



**ДЭЛХИЙН ХЯМРАЛЫН МОНГОЛ УЛСЫН НИЙГЭМ-ЭДИЙН ЗАСАГТ ҮЗҮҮЛСЭН НӨЛӨӨ**  
СЕМИНАР | 2022 ОНЫ 11-Р САРЫН 21



# Enabling environment for low-carbon energy transition compacts and its financing

21 November 2022


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# Economic context

- Mongolia once the fastest growing economies in the world, with an average growth of 7.8% per annum is facing slowdown in economic growth 2.4% in 2022
- Mongolia's reliance on energy imports and commodity exports makes it vulnerable to global shocks
- Russia Ukraine conflict has significant impact on the energy markets and finance worldwide as well as in Mongolia impacting energy investments
- Global recession and financial conditions resulting in commodity price volatility having negative impacts on the economy

## GDP per capita growth (annual %) - Mongolia

World Bank national accounts data, and OECD National Accounts data files.

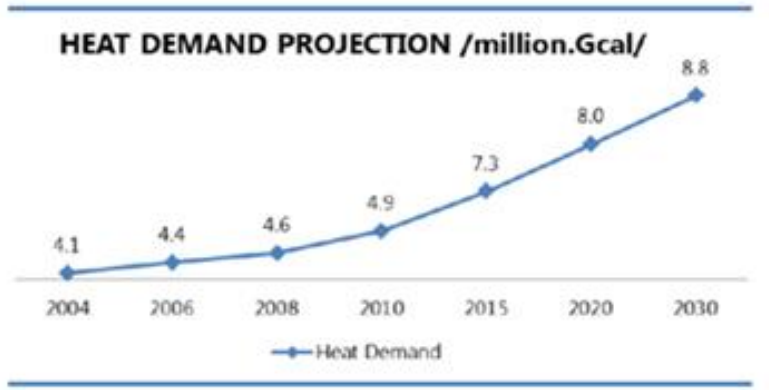
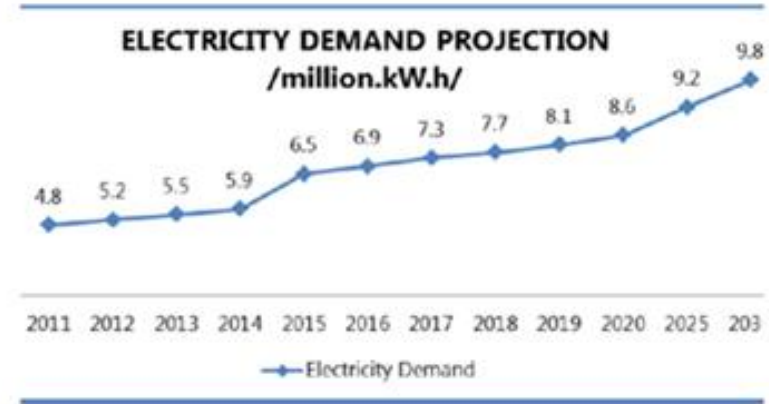
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# Mongolia's Energy Demand will Continue to Grow



- Mongolia's Demand for electricity and its production (and import) have been increasing over the past several years
- Demand for Heating is also increasing...
- ... primarily due to population growth, economic development and urbanization
- Renewable Energy accounted for only 10.2% of total energy
- **19% of electricity was imported in 2021**
- Mongolia has more than 2000 GW energy production potential from renewable sources
- Also, it can be a major supplier to Northeast Asia Super Grid



