

Chapter **1**

Introduction

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Chapter 1

Introduction

1. Mongolia's Current Socioeconomic Situation

By administrative division, Mongolia is divided into 21 aimags (or provinces), 330 *soums*, 1,618 baghs (aimags consist of *soums*, *soums* consist of baghs), and a capital city which has 9 districts and 152 *khoroos* (districts consist of *khoroos*).

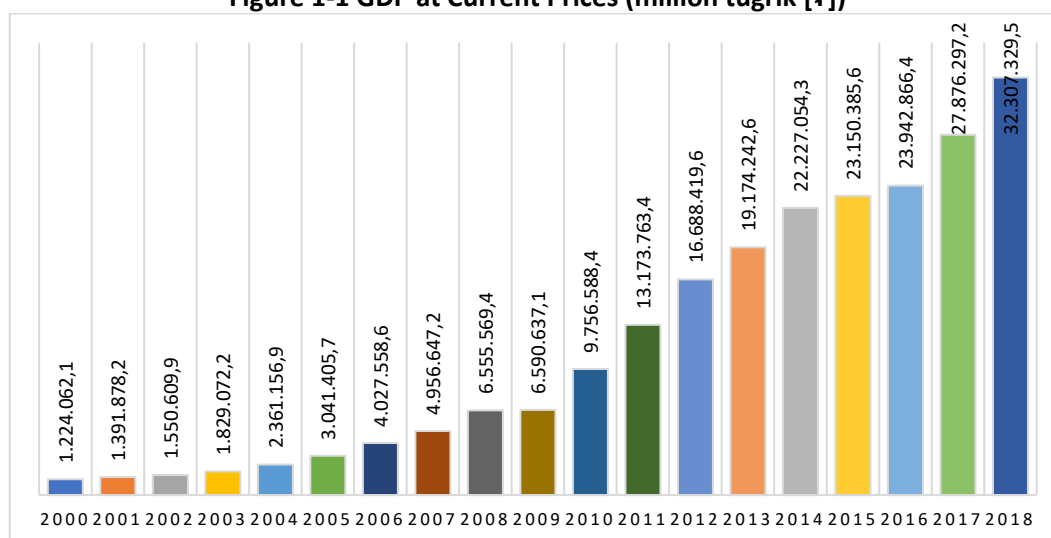
Mongolia has an area of 15,641,000 square kilometres. In 2018, the population density was 2.1 persons per square kilometre (km²) nationwide, whilst it was 317.3 persons/km² in Ulaanbaatar city.

The total population of Mongolia in 2018 was 3.2 million, increased by 0.8 million or 34.8% from 2000. Average annual population growth was 1.9% for the period 2000–2018.

In 2018, there were 8.945 million households in Mongolia, which was an increase by 89,000 households or 1% compared to the previous year; 43.3% of these households lived in Ulaanbaatar city. Each household has an average of 3.6 persons.

Mongolia's gross domestic product (GDP) reached 32.3 trillion tugrik (₮) in 2018, which constituted an increase of 15.9% from the previous year (Figure 1-1). The industry sector's share in GDP was 41.9%; agriculture, 10.7%; and service sector's share, 47.4%.

Figure 1-1 GDP at Current Prices (million tugrik [₮])



Source: National statistical office of Mongolia (2018b).

Mongolia's mining and quarrying sub-sector's share in total exports is about 80%. In 2018, 51.4 million tonnes of coal were extracted, of which 36.3 million tonnes were exported; 20.7 tonnes of gold were extracted, of which 3.4 tonnes were exported; and 1.3 million tonnes of copper ore were extracted, and 1.4 million tonnes were exported. Compared to 2000, the

quantity of extracted coal had risen twice; copper ore, by 2.5 times; gold, by 3.4; and oil, by 2.9 times in 2018.

The share of sub-sectors in the service sector by contribution to GDP was: trade, 34.5%; real estate activities, 11.8%; finance and insurance, 11%; transport, 9.8%; public administration, 7.9%; education, 7.7%; information and communications, 4.6%; health, 3.4%; other services, 9.4%.

In 2018, 69.9 million tonnes of goods were transported by all types of transport, which was an increase of 15.9 tonnes or 29.5% from 2017. Goods transported by road increased by 12.9 tonnes or 41.4% compared to the previous year. This increase was largely due to the increase in mining products. Road transport accounted for 63.1% of all goods transported, whilst rail transport accounted for 36.9%. In 2018, 200.4 million people were transported – 98.2% by road, 1.3% by rail, and 0.5% by air.

In 2018, the revenues of Mongolia's transport sector were ₮1,686.4 billion, of which 37.2% were from road transport; 36.5%, from rail transport; and 26.2%, from air transport.

