Relative (%) and absolute reductions in GHG emissions (kt CO ₂ e)	47.22%	57.50%	7621.36	11283.65
Target level of sector emissions (kt CO ₂ e)			8517.11	8341.68

The performance targets for mitigation policies and measures in NDC 3 for the energy sector are presented below.

Table 2. Table of Measures with indicator of reducing GHG emissions in the Energy sector.

Measures NDC 3.0	Emission reduction indicators, kt CO ₂ e	
	2030	2035
Unconditional measures (WM)		
1900 MW of solar power plant capacity in the village. Kyzyl-Oruk	929.44	929.44
400 MW of solar power plant capacity in Balykchy	195.67	195.67
20 MW of solar power plant capacity at Alamedin hydroelectric power stations	9.78	9.78
200 MW of rooftop solar power capacity	107.62	107.62
100 MW of wind power capacity from Metrum TEK	48.92	48.92
100 MW of Rosatom wind power capacity	48.92	48.92
237.7 MW of capacity of the Upper Naryn Cascade hydroelectric power station	0.00	162.97
1860 MW of capacity of Kambarinskaya- 1 hydroelectric power station	0.00	0.00

Measures NDC 3.0	Emission reduction indicators, kt CO2e	
	2030	2035
912 MW of capacity of the Kazarmansky cascade of hydroelectric power plants	1520.05	1520.05
1305 MW Kokomerensky cascade of hydroelectric power plants		
100 MW of small hydroelectric power capacity	0.00	68.56
Substation 500 kV "Balykchy" and power transmission line 500 kV Kemin-Balykchy for renewable energy stations	7.04	7.04
Energy efficiency. Gazprom 1 million cubic meters for boiler houses from 2025.	236.46	236.46
100 heating systems in old apartment buildings	0.00	1832.80
20,000 households and 14,000 public buildings with energy-efficient heat pumps in households and public buildings	0.00	68.55
25,000 households and 1,400 public buildings have improved energy efficiency.	955.94	955.94
Area of renovated energy-efficient buildings, sq. m.	21:52	24.12
Number of LED lighting lamps in Osh	0.00	1253.74
The reactive power compensation system (OJSC NESK) has been implemented	0.00	39.85
Energy management standards and measures (ISO 50001) for large industrial enterprises have been implemented	0.00	50.97
Organic waste management projects at BSU in Bishkek, Osh, and 5 regional cities	645.55	708.40
Total for unconditional measures (WM)	4726.92	8269.81
Conditional measures (WAM)		
300 MW of solar power plant capacity in the village. Toru-Aigyr	146.94	146.94
171 MW of capacity from the modernized Toktogul and Uch-Kurgan hydroelectric power plants	175.15	175.15
Gasification of 60% of the country's households	432.16	551.56
Number of LED lighting lamps in Bishkek	1914.70	1914.70
Total for conditional measures (WAM)	2668.95	2788.35
Total in target years for WM and WAM	7395.87	11058.16

5. Collecting data to track NDC progress in Energy

Collecting primary data to track progress in implementing NDC 3 measures within the adopted NDC Mitigation Implementation Plan (MIP) is a critical and fundamental procedure that ultimately determines quantitative indicators for reducing GHG emissions in the energy sector. Currently, data collection and transfer are carried out in accordance with the following steps reflected below:

1. Initial data on fuel consumption and energy activities in Kyrgyzstan are transferred from the National Statistical Committee to the Ministry of Natural Resources, Ecology and Technical Supervision (MNTRETS) and to the Ministry of Energy for primary analysis.
2. Activity data are missing because the IPCC 2006 category tree does not correspond to the GHG emission source subcategories of the National Statistical Committee. To address this issue, the expert uses surrogate data to obtain accurate results under certain assumptions.

3. Sectoral bodies and municipalities collect data using approved templates.
4. The data is transferred to the Ministry of Energy for sectoral aggregation.
5. The aggregated data is being transferred to the Ministry of National Development and Reconstruction and Development (MNTRETS) for integration into the national NDC Tracking Tool database. Currently, a team of experts engaged as part of the support project is processing the data for the ministry.
6. The data is used to update BTR/CTF models, scenarios and reporting.

