



2021 NICE Third Stage
 “Japan-Russia Energy and Environment Dialogue— the Paris Agreement and Energy Security in Northeast Asia”

February 3, 2021

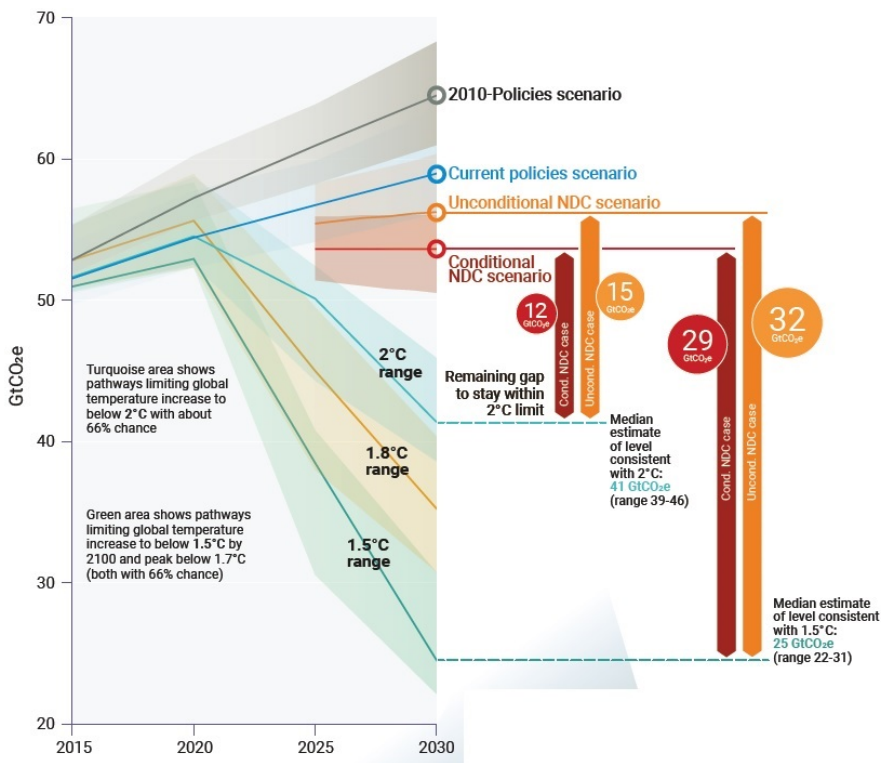
Mongolia’s Nationally Determined Contributions to the Paris Agreement and energy sector

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Special Envoy of Mongolia on Climate Change

NDC contributions and the global emissions gap

Annual global total greenhouse gas emissions (GtCO₂e)



Unconditional NDC case (for 2°C)
GAP= 15 GtCO₂e

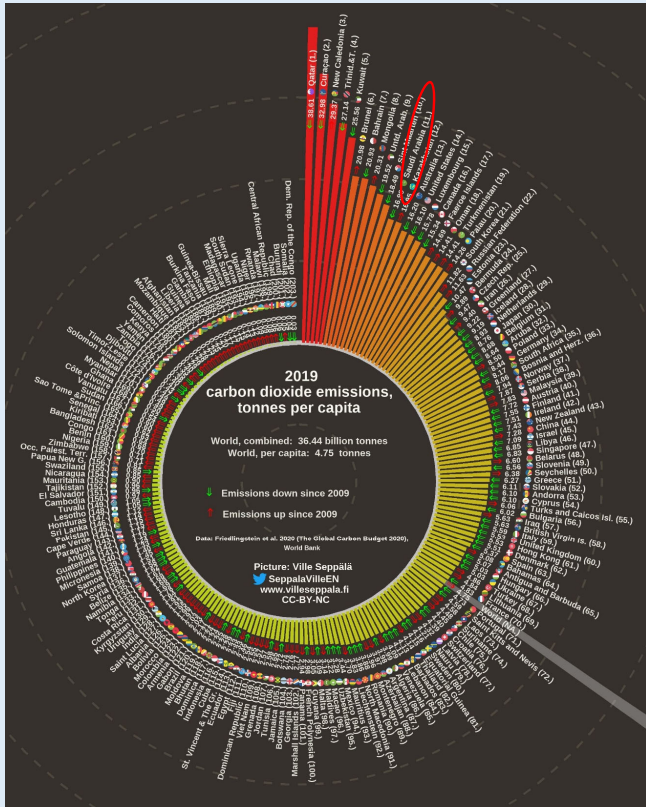
Conditional NDC case (for 2°C)
GAP= 12 GtCO₂e

Unconditional NDC case (for 1.5°C)
GAP= 32 GtCO₂e

Conditional NDC case (for 1.5°C)
GAP= 29 GtCO₂e

Source: UNEP, Emissions Gap Report, 2020

Carbon dioxide emissions



tonnes per capita in 2019

	Countries	Carbon dioxide emissions tonnes per capita
1	Qatar	38.61
2	Curaçao	32.98
3	New Caledonia	29.37
4	Trinidad & Tobago	37.14
5	Kuwait	25.56
6	Brunei	20.98
7	Bahrain	20.91
8	Mongolia	20.31
9	United Arab Emirates	19.52
10	Sint Maarten	18.79

World combined: 36.44 billion ton
World, per capita: 4.75 tonnes

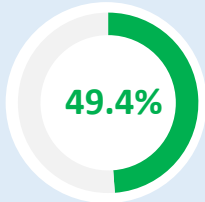
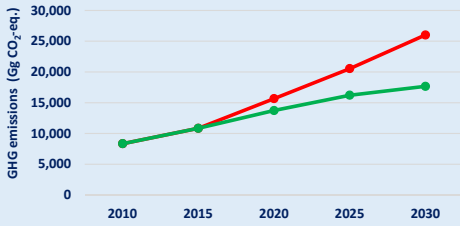
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Mitigation contribution by sectors



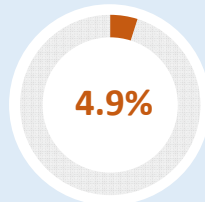
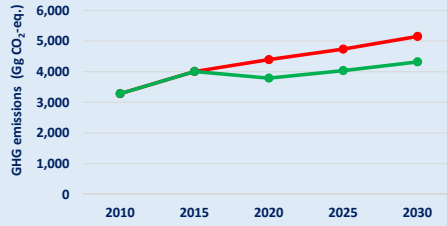
Energy production



– 8,340.5 Gg CO₂-eq.