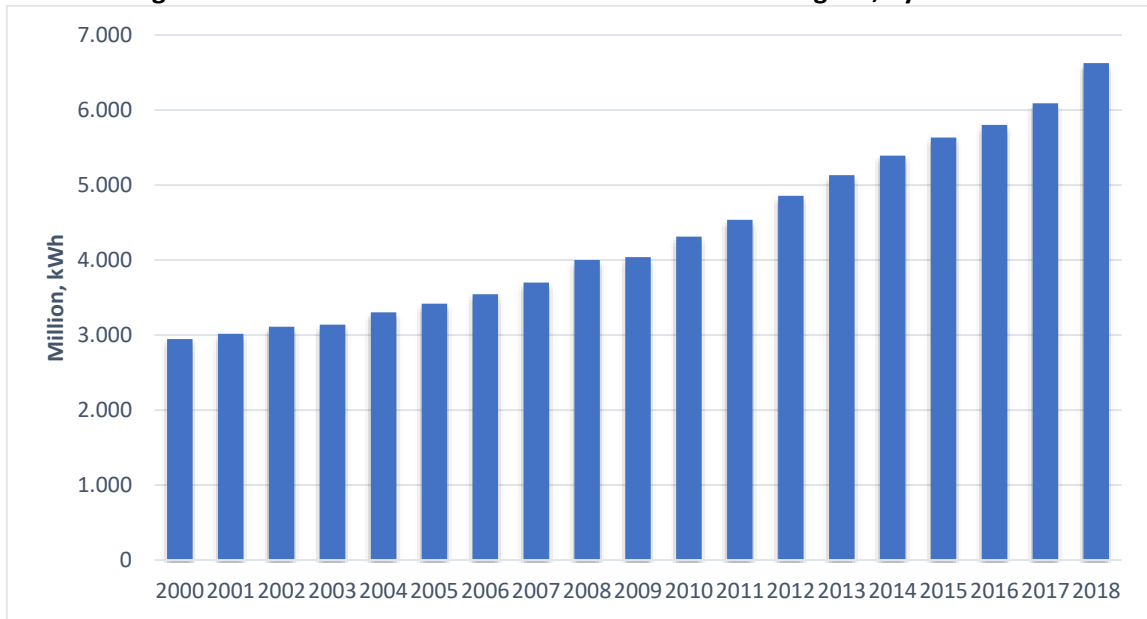
2. Energy Consumption Trend

Out of 330 *soums* in Mongolia, 329 *soums* are connected to the electrical grid, and 1 *soum* is being supplied by electric power from a combined renewable energy and diesel source. Also, 81.2% of herder families use electric power from their portable solar PV systems. Currently, 97% of all consumers have uninterrupted power source.

In recent years, the share of renewable energy in Mongolia's energy mix has increased (in 2019 total installed capacity of renewable energy sources was 238 MW), which is in line with the world's energy development trend.

Mongolia's total installed capacity (not including diesel generators) is 1,328.8 MW. In 2018, electric power generation was 6,624.8 million kWh, which was an increase of 8.8% from 2017. Thermal energy production was 94.251 million gigacalorie (GCal), which was an increase of 4.485 million GCal or 5% from the previous year. Domestic power generation accounted for 80% of total consumption, whilst 20% or 1,683.6 million kWh were imported from the neighbouring countries.

Figure 1-2. Historical Trend of Power Generation in Mongolia, by Year



Source: Energy regulatory commission (2018).

Table 1-1 shows electric power generated and imported in Mongolia in the 2014 – 2018 period. It illustrates that the total generation of electric power had increased every year as the country developed and the economy and population grew.

Table 1-1. Quantity of Mongolia’s Power Generation and Imports

Indicators	Unit	2014	2015	2016	2017	2018
Total consumption	million kWh	6,788.9	6,935.5	7,221.4	7,611.6	8,308.3
From domestic generation	million kWh	5,392	5,541.7	5,802.4	6,089.1	6,624.8
From imported EP	million kWh	1,396.9	1,393.8	1,419.1	1,522.5	1,683.6
Share of imports	percent	25.91	20.10	19.65	20	20.26

Source: Energy Regulatory Commission (2018).

3. About Mongolia’s Energy Conservation and Efficiency Policy

Energy consumption of Mongolia significantly grew in 2000–2018. To mitigate the consumption, Mongolia must start and implement an energy efficiency and conservation (EEC) policy. In this regard, the Mongolian Energy Economics Institute (MEEI), with the support of ERIA, started producing the EEIs by sector as benchmarks.

Mongolia’s energy law was first approved in 2001 and amended in 2015.

Mongolia’s State Great Khural (Parliament) approved a renewable energy law in 2007, which was amended in 2015 and 2019. This law provided Mongolia with a legal framework to create a competitive market of renewable energy.

The State Great Khural, in 2015, adopted Resolution Number 63, 'The State Policy on Energy Sector for 2015--2030. In 2018, it also approved the 'Medium-term Programme for Implementing the State Policy on the Energy Sector' to ensure the realisation of the policy.