5.1. Existing barriers to data collection

Official status of the NDC Implementation Plan.

Practical experience with NDC II progress reporting clearly demonstrated governance shortcomings. During the NDC planning and development phase, with UNDP support, MNTRETS, as the national UNFCCC Focal Point, managed to coordinate the process. However, during the NDC implementation phase, coordination was hampered due to the lack of legitimacy of the NDC Implementation Plan (NIP).

Despite all efforts, the NIP was not approved at the government level as a binding regulatory document. This significantly impacted attitudes toward it and reduced the implementation discipline of the parties involved. Currently, participating agencies lack formal responsibilities for reporting on NDC implementation, which has impacted the timing and quality of data reporting for all NDC implementation monitoring activities.

Monitoring system and technical potential

The NDC mitigation plan requires the creation of an appropriate monitoring, reporting, and verification system to ensure the transparency, completeness, comparability, accuracy, and timeliness of climate reporting on NDC progress. Currently, in the current institutional context, this is quite challenging, as the existing capacity of the Ministry of Natural Resources, Ecology, and Technical Supervision—the focal point of the UNFCCC—is insufficient to organize and manage the process of monitoring NDC implementation, collecting relevant information and data, analyzing and adjusting NDC implementation, and preparing climate reporting on NDC progress.

Establishing a climate change department within MNTRETS, staffing it with permanent specialists, and equipping it with the necessary management tools to create a national monitoring and evaluation system is a priority for Kyrgyzstan in the near future, including for the energy sector.

5.2. Suggestions for overcoming barriers.

In the course of work by a group of experts and representatives of parties involved in the implementation of NDC measures in the energy sector and in other sectors of the economy in general, the following proposals were developed to overcome the above-mentioned difficulties:

1. Adoption of regulations for approval of the NDC plan at the government level.

According to the NDC, various ministries and agencies and their subordinate organizations, local government administrations, research and educational institutions, local governments and their municipal organizations, private companies and investors, commercial banks and other financial institutions, international development partners and donors, and civil society organizations are involved in the implementation of NDC mitigation measures. Overall, effective coordination of the

activities of all participants in NDC implementation is possible only with the existence of a regulatory act as an instrument for ensuring the implementation of the NDC.

It is necessary to adopt a corresponding act at the level of the Kyrgyz Government, assigning coordination, monitoring, reporting, and verification to the Ministry of Natural Resources, Ecology, and Technical Supervision.

2. Providing technical support

It is necessary to establish a structural unit on climate change within the framework of MNTRETS, staffing it with permanent specialists and the necessary equipment and software management tools to create a national monitoring and evaluation system with institutional memory, with the latest resolution of the Cabinet of Ministers dated February 24, 2026.

7. Quality assurance/quality control (QA/QC) procedures

Quality assurance (QA) and quality control (QC) procedures for NDCs (defined at the Nationally Determined Contributions) aim to ensure the transparency, accuracy, consistency, coherence, and completeness of greenhouse gas inventories. These procedures include the development of plans, documentary verification, the use of traditional methods, verification, and external data audits.

Quality control (QC) is a system of regular technical activities designed to assess and maintain the quality of the cadastral data as it is compiled. It is performed by personnel involved in cadastral compilation. The QC system is designed to:

- (i) conduct regular and consistent checks to ensure the integrity, correctness, and completeness of data;
- (ii) identify and correct errors and omissions;
- (iii) document and archive cadastral materials and record all QC activities.

To carry out the QC procedure for the Energy sector, an expert in inventory and mitigation from the Transport sector is engaged.

Quality assurance (QA) is a planned system of review procedures performed by personnel not directly involved in the inventory compilation process. Reviews (preferably performed by independent third parties) should be conducted on the completed inventory in accordance with QA procedures. The purpose of the review is to verify that measurable objectives (related to data quality) have been met to ensure that the inventory contains the best possible estimates of emissions and sinks, given the current state of scientific knowledge and available data.

To ensure compliance with QA procedures, the project held meetings with specialists from relevant agencies and all involved parties in accordance with the QA/QC plan. During these meetings, the results of the work completed during the relevant period were discussed and evaluated. The comments and feedback received were recorded in minutes, and the necessary revisions were then made.

