

# MONGOLIA



## Country at a glance

- Population: 2.75 million (2010) [1]
- Total area: 1,564,116 sq. km [2]
- Carbon emissions per capita: 4.31 metric tons (2010) [3]
- Energy consumption per capita: 10 MWh (2010) [4]
- Percentage of global carbon emissions: 0.04% (2010) [3]



### Tavan Tolgoi Coal Mine in Mongolia

The Tavan Tolgoi, also known as the 'Five Hill' coal mine in Mongolia is one of the world's largest coking and thermal coal deposits. Located in the Omnogovi Province, this area has an estimated 6.4 billion tons of coal. Full-scale commercial mining have started in late 2012.

The Five Hill Coal Mine of Mongolia. Permission Under CC BY-NC 1.0 License  
[en.wikipedia.org/wiki/File:Tavan\\_Tolgoi\\_05.jpg](http://en.wikipedia.org/wiki/File:Tavan_Tolgoi_05.jpg)

**Table 1 Breakdown of energy use, electricity and heat generation, 2010**

|                                   | Primary energy sourced within country |               | Energy imports minus exports | Primary energy used within the country <sup>(a)</sup> |              |               | Electricity Generation <sup>(b)</sup> |              | Heat Generation <sup>(c)</sup> |              |            |
|-----------------------------------|---------------------------------------|---------------|------------------------------|---|--------------|---------------|---------------------------------------|--------------|--------------------------------|--------------|------------|
|                                   | unit                                  | ktoe          |                              | %   | ktoe         | GWh           | %                                     | GWh          | %                              | GWh          | %          |
| Coal, including brown coal & peat |                                       | 14,527        | 97                           | -11,720   | 2,280        | 26,521        | 70                                    | 4,302        | 96                             | 9,698        | 100        |
| Oil fuels                         |                                       | 301           | 2                            | 560   | 829          | 9,639         | 25                                    | 179          | 4                              | 28           | 0          |
| Natural gas                       |                                       | 0             | 0                            | 0   | 0            | 0             | 0                                     | 0            | 0                              | 0            | 0          |
| Nuclear                           |                                       | 0             | 0                            | 0   | 0            | 0             | 0                                     | 0            | 0                              | 0            | 0          |
| Hydroelectric                     |                                       | 0             | 0                            | 0   | 0            | 0             | 0                                     | 0            | 0                              | 0            | 0          |
| Biofuels and waste                |                                       | 146           | 1                            | 0   | 146          | 1,699         | 4                                     | 0            | 0                              | 0            | 0          |
| Solar photovoltaics               |                                       | 0             | 0                            | 0   | 0            | 0             | 0                                     | 0            | 0                              | 0            | 0          |
| Solar thermal                     |                                       | 0             | 0                            | 0   | 0            | 0             | 0                                     | 0            | 0                              | 0            | 0          |
| Tide, wave and ocean              |                                       | 0             | 0                            | 0   | 0            | 0             | 0                                     | 0            | 0                              | 0            | 0          |
| Wind                              |                                       | 0             | 0                            | 0   | 0            | 0             | 0                                     | 0            | 0                              | 0            | 0          |
| Geothermal                        |                                       | 0             | 0                            | 0   | 0            | 0             | 0                                     | 0            | 0                              | 0            | 0          |
| Electricity (imported)            |                                       | 0             | 0                            | 21  | 21           | 241           | 1                                     | 0            | 0                              | 0            | 0          |
| Sub total Renewables              |                                       | 146           | 1                            | 0   | 146          | 1,699         | 4                                     | 0            | 0                              | 0            | 0          |
| <b>Totals</b>                     |                                       | <b>14,974</b> | <b>100</b>                   | <b>-11,140</b>  | <b>3,276</b> | <b>38,100</b> | <b>100</b>                            | <b>4,481</b> | <b>100</b>                     | <b>9,726</b> | <b>100</b> |

Source: Based on World Energy Statistics and Balances Database 2012, "World Energy Balances." © OECD/IEA, 2012.

Notes:

Standard conversion used is 1 ktoe = 11.63 GWh

(a) Sum of energy sourced within country, energy imports minus exports, international marine and aviation bunkers and stock change flows.