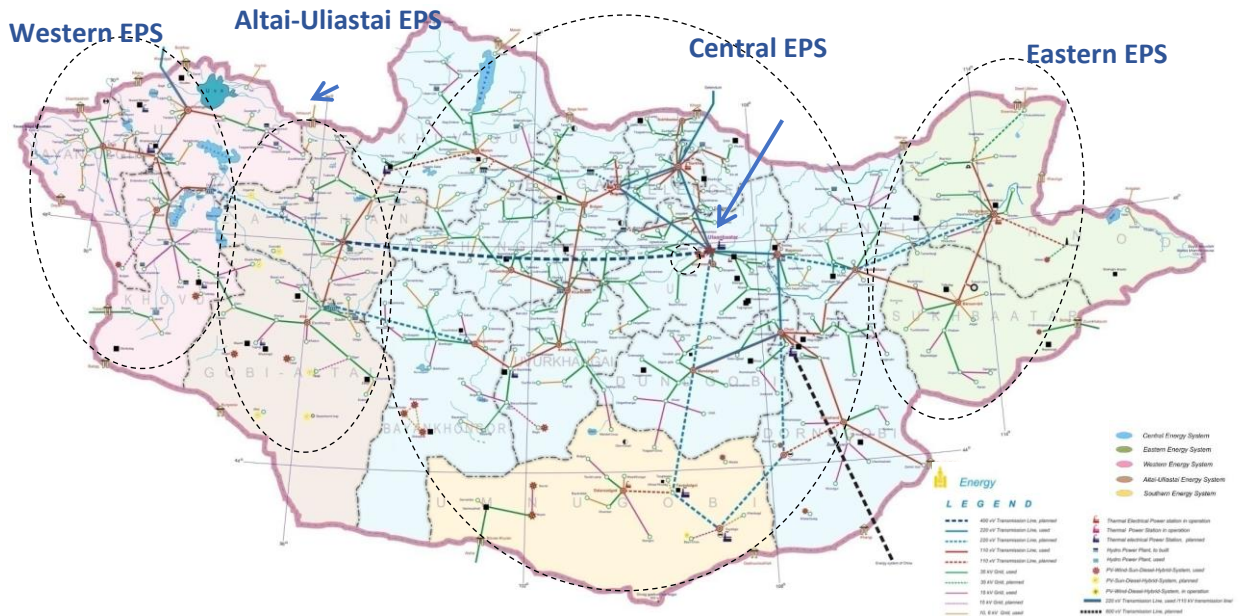
The energy conservation law of 2015, intended to regulate activities related to energy conservation and efficient use, has provided a legal framework to implement a policy aimed at improving the efficiency of energy use; creating a culture of energy conservation; and introducing technologies that are highly productive, environment friendly, and efficient.

The government's action plan for 2016--2020, sub-clause number 2.108, states: 'Certain measures, projects and programmes aimed at improving energy conservation and efficiency, reducing transmission losses, and introducing innovation level new technologies and equipment will be implemented'. Based on this plan and with a goal to accelerate the implementation of the energy conservation law, the parliament approved in 2017 the 'National Energy Conservation Programme for 2018--2022' by its Resolution number 247. Works are being done according to this programme.

4. Mongolia's Electricity Consumption, by Province

Mongolia has four independent electric power systems (EPSs): Western EPS, Altai-Uliastai EPS (AUEPS), Western EPS, and Central EPS. Also, it has diesel generator plants and renewable energy sources that are not connected to any of these systems.

Figure 1-3 Mongolia's Electric Power Systems



Source: Gansukh (2015).

Uvs, Khovd, and Bayan-Ulgii provinces are connected to the Western EPS, which annually consumes 162 million KWh with a load of 32 BW. Western EPS operates based on imports from the connection with Krasnoyarskaya EPS of Russia and 12 MW capacity of Durgun Hydropower Plant.

Zavkhan and Gobi-Altai provinces are connected to the AUEPS, which has an annual consumption of 75.7 million KWh with a load of 15 BW. The AUEPS operates on 12 MW capacity of the Taishir Hydropower Plant and the diesel generator plants of Uliastai and Yesunbulag.

Fourteen provinces of Khangai, Central and Southern region are connected to the Central EPS, which has an annual consumption of 6.3 billion kWh with a peak load of 1,117 MW (+150 MW of Oyu Tolgoi). Ulaanbaatar city's second, third, and fourth combined heat and power (CHP) thermal power plants (TPPs), Darkhan city's CHP TPP, Erdenet city's CHP TPP, Dalanzadgad's condensing power plant (CPP), Ukhaakhudag's CPP, Salkhit wind farm, Tsetsii wind farm, Sainshand wind farm, Nar Photovoltaic Power Station (PPS), Monnar PPS, Naranteg PPS, Khushig PPS, and Sumber PPS operate in the Central EPS with a combined capacity of 1,281.8 MW. The Central EPS is connected to the Buryatia EPS of Russia via a 220 kV line, importing and exporting power as needed.

Oyu Tolgoi mine's electric power consumption is being supplied by electric power imported from China.

Dornod and Sukhbaatar provinces are connected to the Eastern EPS, which annually consumes 199.4 million kWh with a load of 36 MW. The Eastern EPS operates based on 36 MW capacity of the Dornod CHP TPP.