It should be noted that the methodological basis for the QA/QC procedures is the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

7. Protocol and Stakeholder Engagement

During the development of the NDC tracking system, stakeholder comments and suggestions were systematically taken into account, including: adjusting the indicator set; refining model input parameters; adapting institutional roles; and developing a realistic roadmap for addressing data gaps.

The iterative consultation process ensured national ownership and increased the feasibility of implementing the proposed GACMO tool.

7.1. Engagement activities

The results of stakeholder engagement activities confirmed the technical and institutional feasibility of the NDC tracking system for the energy sector. A technical expert working group was used to: coordinate indicators; discuss data availability and quality; select analytical tools; test BAU scenarios; and explore the possibility of mobilizing funding for energy sector measures.

Next steps include:

- supporting the institutionalization of the NDC tracking system;
- possible continued training of national experts;
- updating indicators and adapting them to national conditions;
- seeking funding support for the development of the energy sector monitoring and tracking system.

As part of the ICAT project, a special workshop was organized with stakeholders from the target sectors – energy and transport. Ministries, agencies, and the expert community participated in the workshop. Climate policy parameters and indicators, as well as the necessary indicators for NDC tracking, were discussed with key stakeholders.

Furthermore, ICAT supported the UNFCCC focal point in drafting **Data exchange protocols**, which were developed for each of the NDC 3.0 measures, taking into account the following questions identified by participants:

Table 3. List of questions included in the draft data exchange protocol for tracking indicators in the Energy sector.

N of monitoring	Question
I	What indicators are we collecting?
II	Who will collect and submit the data?
III	What is the reporting time frame to present data??
IV	What are the reporting formats?
V	Who ensured quality control of the submitted data?
VI	What are the channels?

The developed draft protocol is in Appendix 1.

The matrix for the Energy Sector mitigation policies and measures with indicators and required data and parameters to monitor and track NDC 3 progress in Appendix 2.

Conclusion:

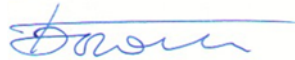
The implementation of proposals to give legal status to the NDC 3 Mitigation Action Plan will provide real assistance in its successful implementation and the achievement of the set goals for reducing GHG emissions, including in the Energy Sector.

Establishing a climate change department within MNTRETS, staffing it with permanent specialists and providing the necessary equipment and software management tools, will create the foundation for a national monitoring, evaluation, and verification system to track progress in implementing Kyrgyzstan's NDCs. This will allow the GACMO tool to be adapted for Kyrgyzstan and implement it for permanent operation in the energy sector.

The highly qualified support of UNEP CCC specialists is noteworthy. Their consultations and advice to technical experts within the ICAT project truly opened the door to using best international practices for tracking mitigation measures using the GACMO tool. Energy experts look forward to further potential collaboration.

National Energy Expert

Edilbek Bogombaev



Annex 1

NDC mitigation policy and measures monitoring information, and data protocols of the Energy Sector (excluding transport)

No.	NDC Policies	Measures	Monitoring component / Question	Data and Information for NDC Protocols
1.1.	Development of solar energy	1.1.1. Construction of a solar power plant, 300 MW in the village of Toru-Aigy, WM	I / What indicators are we collecting?	Installed capacity of new solar power plants commissioned
			II / Who will collect and submit the data?	Ministry of Energy, Kyrgyz Energy Settlement Center, National Grid Company, donors, Renewable Energy Associations
			III / What is the reporting time frame to present data?	Every year at the end of the year
			IV/ What are reporting formats?	Excel format indicating the location, owner, and quantity of equipment running
			V/ Who ensured quality control of the submitted data?	Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic
			VI/ What are the channels?	Interagency official exchange network
		1.1.2. Construction of a 1900 MW solar power plant in the village of Kyzyl-Oruk, WAM	I / What indicators are we collecting?	Installed capacity of new solar power plants commissioned
			II / Who will collect and submit the data?	Ministry of Energy, Kyrgyz Energy Settlement Center, National Grid Company, donors, Renewable Energy Associations
			III / What is the reporting time frame to present data?	Every year at the end of the year
			IV/ What are reporting formats?	Excel format indicating the location, owner, and quantity of equipment running
			V/ Who ensured quality control of the submitted data?	Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic
			VI/ What are the channels?	Interagency official exchange network
		1.1.3. Construction of a 400 MW solar power plant in Balykchy,WAM	I / What indicators are we collecting?	Installed capacity of new solar power plants commissioned
			II / Who will collect and submit the data?	Ministry of Energy, Kyrgyz Energy Settlement Center, National Grid Company, donors, Renewable Energy Associations
			III / What is the reporting time frame to present data?	Every year at the end of the year
			IV/ What are reporting formats?	Excel format indicating the location, owner, and quantity of equipment running
			V/ Who ensured quality control of the submitted data?	Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic
			VI/ What are the channels?	Interagency official exchange network