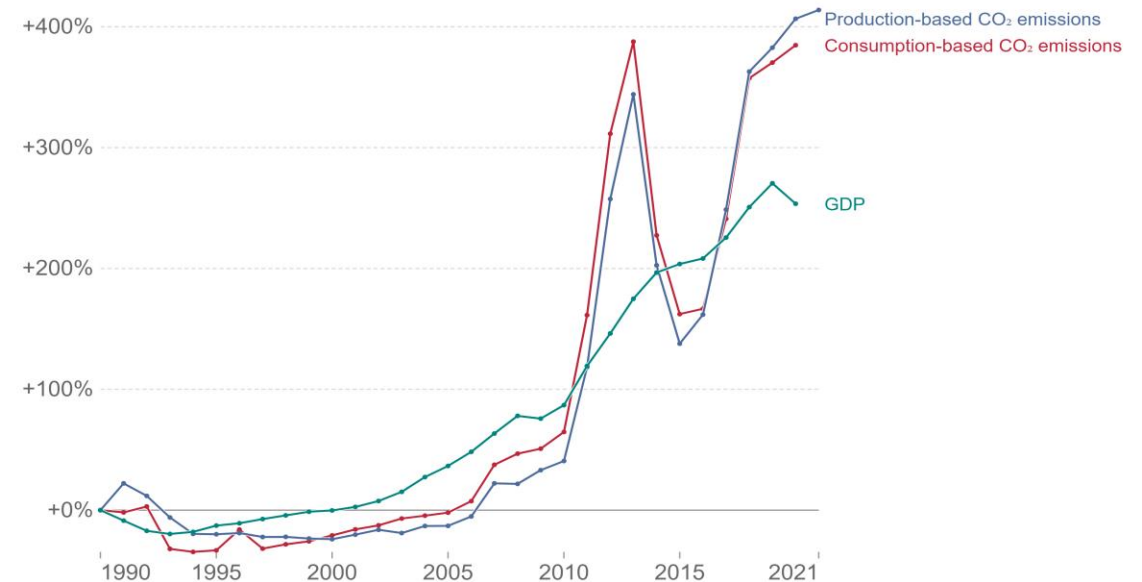
# Political Economy of Carbon Intensive Energy

- Mongolia imports around 10 to 20% of its electricity, mainly for its border provinces
- Country lacks modern national grid infrastructure Which poses challenge for connecting RE generation systems due to geographical locations
- Economic Growth is becoming costly in terms of Country's CO2 Emissions and Subsidies
- Coal Intensive Energy Expansion will undermine delivering on NDC Commitments

## Change in CO<sub>2</sub> emissions and GDP, Mongolia

Consumption-based emissions<sup>1</sup> are national emissions that have been adjusted for trade. This measures fossil fuel and industry emissions<sup>2</sup>. Land use change is not included.

Our World  
in Data



Source: Global Carbon Project; World Bank

OurWorldInData.org/co2-and-other-greenhouse-gas-emissions • CC BY

Note: Gross Domestic Product (GDP) figures are adjusted for inflation.

**1. Consumption-based emissions:** Consumption-based emissions are national or regional emissions that have been adjusted for trade. They are calculated as domestic (or 'production-based' emissions) emissions minus the emissions generated in the production of goods and services that are exported to other countries or regions, plus emissions from the production of goods and services that are imported. Consumption-based emissions = Production-based – Exported + Imported emissions