(b) Includes all electricity generation, including any exported.

(c) Does not include electrical heating. Includes waste heat recovery from electricity generation plants.

**Table 2 Breakdown of transport fuel use, 2010**

| (in ktoe)            | Total transport mix | %          | Domestic aviation | Road       | %          | Rail       | Pipeline transport | Domestic navigation | Non-specified (transport) |
|----------------------|---------------------|------------|-------------------|------------|------------|------------|--------------------|---------------------|---------------------------|
| Coal and coal        | 17                  | 4          | 0                 | 0          | 0          | 17         | 0                  | 0                   | 0                         |
| Oil products         | 446                 | 94         | 0                 | 331        | 100        | 115        | 0                  | 0                   | 0                         |
| Electricity          | 12                  | 3          | 0                 | 0          | 0          | 12         | 0                  | 0                   | 0                         |
| Sub total Renewables | 0                   | 0          | 0                 | 0          | 0          | 0          | 0                  | 0                   | 0                         |
| <b>Total</b>         | <b>475</b>          | <b>100</b> | <b>0</b>          | <b>331</b> | <b>100</b> | <b>144</b> | <b>0</b>           | <b>0</b>            | <b>0</b>                  |

Source: Based on World Energy Statistics and Balances Database 2012, "World Energy Balances." © OECD/IEA, 2012.

## Stand on climate change

Mongolia acceded to the Kyoto Protocol on 15 December 1999. It was later enforced on 16 February 2005. Mongolia is a Non-Annex I member to the Kyoto Protocol.

## National climate change programmes

Mongolia developed its first National Action Programme on Climate Change (NAPCC) in 2000. In 2011, the State Great Khural (Mongolian government) approved the latest NAPCC with a variety of changes focused more rigidly towards combatting climate change. Its implementation plan for the first period was approved by the cabinet in November 2011. The broad goal of the programme is to ensure ecological balance, development of socio-economic sectors adapted to climate change, reducing vulnerabilities and risks, mitigating the GHG emissions and promoting economic effectiveness and efficiencies, and implementation of green development goals. The NAPCC will be implemented in two phases, from 2011 to 2021 [5].

**First phase (2011-2016):** National mitigation and adaptation capacities will be strengthened. Legal, structural and management systems will be set up and community and public participation will be improved.

**Second phase (2016-2021):** Climate change adaptation measures will be implemented GHG mitigation actions will begin.

The NAPCC has further identified the following five strategic objectives for overall climate change mitigation and adaptation. They are [6]:

- Establish a legal environment, structure, institutional and management systems responding to climate change issues
- Ensure environmental sustainability and reduce socio-economic vulnerabilities and risks through strengthening the national climate change adaptive capacity
- Mitigate greenhouse gas (GHG) emissions and establish a low carbon economy through the introduction of environmentally friendly technologies and improvement in energy effectiveness and efficiency
- Enhance the national climate observation network, research and monitoring capacities
- Conduct public awareness campaigns and support citizen and community participation in actions against climate change

Besides the NAPCC, there are some notable pieces of legislation and policies:

- Law on Air Revised (2010, 1995)
- Law on Environmental Protection (1995, 2007)
- Law on Disaster Prevention, 2003
- National Security Priorities
- The Mongolia Action Programme for 21<sup>st</sup> Century (MAP21)
- The MDG-based Comprehensive National Development Strategy of Mongolia (2008)

**Some of the sectoral approaches undertaken by the Mongolian government for greenhouse gas emissions are [7]:**

### **Energy Sector – Supply side**

According to current population and economic growth rate estimations, Mongolia can expect a three-fold increase in energy demand by the year 2020, along with the resultant increases in CO<sub>2</sub> production. The mitigation options analysed in the energy supply sector are focused on:

- Fossil fuels - Improve coal quality through coal beneficiation, apply effective mining technology and facilities, including selective mining and dewatering system coal handling plants
- Combined Heat and Power Plants - Improve efficiency and reduce internal use of CHP plants
- Medium and Small scale energy conservation - Improve household stoves and furnaces through efficiency in modernizing existing household equipments, implement the new design for household stoves and furnaces, change the type of primary fuel for households
- Renewable energy sources - Increase of renewable options such as hydropower plants, wind farms, solar PV's and heating systems

### **Energy Sector – Demand side**

- District heating and building environment: Make building insulation improvements, implement improvements to district heating system in buildings, improve lighting efficiency
- Industry: Improve housekeeping procedures, implement motor efficiency improvements, improve lighting efficiency and adopt technology changes (e.g., dry-processing for cement industry, etc.)