No.	NDC Policies	Measures	Monitoring component / Question	Data and Information for NDC Protocols
		1.1.4. Construction of a 20 MW solar power plant on the territory of the Alamedin-5 hydroelectric power station, WAM	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Installed capacity of new solar power plants commissioned Ministry of Energy, Kyrgyz Energy Settlement Centre, Chakan GES JSC, National Grid Company, donors, Renewable Energy Associations Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
		1.1.5. Install solar photovoltaic systems on roofs up to 200 MW, WAM	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Installed capacity of new solar power plants commissioned Local Self Governments, City Hall, Ministry of Education, National Electric Grid Company, Kyrgyz Energy Settlement Centre, Ministry of Energy, National Electric Grid Company Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
1.2.	Development of wind energy	1.2.1. Construction of a wind power plant with a capacity of 100 MW (Metrum TEK), WM	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Installed capacity of new wind power plants commissioned Local Self Governments, City Hall, Ministry of Education, National Electric Grid Company, Kyrgyz Energy Settlement Centre, Ministry of Energy, National Electric Grid Company Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
		1.2.2. Construction of a wind power plant with a capacity of 100 MW (Rosatom), WM	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data?	Installed capacity of new wind power plants commissioned Local Self Governments, City Hall, Ministry of Education, Kyrgyz Energy Settlement Centre, Ministry of Energy, JSC National Electric Grid Company Every year at the end of the year

No.	NDC Policies	Measures	Monitoring component / Question	Data and Information for NDC Protocols
			IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
1.3.	Development of hydropower	1.3.1. Construction of hydroelectric power stations: Upper Naryn Cascade, WAM	I / What indicators are we collecting?	Installed capacity of new wind power plants commissioned
			II / Who will collect and submit the data?	Ministry of Energy, Kyrgyz Energy Settlement Centre, JSC Power Stations, National Statistical Committee, donors
			III / What is the reporting time frame to present data?	Every year at the end of the year
			IV/ What are reporting formats?	Excel format indicating the location, owner, and quantity of equipment running
			V/ Who ensured quality control of the submitted data?	Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic
			VI/ What are the channels?	Interagency official exchange network
		1.3.2. Construction of hydroelectric power plants: Kambaratinskaya HPP 1, WAM	I / What indicators are we collecting?	Installed capacity of new wind power plants commissioned
			II / Who will collect and submit the data?	Ministry of Energy, Kyrgyz Energy Settlement Centre, JSC Power Stations, National Statistical Committee, donors
			III / What is the reporting time frame to present data?	Every year at the end of the year
			IV/ What are reporting formats?	Excel format indicating the location, owner, and quantity of equipment running
			V/ Who ensured quality control of the submitted data?	Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic
			VI/ What are the channels?	Interagency official exchange network
1.3.3. Construction of the Kazarmanskaya HP station and the Kokomerenskaya HP station, WAM	I / What indicators are we collecting?	Installed capacity of new wind power plants commissioned		
	II / Who will collect and submit the data?	Ministry of Energy, Kyrgyz Energy Settlement Centre, JSC Power Stations, National Statistical Committee, donors		
	III / What is the reporting time frame to present data?	Every year at the end of the year		
	IV/ What are reporting formats?	Excel format indicating the location, owner, and quantity of equipment running		
	V/ Who ensured quality control of the submitted data?	Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic		
	VI/ What are the channels?	Interagency official exchange network		
1.3.4. Construction of small	I / What indicators are we collecting?	Installed capacity of new wind power plants commissioned		
	II / Who will collect and submit the data?	Ministry of Energy, Kyrgyz Energy Settlement Centre, JSC Power Stations, National Statistical Committee, donors		