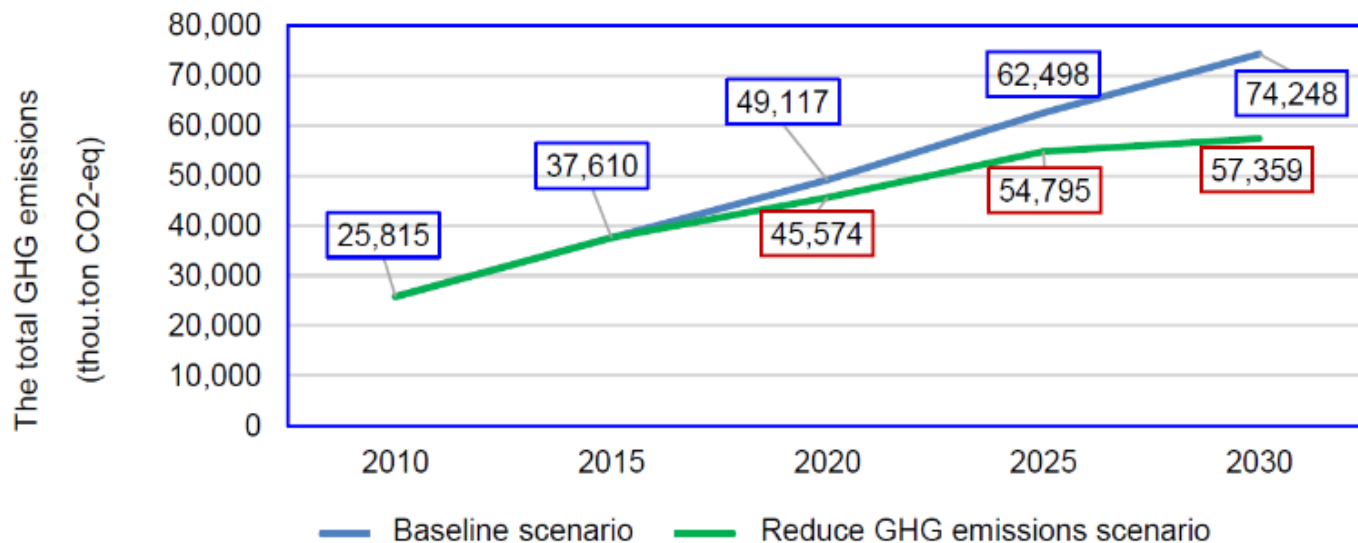
**2. Fossil emissions:** Fossil emissions measure the quantity of carbon dioxide (CO<sub>2</sub>) emitted from the burning of fossil fuels, and directly from industrial processes such as cement and steel production. Fossil CO<sub>2</sub> includes emissions from coal, oil, gas, flaring, cement, steel, and other industrial processes. Fossil emissions do not include land use change, deforestation, soils, or vegetation.

# Climate change impacts in Mongolia

- Rural communities in agriculture and livestock herding (pastoralists are highly dependent on natural resources and are impacted by environmental change
- Rural population is moving to urban informal Ger living with Limited access to services, living conditions and income opportunities enforce a cycle of vulnerability
- Female-headed families, elderly people and children are at risk of climate change and disaster impacts due to their limited access to information, services, sustainable income as well as due to their pre-existing health vulnerabilities



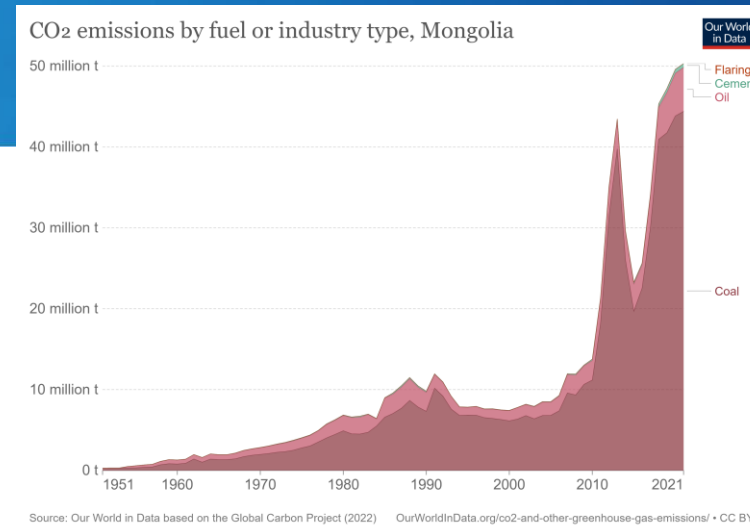
# Mongolia's updated NDCs and Energy Ambition