- Utilization of renewable energy source
– 2,968.7 Gg CO₂-eq.
- Improving the efficiency of energy production
– 5,371.8 Gg CO₂-eq.

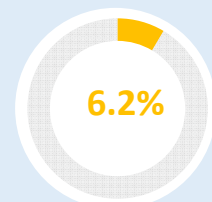
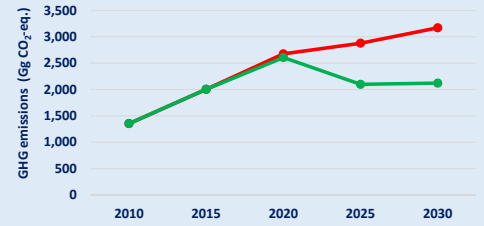
Construction



– 830.1 Gg CO₂-eq.

- To utilize improved fuel for the ger district in UB
– 598.9 Gg CO₂-eq.
- Insulation of pre-cast panel apartments in UB
– 231.2 Gg CO₂-eq.

Transport



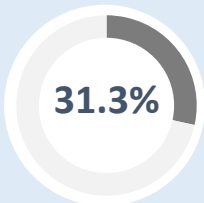
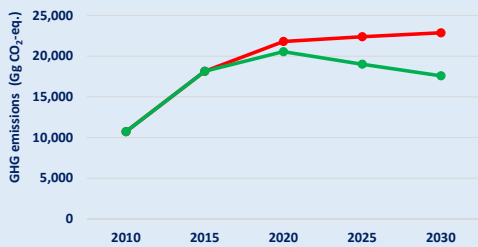
– 1,048.8 Gg CO₂-eq.

- Transition to Euro-5 standard fuel
– 456.8 Gg CO₂-eq.
- Switch from automobile to railway in transportation of coal
– 576.0 Gg CO₂-eq.
- Installation of electric heating in trains
– 16.0 Gg CO₂-eq.

Mitigation contribution by sectors



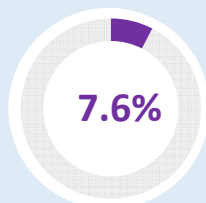
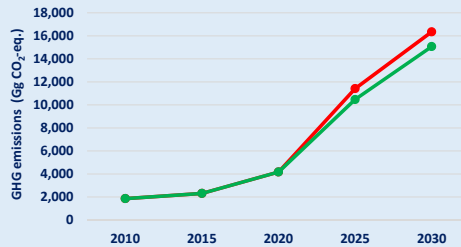
Agriculture



– 5,283.4 Gg CO₂-eq.

- To regulate and reduce the number of livestock
– 4,707.0 Gg CO₂-eq.
- To upgrade the manure management
– 576.3 Gg CO₂-eq.

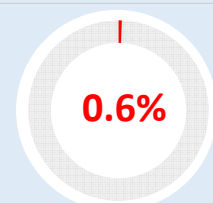
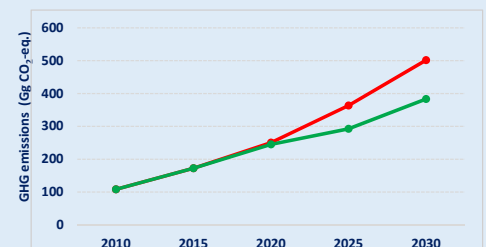
Industry



– 1,279.3 Gg CO₂-eq.

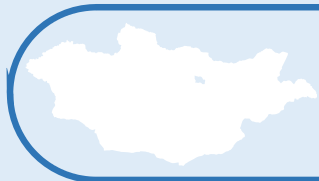
- Energy saving of manufactures
– 1,045.2 Gg CO₂-eq.
- To utilize the excess heat from the cement productions
– 13.4 Gg CO₂-eq.
- To use fly ash in the cement productions
– 86.0 Gg CO₂-eq.
- To utilize coal bed methane in coal mining
– 134.7 Gg CO₂-eq.

Waste



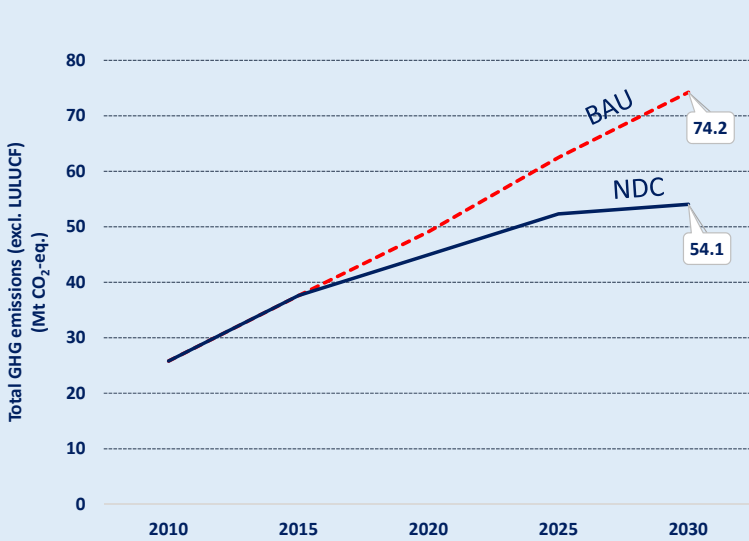
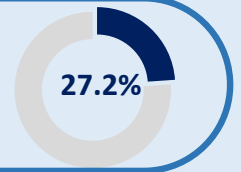
– 106.1 Gg CO₂-eq.