No.	NDC Policies	Measures	Monitoring component / Question	Data and Information for NDC Protocols
		hydroelectric power plants, WAM	III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
		1.3.5. Complete the modernization of the Toktogul and Uch-Kurgan hydroelectric power plants, WM.	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Installed capacity of new wind power plants commissioned Ministry of Energy, Kyrgyz Energy Settlement Centre, JSC Power Stations, National Statistical Committee, donors Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
1.4.	Development of network infrastructure for the distribution of RES (renewable energy) power plants	1.4.1. Construction of 500 kV substation "Balykchy" and 500 kV power transmission line Kemin-Balykchy, WAM	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	New substances and power lines put into operation Ministry of Energy, Kyrgyz Energy Settlement Centre, JSC Power Stations, JSC National Electric Grid Company, donors Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
1.5.	Improving conditions for the implementation of renewable energy projects and the developme	Development of regulatory acts	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	New regulatory acts, number Ministry of Energy Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network

No.	NDC Policies	Measures	Monitoring component / Question	Data and Information for NDC Protocols
				nt of electric grids based on public-private partnerships
1.6.	Decarbonization of the heating system	1.6.1. To improve the energy efficiency of 1000 small boiler houses, WAM	<p>I / What indicators are we collecting?</p> <p>II / Who will collect and submit the data?</p> <p>III / What is the reporting time frame to present data?</p> <p>IV/ What are reporting formats?</p> <p>V/ Who ensured quality control of the submitted data?</p> <p>VI/ What are the channels?</p>	<p>The number and installed capacity of gas or renewable energy heating boilers put into operation instead of coal boilers</p> <p>Local governments, mayor's offices, Gazprom Kyrgyzstan, the Ministry of Energy, the Kyrgyz Energy Settlement Center, and the National Grid Company. Associations of Renewable Energy Suppliers</p> <p>Every year at the end of the year</p> <p>Excel format indicating the location, owner, and quantity of equipment running</p> <p>Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic</p> <p>Interagency official exchange network</p>
		1.6.2. Modernize heating systems of 100 old apartment buildings, WAM	<p>I / What indicators are we collecting?</p> <p>II / Who will collect and submit the data?</p> <p>III / What is the reporting time frame to present data?</p> <p>IV/ What are reporting formats?</p> <p>V/ Who ensured quality control of the submitted data?</p> <p>VI/ What are the channels?</p>	<p>The number and installed capacity of gas heating boilers put into operation instead of coal boilers</p> <p>Local governments, mayor's offices, Gazprom Kyrgyzstan, the Ministry of Energy, the Kyrgyz Energy Settlement Center, and the National Grid Company. Associations of Renewable Energy Suppliers</p> <p>Every year at the end of the year</p> <p>Excel format indicating the location, owner, and quantity of equipment running</p> <p>Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic</p> <p>Interagency official exchange network</p>
		1.6.3. Install energy-efficient heat pumps in 20000 households and 1400 public buildings, WAM	<p>I / What indicators are we collecting?</p> <p>II / Who will collect and submit the data?</p> <p>III / What is the reporting time frame to present data?</p>	<p>The number and installed capacity of heat pumps into operation instead of coal boilers</p> <p>Local governments, mayor's offices, Gazprom Kyrgyzstan, the Ministry of Energy, the Kyrgyz Energy Settlement Center, and the National Grid Company, Associations of Renewable Energy Suppliers</p> <p>Every year at the end of the year</p>