- The Government of Mongolia's announced plans to reduce greenhouse gas emissions (under the baseline) by 22.7% by 2030
- In the energy production and supply sector aims to reduce emissions by 50% - 8.34 million tonnes of GHG
- Targets are ambitious and remains uncertain
- The Government's Action Plan for 2020-2024 has an objective to build more new coal-fired power plants, meaning that Mongolia might not meet its NDC energy targets, even if planned renewable energy and energy efficiency actions and measures are implemented

# Coal production and Energy use and impact

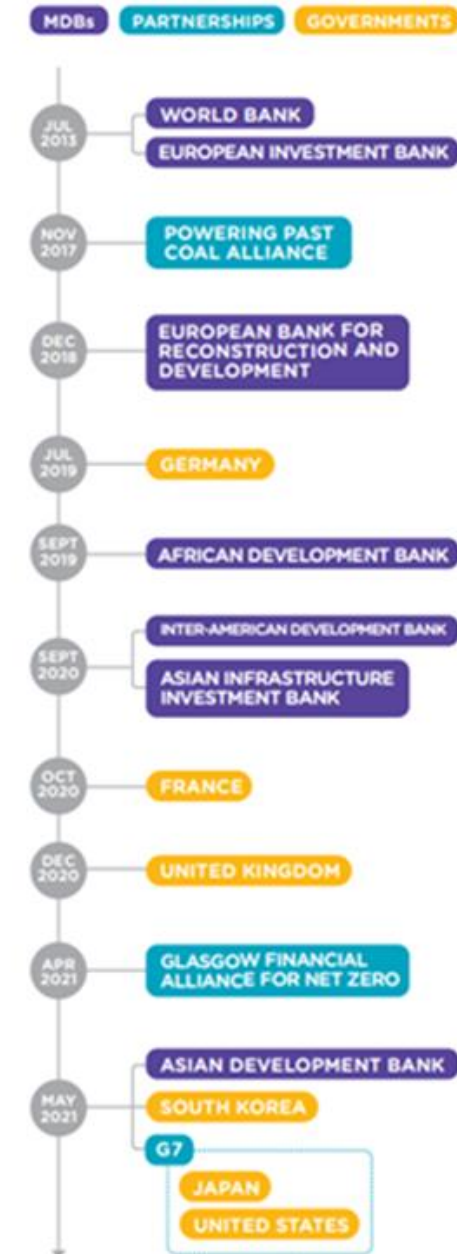
- Extensive coal mining activity and availability of cheap coal leads to continued use of coal for energy generation... contributing to CO2 Emission and particulate matter
- Significant environmental and health impacts
  - Removal of massive amounts of topsoil, leading to erosion,
  - loss of habitat,
  - water and air pollution
  - Coal mine workers and population face serious health problems
- Coal burning 2<sup>nd</sup> third-largest source of particulate matter in Mongolia
- Continued operation of coal-fired power plants could cause almost 1,600 premature deaths – Equivalent to 42,000 cumulative years of life lost in Mongolia between 2020 and 2050



# Risks of continued coal finance

- Coal Projects decisions by policymakers are informed by an overestimation of benefits and underestimation of costs and risks
  - e.g. cheap coal vs. deteriorated air quality, health risks, stranded assets
- High likelihood of difficulties in raising finance for coal capacities from organized financial markets and banks
  - they are under pressure to divest from fossil fuels
- Growing financial risks (known as transition risks), including the probability of ending up with massive stranded assets
  - Estimated global NPV of stranded assets in coal power generation through 2050 ranges from \$1.3 to \$2.3 trillion.
- This will exact steep costs
  - Most notably asset value losses — on fossil-energy producers and shareholders