- Reduction of landfill disposed waste volume
– 90.5 Gg CO₂-eq.
- Improvement of waste water plant capacity
– 15.6 Gg CO₂-eq.



NDC TARGETS

(Unconditional + Conditional measures)



Total GHG mitigation potential (including conditional measures)
-20,188.1 Gg CO₂-eq.

Total GHG mitigation potential from unconditional measures
-16,888.1 Gg CO₂-eq.

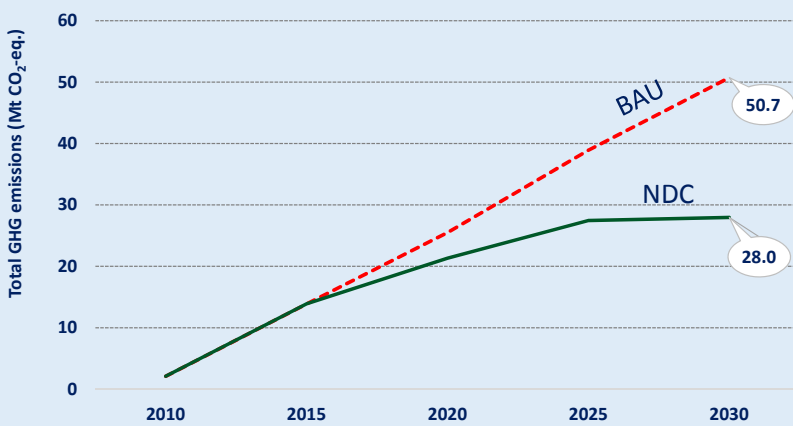
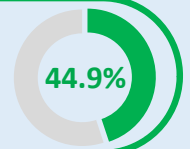
Total GHG mitigation potential from conditional measures
-3,300.0 Gg CO₂-eq.

- Deploy Carbon Capture and Storage (CCS) technology
-3,288.0 Gg CO₂-eq.
- Construct power plant to produce energy capturing and purifying landfill methane gas from the Narangiin enger waste disposal site in Ulaanbaatar city
-12.0 Gg CO₂-eq.



NDC TARGETS

(Unconditional+ Conditional measures + Forest sink)



Total GHG mitigation potential (including conditional measures and forest sink)
-22,768.7 Gg CO₂-eq.

Total GHG mitigation potential from unconditional measures
-16,888.1 Gg CO₂-eq.

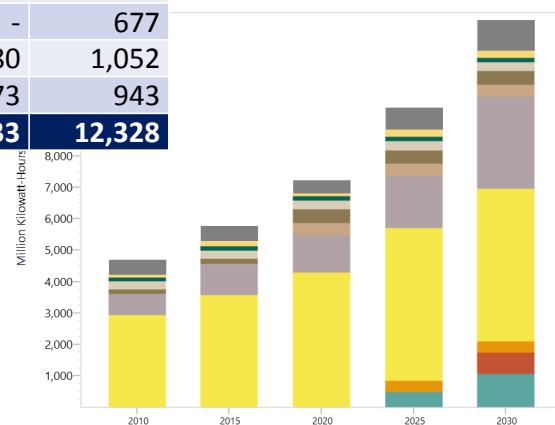
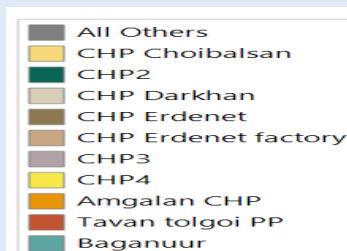
Total GHG mitigation potential from conditional measures
-3,300.0 Gg CO₂-eq.

Total enhancement of forest removal
- 2,580.6 Gg CO₂-eq.

- Sustained removals during the forest degradation reduction process
- 1,623.0 Gg CO₂-eq.
- Sustained removals during the forest deforestation reduction process
- 908.3 Gg CO₂-eq.
- Natural growth-related removals in the area prevented from forest degradation - 49.3 Gg CO₂-eq.

Electricity generation by coal fired power plants, million kW

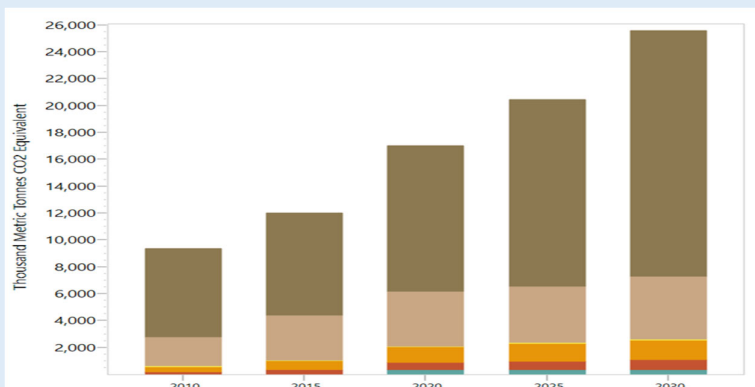
Power plants	2010	2015	2020	2025	2030
Choibalsan CHP	108	145	170	241	244
CHP-2	125	148	145	145	146
Darkhan CHP	256	258	281	283	285
Erdenet CHP	134	154	428	429	430
Erdenet factory CHP	-	-	386	386	386
CHP-3	672	1,007	1,201	1,660	2,920
CHP-4	2,941	3,566	4,288	4,871	4,880
Amgalan CHP	-	-	-	364	364
Tavan tolgoi power plant	-	-	-	-	677
Baganuur power plant	-	-	-	480	1,052
Other	452	460	394	673	943
TOTAL	4,688	5,738	7,292	9,533	12,328



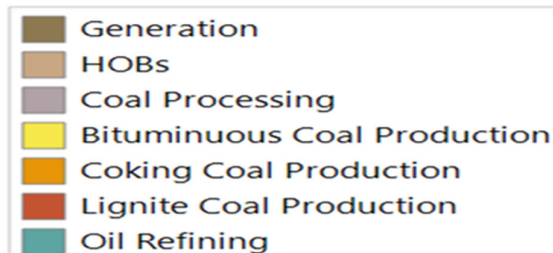
Source: Ministry of Energy

Total GHG emissions from energy industry (Baseline scenario), thousand tons CO₂-eq.

