

Second Interregional Forum of Environmental Initiatives “SAF AUA”

EUROPEAN UNION • KAZAKHSTAN
SUSTAINABLE ENERGY DAYS

Temirtau city, Temirtau Palace of Culture, 4 June 2024

Decarbonization of Industry in Kazakhstan: Challenges and Opportunities

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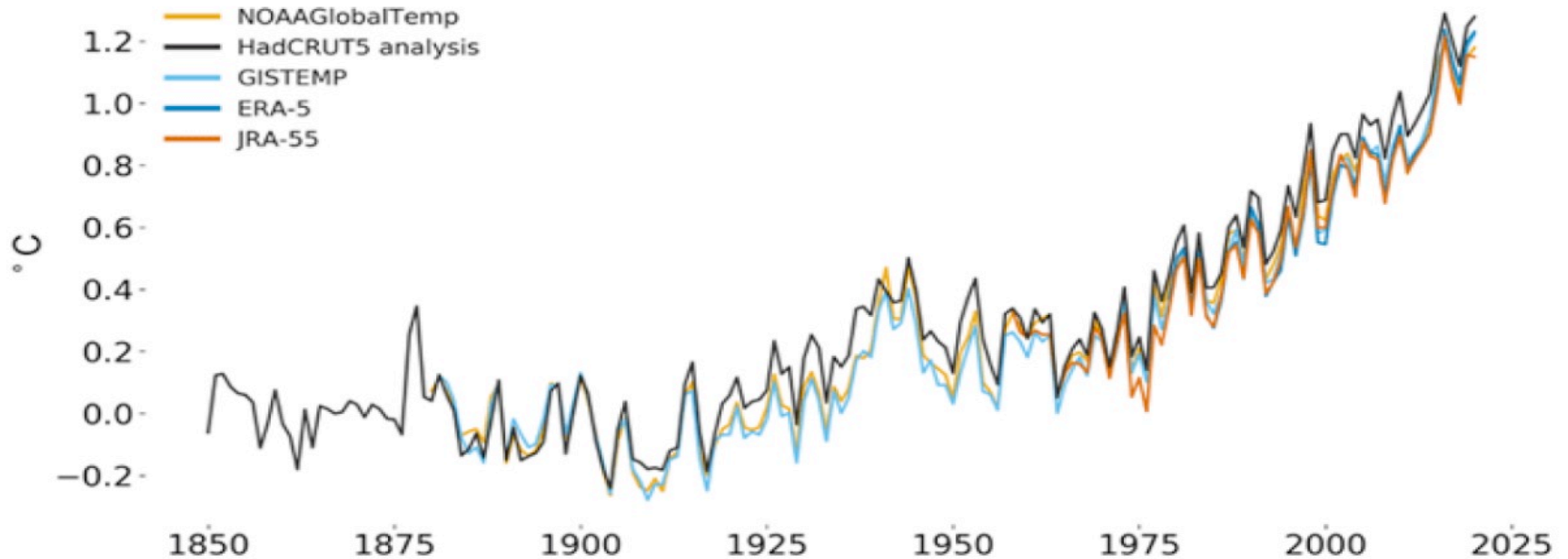


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BRIEF INFORMATION ABOUT THE PROBLEM OF CLIMATE CHANGE

Brief information about the problem of climate change



Anomalies in global mean annual temperature relative to pre-industrial conditions (1850-1900) from six global temperature datasets (1850-2021)

Source: Met Office (UK)

Brief information about the problem of climate change (2)

- According to the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), completed in 2014, “Human influence on the climate system is clear and growing, with impacts across all continents and oceans. Many of the changes observed since the 1950s are unprecedented for decades and millennia. The IPCC is now 95% confident that humans are the main cause of current global warming.”
- To limit global warming to 1.5°C by 2100, GHG emissions must be reduced by 43% by 2030
- To address this challenge, **the Paris Agreement** (PA) to combat climate change was concluded in 2015
- According to the PA, each country has independently determined its own policy in this area - through the implementation of Nationally Determined Contributions (NDCs)



KAZAKHSTAN'S COMMITMENTS TO REDUCE GREENHOUSE GAS EMISSIONS



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Kazakhstan's Commitments to Reduce Greenhouse Gas Emissions

- According to the **revised NDC of the Republic of Kazakhstan**, GHG emissions will be reduced by the end of 2030 compared to 1990 levels by:
 - ✓ 15% - unconditional target
 - ✓ 25% subject to significant additional international investment and grant assistance; access to international technology transfer mechanism; co-financing and participation in international R&D projects, development of low-carbon technologies and initiatives to build local expertise - conditional target

Kazakhstan's Commitments to Reduce Greenhouse Gas Emissions (2)

- The **Strategy for Achieving Carbon Neutrality of the Republic of Kazakhstan until 2060**, approved on 2 February 2023 by the Decree of the President of the Republic of Kazakhstan, provides for decarbonization of industrial processes by:
 - ✓ using alternative construction materials instead of cement, steel, aluminium with lower or zero intensity of GHG emissions
 - ✓ increasing waste recycling to reduce the need for raw material processing as the main source of emissions from the sector
 - ✓ introducing new zero-GHG production technologies combined with carbon capture and storage

Kazakhstan's Commitments to Reduce Greenhouse Gas Emissions (3)

- In December 2024, Kazakhstan announced its accession to the **Global Methane Pledge (GMP)**
 - ✓ *The goal of the GMP is to reduce anthropogenic methane emissions by at least 30% by 2030 compared to the 2020 level*
 - ✓ *Fulfilment of the GMP will prevent warming by 0.2°C by 2050, as well as maintain the limits of global warming growth at no more than 1.5°C*



