

STATE POLICY ON ENERGY /2015-2030/

One. General Provisions

- 1.1. Energy sector is development priority economic base sector which forms state security, social and economic development foundation.
- 1.2. The main objective of the state policy on energy is to supply continuously increasing energy demand, provide secure energy supply and become energy exporting country.
- 1.3. This document shall act as base document for planning activities in energy sector such as development planning, primary energy source stoking, fuel stocking, electricity and heat generation, electricity and heat supply, increase overall energy system efficiency, form public private partnership in energy sector, transform into free market scheme, legal environment, advance energy sector management and organizational frame, build human capacity.
- 1.4. The current situation in the energy sector, challenges
 - 1.4.1. Mongolia as country with reach primary energy sources actively performing exploration and exploitation search activities of coal, oil, solar and wind energy reserves.
 - 1.4.2. Mongolian Energy sector shall consist of four regions including Western, Central, Eastern and Altai-Uliastai energy networks depending on the isolated distance and infrastructure development
 - 1.4.3. In country wide 85% of total installed capacity is coal burning CHPs plants, 5% is wind, 7% diesel generators, 2% is hydro power plants, and 0.62% is small renewable energy sources with less than 5MW installed capacity. The 80% of total electric energy is produced locally and 20% is imported from abroad.
 - 1.4.4. Due to lack of timely implementation of planned project on introduction of new major power source in the energy sector of Mongolia the reserves of installed capacity is rapidly diminishing. The lack of reserves to cover increasing peak load demand and maintain system dynamic stability is exists. The import electric energy reached 20% of total energy consumption of Mongolia.
 - 1.4.5. Electrical and thermal energy sales prices are have been set lower than the actual costs which lead to difficulties in independent financing of operation and maintenance , technical and technological innovation at the appropriate level . The energy sector only in 2014 faced a loss of 68 billion MNT.
 - 1.4.6. The low electric energy tariffs and fully undeveloped regulatory environment resulted negative effect on attracting private investment on the development of new large scale projects in the sector.
 - 1.4.7. Almost all technical equipment of Ulaanbaatar, Darkhan, Erdenet, and Dornod power plants in operation were installed or put in operation in period between 1960 to 1980ies.
 - 1.4.8. At the country scale the power plant internal energy use is reached 14.4%, energy transmission and distribution system losses reached 13.7%, which is almost two times of similar index in developed countries. Therefore there is need to develop and implement policy on increase of productivity, decrease of internal use of thermal power plants, increase efficiency and energy conservation at energy consumers level.

Two. The vision, priorities and main principles of energy sector development policy

- 2.1. The vision of the development policy is to become electric energy exporting country with efficient, economic, and environmentally friendly technology based on private sector, competitive market scheme while supporting economic growth, sustainable development, and energy safety and reliability of the country.

- 2.2. The following priorities of energy sector development policy is identified based on current achievements, conditions, challenges of energy sector development of Mongolia and global energy sector development priorities:
 - 2.2.1. Reliability and safety of energy supply;
 - 2.2.2. Efficiency, productivity;
 - 2.2.3. Environmental sustainability and green development.
- 2.3. The following main principles are applied in setting of the strategic objectives and goals on energy sector development policy:
 - 2.3.1. Ensure country's reliable energy supply and energy security;
 - 2.3.2. Ensure sustainable economic development;
 - 2.3.3. Build favorable condition on increase population life standard;
 - 2.3.4. Be environmentally friendly;
 - 2.3.5. Be efficient and economic;
 - 2.3.6. Be rational for science and knowledge based.

Three. Objectives and goals of state policy on energy

3.1. Based on the potential and challenges facing energy sector of Mongolia the State Policy on Energy sets following strategic objectives:

In the scope of energy reliability and security:

- 3.1.1. Ensure energy safety and supply reliability;
- 3.1.2. Develop mutually beneficial cooperation with regional countries;
- 3.1.3. Develop human resource and form human capacity in the energy sector.

In the scope of increase of efficiency and productivity:

- 3.1.4. Transform energy sector into private based competitive market scheme;
- 3.1.5. Introduce and implement policy for support of implementation of innovative and advanced technology.

In the scope of environmental sustainability and green development:

- 3.1.6. Reduce negative impact on environment; reduce of greenhouse gas emission; and increase of production of energy by renewable energy sources.