	2010	2015	2020	2025	2030
Electricity generation	6,589.0	7,606.6	12,097.3	16,327.4	21,480.1
Heat generation	1,158.8	2,199.1	1,844.1	2,050.5	2,081.4
Coking coal extraction	406.4	662.9	1,153.5	1,299.5	1,436.5
Extraction of other coal	194.9	378.1	569.3	705.9	848.2
Crude oil extraction	-	-	-	160.6	160.6
TOTAL	8,349.1	10,846.7	15,664.2	20,543.9	26,006.8



Thousand tons CO₂-eq.



Source: Ministry of Energy

GHG emissions reduction options in the energy supply sector

Use of renewable energy sources:

- Hydro energy - 686 MW
- Solar energy - 350 MW
- Wind energy - 320 MW

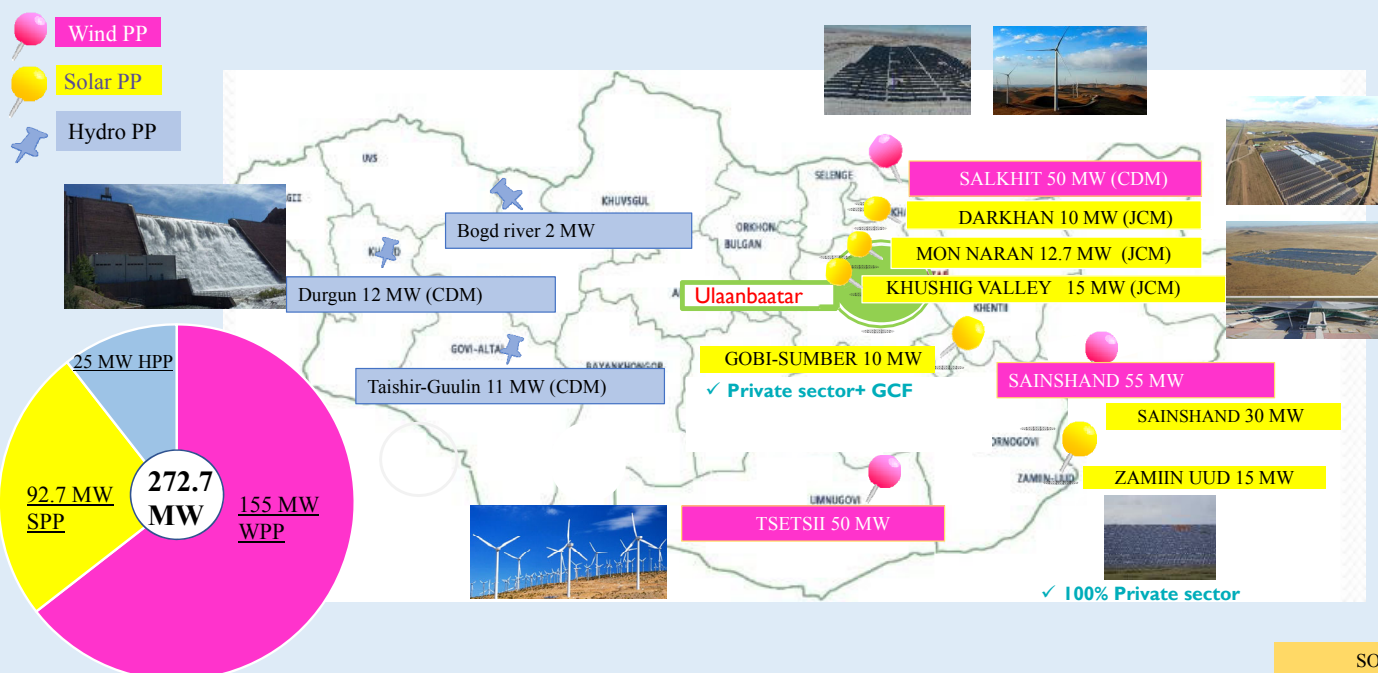
TOTAL - 1356 MW /in 2030 /

Efficiency improvement of electricity and heat production:

- Reduce the electricity and heat transmission and distribution grid losses
- Reduce the heat distribution losses of centralized heating system
- Reduce the internal use of thermal power plants
- Apply super critical and ultra-super critical pressure technology for the newly build coal combustion power plants;