BRIEF ANALYSIS OF GHG EMISSIONS IN KAZAKHSTAN



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Brief analysis of GHG Emissions in Kazakhstan

Results of GHG inventory results in Kazakhstan, 1000 t CO₂ eq

Year	Total GHG emissions	Decrease relative to 1990	Among them			
			Energy		Industrial processes	
			Emissions	Compared to 1990	Emissions	Compared to 1990
1990	380,187		316,244		22,737	
2000	303,145	-20.26%	168,960	-46.57%	22,739	0.01%
2005	370,625	-2.51%	222,571	-29.62%	22,740	0.01%
2010	381,415	0.32%	257,821	-18.47%	22,741	0.02%
2015	367,697	-3.29%	282,817	-10.57%	22,742	0.02%
2016	365,833	-3.78%	282,278	-10.74%	22,743	0.03%
2017	391,864	3.07%	299,697	-5.23%	22,744	0.03%
2018	404,505	6.40%	316,163	-0.03%	22,745	0.04%
2019	367,058	-3.45%	282,377	-10.71%	22,746	0.04%
2020	342,098	-10.02%	259,502	-17.94%	22,747	0.04%
2021	340,838	-10.35%	261,933	-17.17%	22,748	0.05%

Brief analysis of GHG Emissions in Kazakhstan (2)

- Total GHG emissions including removals in the “land use, land-use changes and forestry” (LULUCF) sector decreased by 10.35 % from 1990 to 2021
- The Energy Activities sector experienced a decrease in GHG emissions in 2021 due to an overall decrease in fuel consumption of 17.17 % relative to the 1990 baseline year and an increase of 0.94 % relative to 2020
- In the “Industrial Processes and Product Use” sector, GHG emissions increased by 19.12 % between 1990 and 2021, mainly due to an increase in industrial production since 1990

Brief analysis of GHG Emissions in Kazakhstan (3)

- In 2022, the Ministry of Industry and Construction of the Republic of Kazakhstan analyzed in detail the energy consumption of different industrial sectors for the period from 2014 to 2020
 - ✓ Energy consumption in the industrial sector between 2014 and 2020 decreased by 28%, while the Gross value added of the sector increased by 34%
- A brief analysis of industrial energy consumption for 2021 and 2022 by the SECCA project expert showed that the downward trend in energy consumption and consequently GHG emissions in the industrial sector is continuing



OPPORTUNITIES PROVIDED BY THE PARIS AGREEMENT TO INDUSTRIAL ENTERPRISES

Opportunities provided by the Paris Agreement to industrial enterprises

- **Article 6.2:** Allows countries to exchange mitigation outcomes bilaterally and use them towards their nationally determined contributions (NDCs)
- **Article 6.4:** Establishes a new mechanism for the validation, verification and issuance of high-quality carbon credits
- **Article 6.8:** Provides opportunities for countries to cooperate towards the achievement of their NDCs without relying on carbon markets

Opportunities provided by the Paris Agreement to industrial enterprises (2)

- The Mechanism under Article 6.4 can be a source of climate finance
- **Through this mechanism a company in one country can reduce emissions in that country and have those reductions credited, so that it can sell them to another company in another country**
- At the 28th Conference of Parties (COP28), no decision was adopted on rules for carbon markets, leaving major questions on international carbon trading unanswered
- Perhaps at the COP29, scheduled in 2024 in Baku, the Parties will adopt guidelines related to the launch of Article 6

Opportunities provided by the Paris Agreement to industrial enterprises (3)

- At the 10th meeting of the “Article 6.4 mechanism Supervisory Body” held on 26/02 – 01/03/2024, the practical steps to be taken for operationalization of the Article 6.4 mechanism in 2024, were discussed
 - ✓ Putting in place the standards, guidelines, and tools to enable the approval of Article 6.4 mechanism methodologies
 - ✓ The baseline scenarios of the projects aimed at GHG reduction should be validated, and GHG reductions achieved should be verified under international rules and procedures

Opportunities provided by the Paris Agreement to industrial enterprises (4)

- The Article 6.4 supervisory body is currently working on developing baseline and monitoring methodologies for such projects
- Such methodologies and methodological tools have already been developed under the Clean Development Mechanism (CDM) of the Kyoto Protocol (KP)



SECCA'S ASSISTANCE PLAN FOR INDUSTRY TO PARTICIPATE IN THE ARTICLE 6 MECHANISM OF THE PA

SECCA's Assistance Plan for Industry to participate in the Article 6 mechanism of the PA

- Based on the analysis of large industrial enterprises included in the State Energy Register of Kazakhstan, identification of up to 10 typical projects (recommended by the energy audit) that could potentially be implemented at industrial enterprises in Kazakhstan
- Selection of baseline and monitoring methodologies for CDM project activities applicable to the identified project types and preparation of a list of parameters to be monitored
- Selection of up to 5 projects, and assessment of GHG emission reduction potential in accordance with CDM methodologies

SECCA's Assistance Plan for Industry to participate in the Article 6 mechanism of the PA (2)

- Study of compliance of existing verification practices in Kazakhstan with the CDM verification standard
- Holding seminars on the following topics:
 - ✓ Opportunities provided by the Paris Agreement
 - ✓ Requirements for implementing projects aimed at verification of GHG reductions under the International mechanisms (e.g. under Article 6 of the Paris Agreement, Voluntary Carbon Market)
 - ✓ Methodological issues (development of baseline scenario, planning and implementation of monitoring, etc.)
 - ✓ Rough assessment of the GHG reduction potential for different industrial enterprises

**THANK YOU
FOR YOUR
ATTENTION!**