No.	NDC Policies	Measures	Monitoring component / Question	Data and Information for NDC Protocols
			IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
1.7.	Natural gas supplies to households	1.7.1. Reduce coal consumption by increasing the level of gasification of settlements in the Kyrgyz Republic from 42 to 60% and creating conditions for connection to the centralized gas supply, WM	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Number and % of households newly connected to gas distribution networks shifting from coal Local governments, City Halls, Gazprom Kyrgyzstan OJSC ³ , Ministry of Energy, National Statistical Committee. Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
1.8.	Improving energy efficiency and reducing energy losses in households and service sector buildings	1.8.1. Conduct energy certification and energy-efficient modernization of households, healthcare facilities, education, water supply and sanitation. WAM	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Number and square meters of modernized households within the framework of the "Warm House" project; "Clean Heat for Health" project; "Eco-Everyday Life" project and square meters of modernized social facilities Ministry of Labour, Social Protection and Migration; Ministry of Construction, Architecture and Utilities; Ministry of Finance; Local Self-Governments; Ministry of Natural Resources, Ecology and Technical Supervision; Ministry of Energy; international organizations, donors Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
		1.8.2. Improving the energy efficiency of new and reconstructed buildings through	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data?	Number and square meters of constructed and refurbished energy-efficient buildings Ministry of Construction, Architecture and Utilities; Local Self-Governments; City Hall; National Statistical Committee; Every year at the end of the year

³Open Joint Stock Company

No.	NDC Policies	Measures	Monitoring component / Question	Data and Information for NDC Protocols
		mandatory energy efficiency assessment during design, construction and procurement, WAM	IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
1.9.	Improving the energy efficiency of urban lighting systems	1.9.1. Implement modern energy-saving technologies in urban lighting systems: transition to LED technologies, automated control systems (ACS), and renewable energy sources (solar panels). Pilot projects in Bishkek and Osh (2025-2030); scaling to other cities (2030-2035), WAM	I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	The number of installed LED lamps for street lighting in Bishkek and Osh. City Hall of Bishkek and Osh Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network
1.10.	Training and awareness raising in the field of energy efficiency and energy conservation		I / What indicators are we collecting? II / Who will collect and submit the data? III / What is the reporting time frame to present data? IV/ What are reporting formats? V/ Who ensured quality control of the submitted data? VI/ What are the channels?	Number of trainings and activities, number of trained Local governments, City Halls, Ministry of Energy, National Statistical Committee. Every year at the end of the year Excel format indicating the location, owner, and quantity of equipment running Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic Interagency official exchange network

No.	NDC Policies	Measures	Monitoring component / Question	Data and Information for NDC Protocols
1.11.	Improving the energy efficiency of industrial enterprises	1.11.1. Implement reactive power compensation systems, WAM	I / What indicators are we collecting?	% of reduction in electricity losses, due to measures to compensate for reactive power in power grids
			II / Who will collect and submit the data?	Ministry of Energy, OJSC National Grid, National Statistical Committee
			III / What is the reporting time frame to present data?	Every year at the end of the year
			IV/ What are reporting formats?	
			V/ Who ensured quality control of the submitted data?	Excel format indicating the location, owner, and quantity of equipment running
			VI/ What are the channels?	Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic
		1.11.2. Implement energy efficiency standards for energy management systems (ISO 50001) for large industrial enterprises (metallurgy, cement, textiles, food industry), WAM	I / What indicators are we collecting?	% of reduction in energy losses, due to the implementation of energy efficiency energy management systems (ISO 50001) at large industrial enterprises
			II / Who will collect and submit the data?	Ministry of Energy, OJSC National Grid, National Statistical Committee
			III / What is the reporting time frame to present data?	Every year at the end of the year
			IV/ What are reporting formats?	Excel format indicating the location, owner, and quantity of equipment running
			V/ Who ensured quality control of the submitted data?	Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic
			VI/ What are the channels?	Interagency official exchange network

*- GHG reduction was not assessed

Annex 2.