FIGURE 4  
Timeline of Coal Finance Exit Announcements





# Potential for coal subsidies Redirection and benefitting from Global Investments

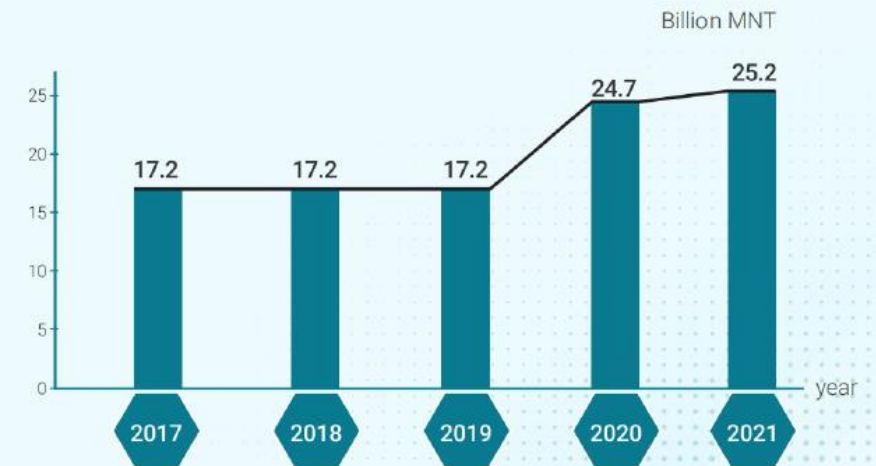
- Mongolia is subsidizing coal industry across the whole value chain – from mining to energy production
- 25.2 Billion MNT in coal subsidies and are increasing every year
- At COP27 Countries have bagged Billions of US\$ RE Investment Commitments
  - Indonesia secured a pledge from U.S., Japan, and partners for U\$20 billion to transition away from coal
  - USA, EU and Germany pledged \$500 million to help Egypt transition away from natural gas generation to clean energy
  - The Asian Infrastructure Investment Bank (AIIB) and the Global Energy Alliance for People and Planet (GEAPP) announced a strategic investment partnership to mobilize US \$1 billion for financing of green energy transition
- Mongolia can also benefit from these opportunities by translating project ideas into actions and announcing Renewable Energy Compacts

## GOVERNMENT SUBSIDIES RECEIVED BY ENERGY COMPANIES

Million MNT

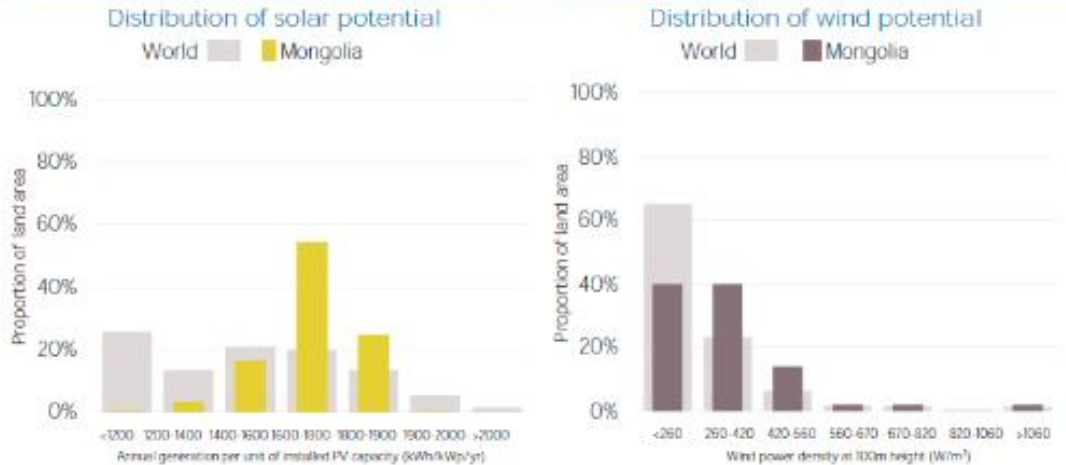
Name of LHs	2017	2018	2019	2020	2021
"WRES" SOJSC	8,600.0	8,600.0	8,600.0	16,700.0	16,700.0
"DzCHPP" SOJSC	1,600.0	1,600.0	1,600.0	1,447.1	1,430.5
"AUIPG" SOJSC	3,150.0	3,150.0	3,150.0	3,150.0	2,272.7
"BNTP" SOJSC	1,100.0	1,100.0	1,100.0	1,010.0	1,081.9
"TPND" SOJSC	1,400.0	1,400.0	1,400.0	1,238.0	1,251.8
"DSHG" SOJSC	500.0	500.0	500.0	482.0	491.7
"Selenge Energo" ME	500.0	500.0	500.0	428.0	447.1
"Khentii-US" Ltd	300.0	300.0	300.0	269.6	295.1
Zamiin Uud TP SOIA	-	-	-	-	1,230.0
<b>Total</b>	<b>17,150.0</b>	<b>17,150.0</b>	<b>17,150.0</b>	<b>24,724.7</b>	<b>25,200.8</b>