### **Transport Sector**

The primary mitigation options identified for GHG emission mitigation in the transport sector are vehicle maintenance and traffic management. In terms of CO<sub>2</sub> mitigation potential, the most attractive option in the transport sector is the improvement in Vehicle Fuel Consumption Efficiency for Mongolia. Also, promoting the electrification of railways and introducing tax incentives for more fuel efficient vehicles

### **Agriculture Sector**

The potential options for mitigation in the agriculture sector are as follows:

- To limit the increase of total livestock number
- To decrease the number of cattle, which is the main source of methane emissions in the livestock sector
- To increase productivity of each animal Intensive livestock production enterprise
- Limit the increase of the total number of livestock by increasing the productivity of each type of animal, especially cattle and other main-source animals

### **Forestry Sector**

The following major mitigation options are identified in forestry sector:

- Natural regeneration
- Plantation forestry
- Agroforestry
- Shelter belt
- Bioelectricity

## Waste Management Sector

Mitigation potential of GHG emissions from the waste sector is generally not a high priority because the methane emissions associated with this sector are relatively low. However, the following mitigation options in this sector are considered:

- Landfill methane recovery
- Comprehensive waste management, and
- Alternative waste management as recycling

## Ministries involved in climate change/energy policy making:

| Ministries involved   | Web links  |
|---|--|
| Ministry of Nature, Environment and Green Development                   | <a href="http://www.mne.mn">www.mne.mn</a>                     |
| Ministry of Foreign Affairs   | <a href="http://www.mfat.gov.mn/">www.mfat.gov.mn/</a>         |
| Ministry of Industry and Agriculture                                    | <a href="http://www.mofa.gov.mn">www.mofa.gov.mn</a>           |
| Ministry of Energy  | <a href="http://www.mmre.energy.mn">www.mmre.energy.mn</a>     |
| National Climate Committee  | <a href="http://www.dede.go.th/dede/">www.dede.go.th/dede/</a> |
| National Agency for Meteorology, Hydrology and Environmental Monitoring | <a href="http://www.namhem.mn/">www.namhem.mn/</a>             |

## Education institutes involved in climate change/energy policy making:

| Education Institutes involved                                   | Web links  |
|---|--|
| Research Center for Climate Change Adaptation – Keio University | <a href="http://www.rc3a.org/">www.rc3a.org/</a>                                       |
| Asia Center – Climate Change in Mongolia                        | <a href="http://asia.ansp.org/hovsgol/index.html">asia.ansp.org/hovsgol/index.html</a> |

## References

- [1] “World Population Prospects: The 2010 Revision.” Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat.
- [2] “CIA - The World Factbook.” Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/th.html>. [Accessed: 12-Mar-2013].
- [3] CO<sub>2</sub> Emissions from Fuel Combustion Statistics database 2012, “Indicators for CO<sub>2</sub> emissions.” © OECD/IEA, 2012.
- [4] World Energy Statistics and Balances database 2012, “World Energy Balances.” © OECD/IEA, 2012.
- [5] National Policy on Climate Change in Mongolia. Special Envoy to Climate Change of Mongolia. Available at: [http://www.mmechanisms.org/document/newmechaWS\\_120123/session1\\_2\\_MNET\\_Dagvadorj.pdf](http://www.mmechanisms.org/document/newmechaWS_120123/session1_2_MNET_Dagvadorj.pdf)
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- [7] Initial National Communication of Mongolia to the UNFCCC. Sectoral Approaches: Available at: <http://unfccc.int/resource/docs/natc/mongnc1.pdf>