Source: Ministry of Energy

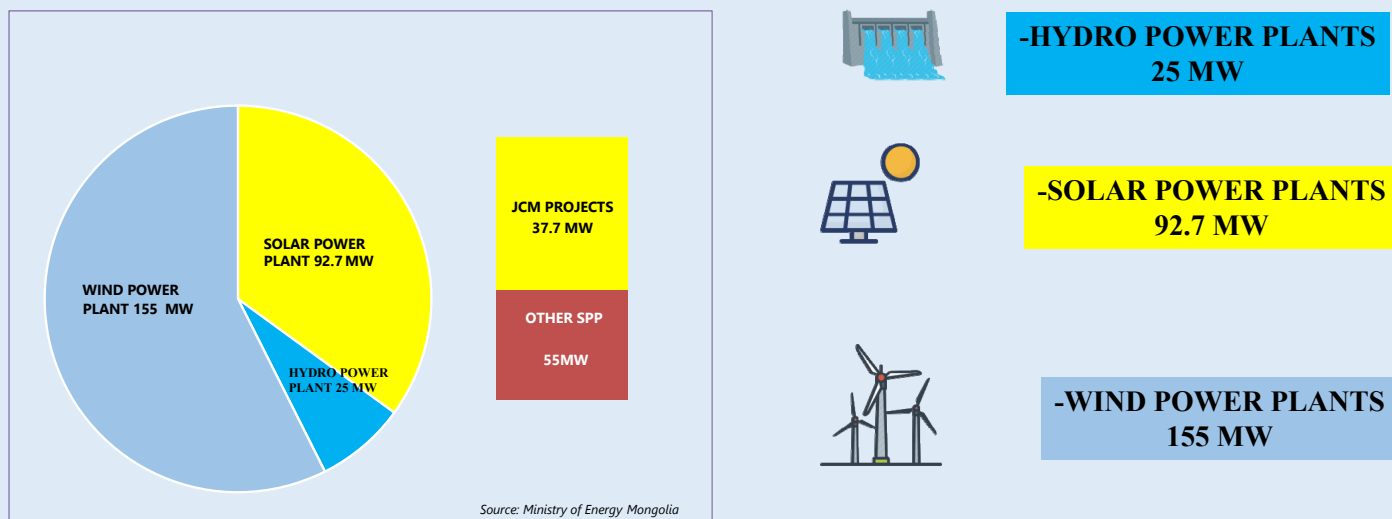
RENEWABLE ENERGY DEVELOPMENT IN MONGOLIA



SOURCE : ERC

JCM CONTRIBUTION TO THE CLEAN ENERGY DEVELOPMENT

AS OF TODAY, TOTAL INSTALLED RENEWABLE ENERGY CAPACITY OF MONGOLIA IS 272.7 MW.



AS OF TODAY, 16 % of JCM FINANCED PROJECTS ARE CONTRIBUTING TO THE MONGOLIAN CLEAN ENERGY POWER PRODUCTION.

Expansion of existing and new capacity planned up to 2030

Installed capacity of existing and planned wind power plants, MW

Wind power plant	2010	2020	2025	2027	2029	2030
Salkhit WPP	50.0	50.0	50.0	50.0	50.0	50.0
Sainshand WPP	-	55.0	55.0	55.0	55.0	55.0
Tsetsii WPP	-	50.0	50.0	50.0	50.0	50.0
Uvs, Zavkhan WPP	-	-	15.0	15.0	15.0	15.0
Other WPP	-	-	50.0	100.0	150.0	150.0
TOTAL	50.0	155.0	220.0	270.0	320.0	320.0

Source: Ministry of Energy

Expansion of existing and new capacity planned up to 2030

Installed capacity of existing and planned **hydro power** plants, MW

Hydro power plant	2010	2023	2025	2026	2029	2030
Taishir HPP	11.0	11.0	11.0	11.0	11.0	11.0
Durgun HPP	12.0	12.0	12.0	12.0	12.0	12.0
Erdeneburen HPP		-	-	90.0	90.0	90.0
Egiin gol HPP	-	-	-	-	-	315.0
Other small HPPs	-	-	8.0	28.0	158.0	258.0
TOTAL	23.0	23.0	31.0	141.0	271.0	686.0

Source: Ministry of Energy

Installed capacity of existing and planned solar power plants, MW

Solar power plant	2010	2017	2018	2019	2021	2027	2030
Darkhan SPP	-	10.0	10.0	10.0	10.0	10.0	10.0
Mon naran SPP	-	-	10.0	10.0	10.0	10.0	10.0
Gegeen SPP	-	-	15.0	15.0	15.0	15.0	15.0
Bukhug SPP	-	-	-	15.0	15.0	15.0	15.0
Sumber SPP	-	-	10.0	10.0	10.0	10.0	10.0
Desert solar power SPP	-	-	-	-	30.0	30.0	30.0
Gobi - Altai SPP	-	-	-	-	10.0	10.0	10.0
Ulaistai SPP	-	-	-	-	5.0	5.0	5.0
Murun SPP	-	-	-	-	-	10.0	10.0
Khovd Myangat SPP	-	-	-	-	-	10.0	10.0
Other SPPs						60.0	210.0
TOTAL	-	10.0	45.0	60.0	105.0	255.0	335.0

Source: Ministry of Energy

- MN003- Installation of 12.7 MW Solar Power Plant in Ulaanbaatar suburb Farm:

Total amount of credits issued in 2018

8880 T-CO₂



MITIGATION TARGET IN ENERGY SECTOR

Total GHG emissions reduction of the energy sector, thousand tons CO₂-eq.