2021 Statistics on Energy Performance, ERC



# Opportunities from energy efficiency and renewable energy

## RENEWABLE RESOURCE POTENTIAL



Biomass potential: net primary production

Indicators of renewable resource potential



● = Global average of 3-4 tC/ha/yr

**Solar PV:** Solar resource potential has been divided into seven classes, each representing a range of annual PV output per unit of capacity (kWh/kWp/yr). The bar chart shows the proportion of a country's land area in each of these classes and the global distribution of land area across the classes (for comparison).

**Onshore wind:** Potential wind power density (W/m<sup>2</sup>) is shown in the seven classes used by NREL, measured at a height of 100m. The bar chart shows the distribution of the country's land area in each of these classes compared to the global distribution of wind resources. Areas in the third class or above are considered to be a good wind resource.

**Biomass:** Net primary production (NPP) is the amount of carbon fixed by plants and accumulated as biomass each year. It is a basic measure of biomass productivity. The chart shows the average NPP in the country (tC/ha/yr), compared to the global average NPP of 3-4 tonnes of carbon per year.

- Energy efficiency is the cheapest and cost-effective way to improve energy independence and reduce GHG emissions through
  - Improved heating systems, improved building stock,
  - reduced transmission and distribution losses (currently 13.8%),
  - improved transport systems, etc.
- Improved economic and financial outcomes – including
  - Attracting lucrative investment in several sectors
  - Creation of jobs in many sectors (building, finance, transport)
  - Reduce air pollution and associated health impacts
  - Reduce import dependencies
- The country's combined wind and solar power potential is estimated to be equivalent to 2,600 gigawatts (GW)
  - Enough to meet the country's energy demand (around 1.2 GW),
  - Meet northeast Asia's regional energy demand
  - Environmental, social and economic benefits,
  - Improved air-quality, environment, innovation ecosystem, and governance
  - Reduced import dependence,
  - reduce price volatility linked to energy carrier costs
- Full low-carbon transition by 2050 - more than 16,000 net new permanent and full-time jobs (job losses in fossil-fuel industries already subtracted)

# Recommendations: Entry points and opportunities



- Strategic decision towards sustainability – linked with action:
  - Aligning energy commitments with NDCs, New Revival Policy, Vision 2050 and other
  - Identifying critical areas falling behind in reaching energy targets
  - Moving away from coal and creating a market for RE and EE
  - Redirect coal subsidies to more productive economic activities
    - Skilling for future, value added product development, R & D, energy efficiency, economic diversification
  - Organize meetings with public and private sector entities to examine their interest
  - in committing to Energy Compacts and
    - joining RE partnerships
- Mobilize Green finance with a strategic direction:
  - Banks and Financial Entities at Global level are increasingly looking for expanding their ESG aligned portfolios
    - Green finance is growing
  - Private sector is looking to embrace sustainable practices
    - Mongolia released a set of guidelines to help listed companies,
    - prospective issuers and other interested companies disclose their sustainability practices
  - Green bonds for example can help mobilize cheaper finance
    - reduced interest rate, increased tenor