The matrix for the Energy Sector mitigation policies and measures with indicators and required data and parameters to monitor and track NDC 3 progress

ENERGY				
#	Policies	Indicators, units		
1	RES (Solar, Wind, Hydro) development	Installed capacity, MW		
			#	Measures
			Indicators	Data required
			Parameters	
			1	A new 300 MW solar power plant has been launched in Toru-Aigyr
				Installed capacity, MW
				Generated power, kWh
				Daily insolation, hrs. Annual capacity factor, full time hours. Electricity production, kWh. Grid emission factor, tCO2/kWh.
			2	A new 1900 MW solar power plant has been launched to replace new coal/gas-fired power plants in Kyzyl-Uryk
				Installed capacity, MW
				Generated power, kWh
				Daily insolation, hrs. Annual capacity factor, full time hours. Electricity production, kWh. Grid emission factor, tCO2/kWh.
			3	A new 400 MW solar power plant has been launched to replace new
				Installed capacity, MW
				Generated power, kWh
				Daily insolation, hrs. Annual capacity factor, full time hours. Electricity production,

	coal/gas-fired power plants in Balykchi			kWh. Grid emission factor, tCO ₂ /kWh.
4	Construction of a 20 MW solar power plant on the territory of the Alamedin hydroelectric power station cascade.	Installed capacity, MW	Generated power, kWh	Daily insolation, hrs. Annual capacity factor, full time hours. Electricity production, kWh. Grid emission factor, tCO ₂ /kWh.
5	50,000 households are equipped with solar power systems. 11 public schools are equipped with 250 kW solar power systems. Solar power systems on the roofs of GIK apartment buildings (4 MW by 2028, 10 MW by 2030, 30 MW by 2035).	Installed capacity, MW	Generated power, kWh	Daily insolation, hrs. Annual capacity factor, full time hours. Electricity production, kWh. Grid emission factor, tCO ₂ /kWh.
	Wind energy		Data required	Parameters
6	A new 100 MW wind power plant has been commissioned to replace new coal-fired power plants (Rosatom company)	Installed capacity, MW	Generated power, kWh	Capacity factor, full time hours. Electricity production, kWh/year. Electricity production per day? kWh/day. Grid emission factor, tCO ₂ /kWh
7	A new 100 MW wind power plant has been commissioned to replace new coal-fired power plants (Metrum LLC)	Installed capacity, MW	Generated power, kWh	Capacity factor, full time hours. Electricity production, kWh/year. Electricity production per day, kWh/day. Grid emission factor, tCO ₂ /kWh.

	Development of hydropower		Data required	Parameters
8	A 234.5 MW hydroelectric power station was commissioned to replace new coal-fired power plants. (Toktogul and Uch-Kurgan HPP)	Installed capacity, MW	Generated power, kWh	Capacity factor, full time hours. Electricity production, kWh/year. Grid emission factor, tCO ₂ /kWh.
9	A hydroelectric power station (Kambarata 1) with a capacity of 1860 MW was commissioned to replace new coal-fired power plants.	Installed capacity, MW	Generated power, kWh	Capacity factor, full time hours. Electricity production, kWh/year. Grid emission factor, tCO ₂ /kWh.
10	The Kazarman hydroelectric power station with a capacity of 912 MW and the Kokomeren hydroelectric power station with a capacity of 1305 MW were commissioned.	Installed capacity, MW	Generated power, kWh	Capacity factor, full time hours. Electricity production, kWh/year. Grid emission factor, tCO ₂ /kWh.
11	100 MW of new small hydroelectric power plants were commissioned	Installed capacity, MW	Generated power, kWh	Capacity factor, full time hours. Electricity production, kWh/year. Grid emission factor, tCO ₂ /kWh.
12	171 MW of additional hydroelectric power capacity was introduced	Installed capacity, MW	Generated power, kWh	Capacity factor, full time hours. Electricity production, kWh/year. Grid emission factor, tCO ₂ /kWh.

			Development of grid infrastructure for the distribution of renewable energy power plants		Data required	Parameters	
			13	Substations and transmission lines have been commissioned to supply power from new renewable energy power plants.	New substations and power lines put into operation	km of new transmitting lines and capacities, kV. Number of substations and capacities of substations, kVA (kW).	Newly established grid facilities power consumption, kWh. Electricity consumed, kWh. Grid emission factor, tCO2/kWh.
2	Decarbonization of the heating system	Consumed energy, TJ	#	Measures	Indicators	Data required	Parameters
			14	At least 1,000 coal-fired boilers have been replaced with gas and/or renewable energy sources, improving energy efficiency.	The number and installed capacity of gas or renewable energy heating boilers put into operation instead of coal boilers	Generated heat power, Gk. Electricity consumed, kWh	Available energy for heating, TJ/day. Energy efficiency of boilers, %. Gas emission factor, kg CO2/TJ. Previous use of coal, kg/day. Calorific values of coal. Annual coal consumption, t/year.
			15	Heat pumps installed in 20,000 households; Heating systems in 1,400 municipal buildings have been modernized	The number and installed capacity of heat pumps for heating put into operation	Generated heat power, GC. Electricity consumed, kWh.	Available energy for heating, TJ/day. Energy efficiency of heating systems, %. Previous use of coal, kg/day. Calorific values of coal. Annual coal consumption, t/year.
3	Natural gas supplies to	Consumed energy, TJ					