Energy sector	2010	2015	2020	2025	2030
1. Baseline scenario	14,031.9	18,301.1	24,998.5	32,018.3	38,837.3
2. Mitigation scenario	14,031.9	18,301.1	22,089.9	25,433.6	27,572.7
3. Total GHG emissions reduction	-	-	2,908.6	6,584.7	11,264.6
3.1. Energy consumption- Total reduction	-	-	978.1	2,261.1	2,924.1
- Construction	-	-	603.3	699.9	830.1
- Industry	-	-	306.0	782.1	1,045.2
- Transportation	-	-	68.8	779.1	1,048.8
3.2. Energy supply - Total reduction	-	-	1,930.5	4,323.6	8,340.5
- Use of renewable energy	-	-	221.3	1,055.0	2,968.7
- Energy efficiency improvement scenario	-	-	1,709.2	3,268.6	5,371.8
4. Total GHG emissions reduction, %	-	-	11.6%	20.6%	29.0%

Source: Nationally Determined Contribution Of Mongolia, 2019

WWF assessment on the enhancing NDC through Protected Areas

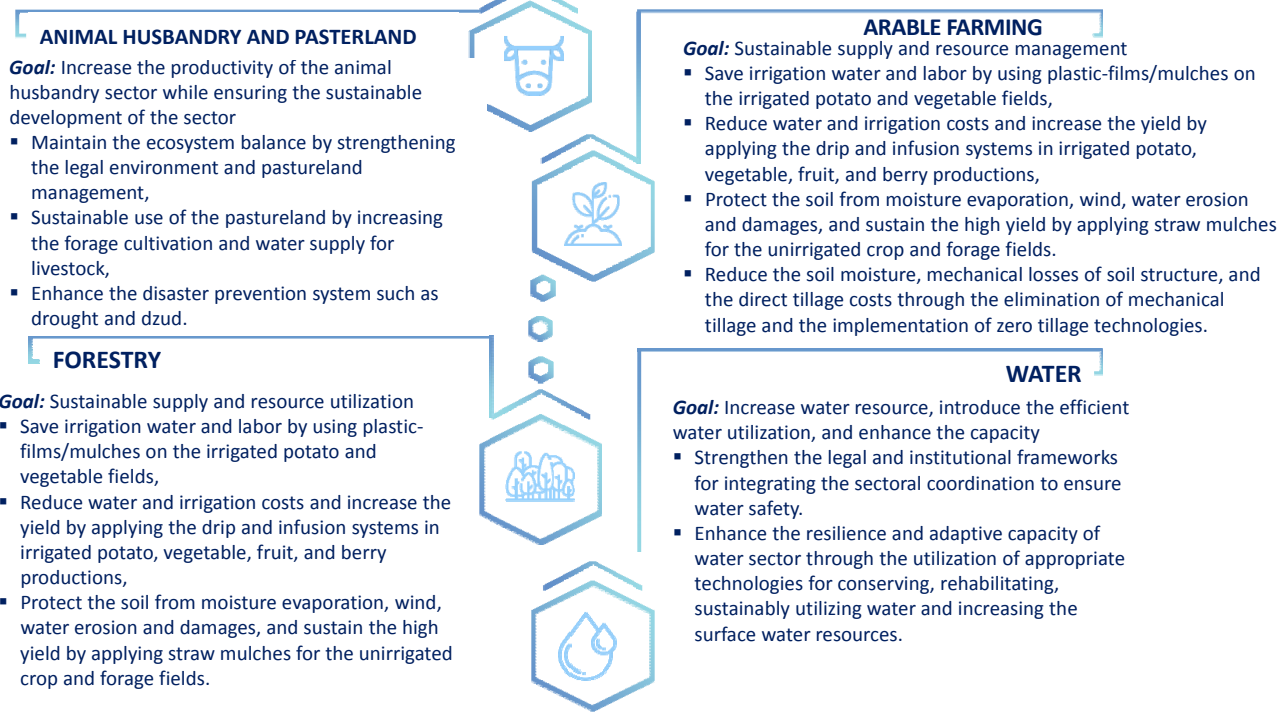
Mongolia ranked as a first country by score

	percentage of national territory under protection (% terrestrial % marine)	1. explicit reference to protected areas	2. new or expanded protected areas	3. adaptation benefits for people from protected areas	4. climate change mitigation benefits from protected areas	5. managing protected areas for climate change risks	total number of credits earned
Micronesia	37.0 3.0						0
Mongolia	21.0 100.0	●	●	●	●	○	4.5
Montenegro	26.0 0.0	●					1
Morocco	31.0 0.0	●	●	○	○		3
Mozambique	22.0 2.0						0
Myanmar	6.0 2.0	●	●		●		3
Namibia	38.0 2.0	●	○		○		2
Nauru	0.0 0.0						0
Nepal	24.0 n.a.	●		○	●	○	3
Netherlands (EU)	11.0 27.0						0
New Zealand	33.0 30.0		○		○		1
Nicaragua	37.0 3.0	●	○	○	●		2
Niger	17.0 n.a.				○		0.5
Nigeria	14.0 0.0	●			○		1.5
Niue	20.0 0.0				○		0.5
Norway	0.0 0.0						0
Pakistan	12.0 1.0	●	○		○		2
Palau	28.0 83.0						0
Panama	21.0 2.0	●	●		●		3
Papua New Guinea	3.0 0.0				○		0.5
Paraguay	14.0 n.a.	●	○				1.5
Peru	21.0 0.0			○	○	○	1.5
Poland (EU)	40.0 23.0						0
Portugal (EU)	23.0 17.0						0
Qatar	13.0 2.0						0



Countries ranked by Credits Earned for the 5 criteria examined

Adaptation activities with synergy effects for mitigation



Adaptation activities and associated inherent resilience capabilities

PUBLIC HEALTH

Goal: Strengthen early warning of potential health risks, and provision of proactive and response measures

- Assess the risks and impacts of climate change on public health, and conduct
- Build the knowledge and awareness on climate change impacts and adverse effects on human health, and empower the general public
- Strengthen the readiness and capacities of health institutions and organizations to respond to the health and public health risks induced by climate change.



DISASTER PREVENTION

Goal: Build the disaster resilience by adapting to and reducing the risks of climate and weather-related hazards and disasters.

- Conduct risk assessments on natural disasters, reduce the disaster risks through the partnership of various stakeholders including the public
- Reduce the disaster-related losses and damages by strengthening the capacity on early warning of climate and weather-related hazards and disasters
- Integrate the disaster risk reduction measures into the development policy planning

LIVELIHOOD AND SOCIAL SAFEGUARD

Goal: Establish the system for provisions of social safeguard, insurance and prevention measures to reduce the vulnerability of social groups and build their capacities by identifying the vulnerable groups to climate change.