3.2. Following goals are set in state policy on energy:

3.2.1. In the first strategic goal or in the energy supply reliability and energy security scope:

- 3.2.2.1. Create safety resources for primary energy, fuel;
- 3.2.2.2. Create capacity reserve to fully cover domestic energy demand;
- 3.2.2.3. Create regulating power source to maintain stable operation of energy system and to meet power demand fluctuation;
- 3.2.2.4. Increase heat power access and quality in cities and villages, and develop heat supply infrastructure;
- 3.2.2.5. Interconnect independent energy systems by high voltage transmission lines to build unified energy system;
- 3.2.2.6. Increase reliability and constant operation of electric, heat transmission and distribution systems to increase quality of energy supplied to the consumers.

3.2.2. In the second strategic goal or in the energy cooperation development in the region scope:

- 3.2.2.1. Reach mutually beneficial agreement with neighboring countries on long term energy import and export and develop energy cooperation;
- 3.2.2.2. Actively participate and develop cooperation within international and regional organizations on energy cooperation;
- 3.2.2.3. Cooperate with regional countries on the promotion of Gobitec initiative on electric energy export to Northeast Asian countries from large scale renewable energy power sources build on abundant solar and wind resources of Gobi region of Mongolia;

3.2.2.4. Strengthen cooperation in energy sector with international financial organizations, donor countries, and attract investment.

3.2.3. In the third strategic goal or in the human resource development and capacity building scope: In the fourth strategic goal or in the transformation of private based competitive market scheme of energy sector scope:

3.2.3.1. Form tariff structure based on actual cost and profit level and maintain sector sustainable financing;

3.2.3.2. Build conditions for sustainable energy sector investment, increase private sector participation;

3.2.3.3. Build legal environment favorable for competitive market based scheme.

3.2.4. In the fourth strategic goal or in the scope of transferring energy sector into competitive market based on private sector:

3.2.4.1. Provide financial stability in the energy sector, and create price and tariff structure which meets actual cost and profit in proper level;

3.2.4.2. Provide stability of energy sector investment, and increase the private sector contribution;

3.2.4.3. Prepare legislative environment in order to develop energy sector according to regulated and competitive market principles.

3.2.5. In the fifth strategic goal or in adoption of innovation and advanced technology promotion of efficiency increase and energy conservation policy scope:

3.2.5.1. Adopt smart digital system for monitor, control and management of energy production, transmission and distribution;

3.2.5.2. Adopt innovation, new advanced technology in the energy sector;

3.2.5.3. Reduce losses in energy production, transmission and distribution systems;

3.2.5.4. Build national legal environment for energy conservations regulation, develop consumer side management;

3.2.5.5. Adopt full scale metering on energy consumption at national level.

3.2.6. In the sixth strategic goal or in the decrease of negative environment impact, reduction of greenhouse gas emission and energy production increase by renewable energy scope:

3.2.6.1. Develop institutional capacity to perform detailed resource assessment of Mongolian renewable energy resources (solar, wind, hydro, geothermal, biomass and etc.) build national renewable energy resource database and perform research and development in field of renewable energy;

3.2.6.2. Increase share of renewable energy in national energy capacity to 20% by 2020, 30% by 2030;

3.2.6.3. Build favorable legal, tax environment to increase investment in renewable energy, create financial mechanism to support energy production by renewable energy;

3.2.6.4. Support use of solar energy, wind energy, biomass, liquid pressed gas, fuel geothermal energy, fuel cell and other new energy sources for energy supply of remote users in бага centers and isolated settlements;

3.2.6.5. Decrease negative environmental effect for energy production, transmission and distribution;

3.2.6.6. Improve environmental impact monitoring.

Four. Policy implementation stages, management, organization, monitoring and evaluation criteria, outcomes

4.1. The state policy on energy shall be implemented in following two stages: First stage /2015-2023/: stage for creation of primary energy reserves, energy capacity reserves, building base for renewable energy development, elaboration of energy sector normative documentation framework, adoption of euro standards and improvement of legal environment.

4.1.1. In this stage the Mongolian energy sector installed capacity will be increased two times, will start application of highly efficient equipment's, will be formed at least 10% hydro power and at least 10% capacity reserves in total energy system capacity to build base for future renewable energy development. The tariff structure will be optimized to ensure economically independent energy sector development.