			#	Measures	Indicators	Data required	Parameters
	households instead of coal		16	The gasification level has reached 60%	Number and % of households newly connected to gas distribution networks shifting from coal	Number of coal to gas switched households. Gas consumed, TJ. Avoided coal consumption, TJ	Available energy for cooking, TJ/day. Energy efficiency of stove, %. Available energy for heating, TJ/day. Energy efficiency of heating system. Use of gas for household, TJ/year. Gas emission factor, kg CO2/TJ. Use of coal, kg/day. Calorific values of coal. Annual coal consumption, t/year.
4	Improved energy efficiency in buildings	Consumed energy, TJ					
			#	Measures	Indicators	Data required	Parameters
			17	Improving the energy efficiency of new and renovated buildings through mandatory energy performance assessment during design, construction and procurement	Number of Eff buildings and square meters of constructed and refurbished energy-efficient buildings	Area of living space new residential buildings with better thermo insulation, (sq. m)	Energy consumed, GC. Energy saved, GC. Average heat loss in the old buildings, GC. Source fuel calorific value, gross/net.

			18	Modernization of 10,000 migrant households (Warm House) and 5,000 vulnerable households (Clean Heat for Health) was carried out.	1. Number and square meters of modernized households within the framework of the "Warm House" project 2. Number and square meters of modernized households within the framework of the Clean Heat for Health project	Area of living space new residential buildings with better thermo insulation, (sq. m)	Energy consumed, GC. Energy saved, GC. Average heat loss in the old buildings, GC. Source fuel calorific value, gross/net.
			19	Low-cost, low-carbon solutions have been implemented in 10,000 (Eco-household) households, 1,400 social facilities have been modernized, reducing heat consumption by up to 28% and electricity consumption by up to 18%.	1. Number and square meters of modernized households within the framework of the Eco-Everyday Life project 2. Number and square meters of modernized social facilities	Area of living space new residential buildings with better thermo insulation, (sq. m)	Energy consumed, GC. Energy saved, GC. Average heat loss in the old buildings, GC. Source fuel calorific value, gross/net.
5	Improving the energy efficiency of urban lighting systems	Consumed energy, TJ		Measures	Indicators	Data required	Parameters
			20	Reducing energy consumption in the street lighting sector by 30% by 2035	The number of installed LED lamps for street lighting in Bishkek and Osh.	Number of LED lamps installed	Energy consumption of new and old lamps, kWh. Lamp lifetime, hrs. Lamp wattage, W. Daily usage, hrs. Energy saved, kWh.
6	Improving the energy efficiency	Consumed energy, TJ	#	Measures	Indicators	Data required	Parameters

of industrial enterprises

21	Reduction of energy losses by 10–15%, improvement of voltage quality, reduction of network load.	% reduction in electricity losses, due to measures to compensate for reactive power in power grids	Current energy loses of targeted enterprises	Energy consumption pf targeted enterprises, kWh, GC. Energy saved, kWh, GC. Source fuel calorific value, gross/net.
22	Reducing energy consumption by 15-20% in regulated industries, certifying 20% of large enterprises, reducing energy losses by 10-15%	% reduction in energy losses, due to the implementation of energy efficiency energy management systems (ISO 50001) at large industrial enterprises	Current energy loses of targeted enterprises. ISO 5001 endorsed.	Energy consumption of targeted enterprises, kWh. Energy saved, kWh, GC. Source fuel calorific value, gross/net.