- Identify the vulnerable social groups to climate change, and build their capacity to overcome the risks,
- - Reduce the vulnerability by diversifying the economic activities, increasing the income sources and supporting the sustainable livelihood,
- Ensure the equality and support the employment by providing knowledge and education.

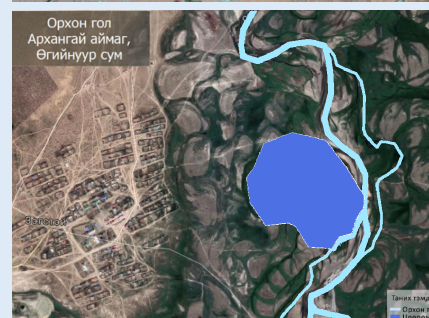
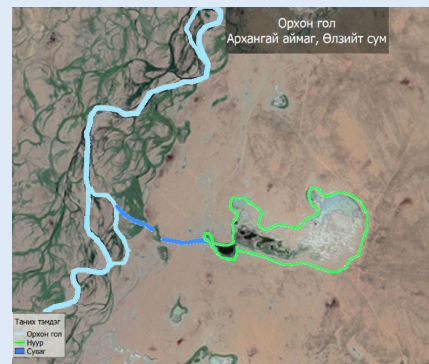
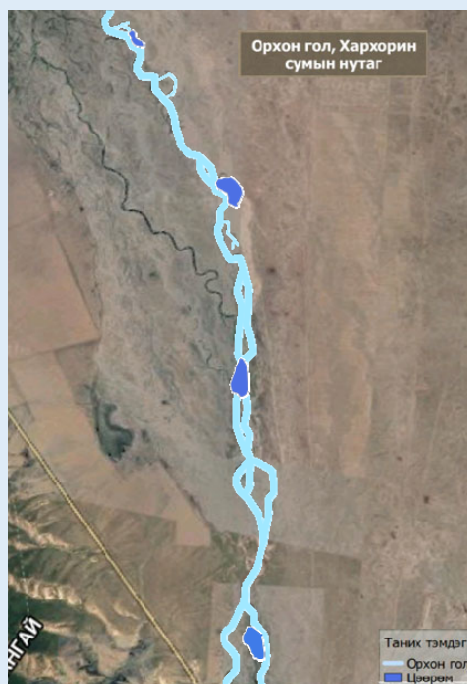
BIODIVERSITY

Goal: Enable adaptation opportunities and adaptive capacities for the climate vulnerable biodiversity.

- - Strengthening the protected status for land, increasing the special protected areas through the border flexibility, and by expanding buffer zones under the protection,
- Determine the dryland ecosystems and their soil organisms vulnerable to climate change, and identify and evaluate the vulnerable functional groups, indicator species;
- Implement the protection and sustainable management measures for enhancing the recovery capacity of vulnerable and unique ecosystems; implement the pilot research project on climate change in different landscapes covering the high mountain, forest, meadow, fresh water, wetland, peatland, steppe, Gobi Desert etc.

Multi-purpose adaptation measures with extended synergy effects

Create cascade of water reservoirs using riverbed relief to collect water from melting glaciers and snow, from extreme rainfalls to prevent flood damage and to stabilize water supply during the drought



NDC ROADMAP Development (long-term vision)

National NDC Roadmap will be a comprehensive policy document towards achieving sustainable, low carbon, and climate-resilient development in Mongolia.

The document will be aligned with key Mongolian development objectives, other major policy documents such as **National Long-term development Vision -2050**, SDG's and other relevant policy documents

NDC Action Plan (every 5 year)

NDC Action Plan is the policy document that ensures the implementation of Mongolia's NDC activities to the Paris Agreement. It outlines the government's main mitigation and adaptation priorities of all sectors and sets the targets in every 5 years.

The document will be in line with **Government principal development actions 2021-2025** and other relevant mid-term policy documents

NDC implementation at sectoral plan

Elaboration of measures and activities in the NDC Action Plan to ensure the NDC implementation at sectoral level.