- 4.1.1.1. The Ulaanbaatar city CHP#5, Tavantolgoi CHP, Baganuur CHP shall be constructed;
- 4.1.1.2. The energy export purpose high capacity CHP and very high voltage DC line construction project shall be started;
- 4.1.1.3. The load controlling Egiin hydro power plant should be constructed;
- 4.1.1.4. A thermal power plant in western region, a hydro power plant at Khovd River and a Dornod CHP in eastern region shall be constructed;
- 4.1.1.5. The Baganuur-Choir, Ulaanbaatar –Mandalgobi, Baganuur- Ulaanbaatar, Baganuur-Undurkhaan-Choibalsan, Choir-Sainshand, Mandalgobi- Arvaikheer, Durgun-Uliastai-Ulaanbaatar high voltage overhead transmission lines shall be constructed;
- 4.1.1.6. The energy tariff shall be indexed, the energy sector shall be operated by the regulated competitive market scheme and the energy sector shall be operated financially independently;
- 4.1.1.7. The energy transmission facility shall be in state property and energy distribution, supply shall be privatized though gradual transformed to open public stock companies, state support mechanism on financing of privatized energy facilities for technical and technological upgrade, extension.
- 4.1.1.8. The function domestic energy research and development institutions shall be sustained, the quality and standards of energy sector human capacity training, re-training shall be reached level of the developed countries;
- 4.1.1.9. The introduction of integrated automation, control and monitoring system for energy production, transmission, distribution and supply activities shall be started.

Second stage /2024-2030/: Energy export and renewable energy development stage.

4.1.2. In the second stage: the energy security reserve of Mongolia will be increased not less than 20 percent, the share of renewable energy sources in total installed capacity will reach 30%. Will be built complex unified energy system based on high capacity smart transmission, management, control, monitoring and information system between regions. The distribution system will be fully privatized and energy sector will operate on competitive market based scheme. Will be started energy export based on very high voltage direct current power transmission interconnection.

- 4.1.2.1. The unified energy system covering entire Mongolia shall be put in
- 4.1.2.2. High capacity hydro power plant at Selenge River, in total 300MW installed capacity wind and solar power plants, and export purpose high capacity thermal power plant and transmission lines shall be constructed;
- 4.1.2.3. Energy quality, reliability, and constant supply shall be reached level of developed countries;
- 4.1.2.4. Mongolia shall become one of major players in energy trade in North East Asia;
- 4.1.2.5. The national research institution on innovation and high technology shall be put in place;
- 4.1.2.6. The private sector shall dominate in total installed capacity;
- 4.1.2.7. The integrated smart network of automation, control and monitoring system for energy production, transmission, distribution and supply activities shall be put in place.

4.2. The evaluation indicators of state energy sector policy are defined based on 2014 index as follows:

Indicators	2014 base	First stage by 2023	Second stage by 2030
Reserve electrical installed capacity	-10%	10 % ≤	20 % ≤
Reserve heat installed capacity for big cities	3%	10 % ≤	15 % ≤
Profit margin for electrical tariff for Central energy system	-16.22%	0%	5%
Internal use of thermal power plants	14.40%	11.20%	9.14%
Electrical transmission, distribution loss /Oyutolgoi import is not included /	13.70%	10.80%	7.80%
Share of renewable energy installed capacity in domestic electrical installed capacity	7.62%	20%	30%
Greenhouse gas emission per 1Gkal energy production	0.52 tones CO2 equivalent	0.49 tones CO2 equivalent	0.47 tones CO2 equivalent
Reduction of building heat loss	0%	20%	40%
New technologies in energy sector	High pressure	Sub critical pressure technology	Super critical, ultra super critical pressure technology
		Natural gas technology	Hydrogen technology
		High capacity energy	Solar thermal power plant

Five. Implementation of state energy sector policy and its financing sources

- 5.1. The activities of state energy sector policy will be defined by med term National energy sector program and will be reflected and implemented by the Action plan of Government of Mongolia, annual state economic and social development frame.
- 5.2. As the energy production, supply play defining role in state security, while building base for economic and social development, have strategic priority development needs the Government shall prioritize investment and project implementation financing.
- 5.3. The following financing sources will applied in implementation of the State energy sector policy:
 - 5.3.1. State private sector cooperation, national and international investment;
 - 5.3.2. Financing from stock market;
 - 5.3.3. State budget financing, investment programs;
 - 5.3.4. Cooperation with international financing organizations;
 - 5.3.5. Loans;
 - 5.3.6. Other sources.