Mitigation

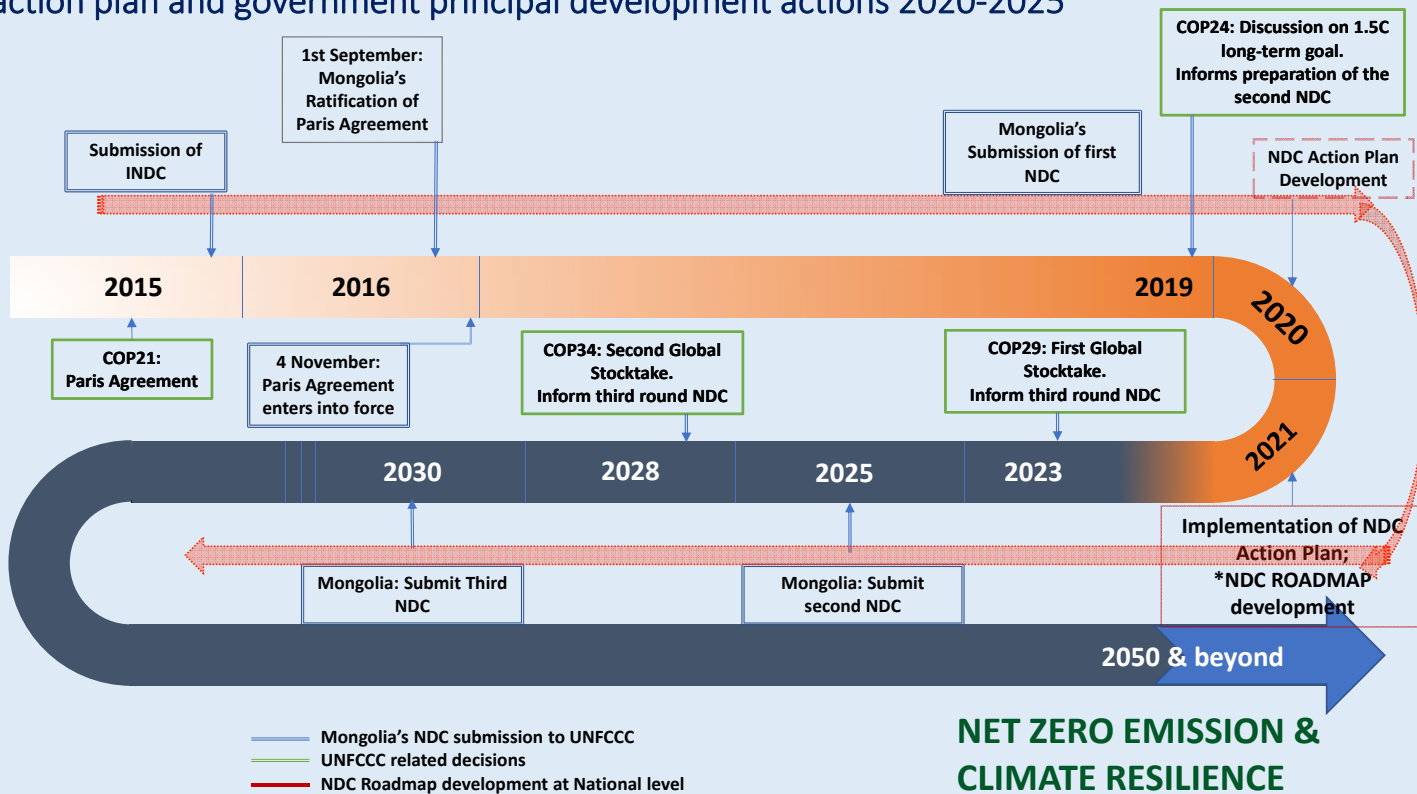
- Energy
- Agriculture
- Construction
- Transport
- Industry
- Waste

Adaptation

- Animal husbandry and pasture land
- Arable farming
- Water
- Forestry
- Biodiversity
- Disaster prevention
- Public health
- Livelihood and social safeguard



National NDC Roadmap Development and National Long-term development Vision -2050 NDC action plan and government principal development actions 2020-2025



Mongolia Long Term Development Policy Scenario (LTV-2050)

	Strategic objectives	Period I (2020-2025) ADDRESSING THE PRESSING ISSUE	Period II (2026-2030) TRANSITION FROM BROWN TO GREEN DEVELOPMENT	Period III (2031-2040) ESTABLISHING THE BASIS FOR GREEN DEVELOPMENT	Period IV (2041-2050) ESTABLISHED GREEN DEVELOPMENT
		Objectives	Objectives	Objectives	Objectives
LIFE SUSTAINING SYSTEM	9.1. Mother nature, primary ecosystem service Assessing the environmental values and benefits and reserve ecosystem balance	To assess and evaluate Mongolian pristine nature and ecosystem service value and capacity INTACT ECOSYSTEM AND IT'S SERVICE	To enhance and ecosystem service value and internalization ECONOMIC VALUE OF NATURE	To promote ecosystem service and increase the profit and availability ECOSYSTEM CAPACITY UPGRADING	To adhere value, resource, remediation capacity based conservation policy and ensure ecosystem equilibrium ENVIRONMENT WITH SUSTAINED EQUILIBRIUM
PRINCIPLES OF SUSTAINABLE DEVELOPMENT	9.2. Inherited Natural resource capacity for future generation	To enforce environmental laws and regulations and reduce resource depletion ENVIRONMENT AND GOVERNANCE	To implement science based policy regarding the environmental conservation and appropriate use and to create utilization resource and restore the degraded land RESPONSIBLE NATURAL RESOURCES USE	Using the technologic achievements and innovations for the environmental conservation and prevent environmental degradation TECHNOLOGY BASED SOLUTION	Appropriate use of natural resource through remediation policy and utilizing the non-renewable natural resource in a limited rate only to complement country's development state BALANCED RESOURCE UTILIZATION
RISK ASSOCIATED WITH EXTERNAL FACTORS	9.3. Water is a resource without alternative To prevent from water resource scarcity and to create a circumstances to ensure the supply and demand sufficiently	To formulate hierarchical price and tariff structure of water resources and to conserve the water through creating payment system and enhance water reservoir WATER AS A PRECIOUS RESOURCE	To raise the water value and domesticate the efficient and economic use and intensify the remediation CONSCIOUS WATER CONSUMPTION	To elaborate integrated water resources management and improving the accessibility and availability through water reservation REPLENISHING WATER RESOURCES	Utilizing the pristine nature and accumulated resource in appropriate and monitorable way DEVELOPMENT WITH MINIMIZED RISK FROM WATER SCARCITY
GLOBALIZATION AND PARADIGM SHIFT	9.4. Green development based on low carbon economy, effectiveness and inclusiveness To promote low carbon, efficient and accessible green development and contribute to international climate change mitigation effort	To establish and promote green financing structure and to promote environmentally friendly efficient clean technology and economical use GREEN TECHNOLOGY – SUSTAINABLE FINANCE	Reducing the waste and including in the life cycle and promote and intensify projects and actions on climate change adaptation GREEN ECONOMY	Cultivating smart consumption and efficient production and enhance domestic and international green climate financing BASIS OF GREEN DEVELOPMENT	Building a capacity on climate change adaptation continuously and elaborate sustainable production and consumption SUSTAINED GREEN DEVELOPMENT

Thank you for your kind attention