Near Term Actions in Energy in Mongolia

Mongolia: Government of Mongolia – External Partners
Technical Meeting,
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Ulaanbaatar, Mongolia
Energy is Critical for Development

- Energy supply is vital for economic development and energy security
- Electricity and heat supply is extremely important due to long winter and geographical conditions
- Power supply is the basic prerequisite for delivery of social needs, such as health, education, communications, and as a basic infrastructure is a prerequisite for industries, agriculture and services
Legal Framework & Policy Guidelines

- Legal Framework
  - Energy Law
  - Mongolian Renewed Integrated Energy System Program
  - Sustainable Energy Sector Strategy
  - Renewable Energy National Program
  - Renewable Energy Law
  - National Coal Program

- Energy Regulation
  - Established Energy Regulation Authority
  - Unbundled Power sector
  - Licensing
  - Price regulation
Part I

Actions since last Technical Meeting
Recent Actions Made by Ministry of Fuel and Energy

- **Legal Framework**
  - Renewable Energy Law has been passed
  - Coal Program has been submitted to the State Great Hural (Parliament)
  - Mongolia Integrated Power System (MIPS) has been updated
  - Egiin Hydro Power Plant (HPP) development using 300 million USD loan from the Chinese Government
  - Large Scale Coal Mine & Power Development for Power Export to China
Renewable Energy Law has been passed


- Law enables the creation of trust fund for promotion of renewable energy sources and purchase of power generated from renewable energy sources at preferential tariffs.

- Depending on grid connection or independent generation, capacity; power will purchased at the rate of 0.08-0.15 USD/kWh from wind sources, 0.045-0.1 USD/kWh from hydro sources, 0.15-0.3 USD/kWh from solar sources.
Coal Program has been submitted to the State Great Hural

- Ultimate Goal of the “Coal” program is to promote efficient utilization of coal resources by applying processing techniques thus producing liquid fuels, flammable gases thereby contributing to the sustainable development of the country, independence of economy.

- The program main principles are reliance on private sector participation, promoting market principles, enhance capacity building, promote economic efficiency, cooperation, etc.

- By developing production of liquid fuels from coal to supply 50 per cent of domestic supply, to supply power from gasified coal energy sources to 27 soums by 2020, to produce and utilize 5 million tons of coking chemistry products by 2020 etc.
Mongolia Integrated Power System (MIPS) has been updated

- The status of implementation of the MIPS has been stated.
- Plan to electrify remaining more than 100 remote soums in 2007-2008 has been set.
- 115 billion MNT has been allocated from state budget for 2007 for power lines and renewable energy systems for soum centers.
- The need to address power demand in Southern Gobi has been set.
- Investment needs for implementation of projects has been outlined.
- Tentative time limit has been set.
State Budget Investments for soum centers in 2007

From the State budget of Mongolia:
- 8 new electrical lines and sub stations will be build at the 6 aimags by 871 mln. MNT
- 1 Renewable energy generation will be build at the Zag soum of Bayankhongor aimag by 6.5 mln. MNT

By the budget of the Development Fund of Mongolia:
- 55 new electrical lines will be build at the 11 aimags, such as Bayan-Olgii, Bayankhongor, Gobi-Altai, Dornogobi, Dornod, Zavkhan, Omnogobi, Sukhbaatar, Uvs, Khovd and Khuvsgul aimag etc., (73.994 mln. MNT)
- 2 hydro power plants and 8 wind photovoltaic hybrid generations will be build, and rehabilitation works on electricity supply in 3 soums and distribution of the solar panels for herders will be implemented by 18.966 mln. MNT
Egiin Hydro Power Plant (HPP) Project

- Memorandum of Understanding (MOU) Regarding Utilization of USD 300 million preferential loan Export Credit between Ministry of Finance of Mongolia and the Export - Import Bank of China has been signed in 2006.
- Working groups has been established.
- Tender for selection of Consulting company is in progress.
Large Scale Coal Mine & Power Development for Power Export to China

- Memorandum of Understanding (MOU) between the Central Regional Electricity Transmission Company of Mongolia and the State Grid Corporation of China (SGCC) in 2005
- Study to develop coal mines in Mongolia, construct power plants and to export power from Mongolia to China.
- Project realization depend on approval by the Governments of Mongolia and China after conducting detailed feasibility study.
- 3 coal mine – power plant complexes of capacity 3600 MW (total 10800 MW)
  - Each coal mine will produce 12 million tons of coal annually
  - 500 kV DC transmission line to China
  - Detailed F/S planned to implement in 2007
Large scale projects and investment for System expansion

- Egiin HPP Stage I +II (220MWe) in 2012.
- Tavan Tolgoi TPP Units I-III (300MWe) in 2012.
- New Darkhan CHP Units I-II (160MWe/320MWh) in 2013.
- PP#5 Units I-III (240MWe / 480MWh) in 2016.
- PP#5 Unit IV (80MWe / 160MWh) in 2020.

Investment requirements - over $1.7 billion (2007-2020) an annual average of $115 million
Financial situation of energy sector

- unable to convert efficiency into a sustainable and viable industry.
- cash collections fall short of billed revenues and tariffs fail to rise rapidly enough to cover debt service costs.
- unable to service on-lent debts, or to raise significant new funds for investments.
- an overall drain on Government fiscal resources due to the sector’s inability to service its debts.
Investment requirements 2007-2020

$ million
2006 prices

- Heat distribution
- Electricity distribution
- Transmission
- Generation
Financing capacity and Government finances 2007-2014

Financing of CES Investments

- Financing gap
- Private financing
- Government contributions
- Tariff revenues

Financing capacity and Government finances 2007-2014
Issues related to investments

- Financial sustainability of previously borrowed sovereign guaranteed loans
- Large scale investments would require tariff adjustments (Is it politically & socially affordable?)
- Efficiency of investments - For soum centers return on investments (ROI), operation & maintenance (O&M) is an issue to address
Actions for the next 6 Months

Legal environment
- Amendments to Energy Law of Mongolia
- Energy Conservation Law
- Law of Gas use
- Approve “Coal” Program

Energy sector developing projects:
- To develop Energy Master Plan
- To develop initial study on pricing/tariff (electricity and heat) - ERA,
- To develop plan of introduction heat and hot water consumption based billing,
- Intention is to expand LPG use
- Develop “Feasibility Study of Coal liquefaction”
- Conduct studies related to power links, new generation facilities.
Part II
Energy Supply & Demand
Strategy Components & Actions
Current Status of Supply & Demand

- Total installed electricity capacity - 900 MW
- Heat capacity - 2030 GCal/hour
- The electricity transmission covers most of territory of Mongolia
- 7 combined heat and power plants (CHP) in operation
- 130 soums of 334 supplied from diesel stations
- 6 from small hydro power plants, 2 from solar, and 3 from solar-wind hybrid systems
- About 0.6 per cent of total electricity is supplied from renewable energy sources, such as small hydro power plants, solar, wind systems

The power demand grew at 4.6% in 2005 and at 9 % in 2006
MIPS Program – Strategic Directions

- MIPS Program Goals
  - To create a unified power grid make energy supply of Mongolia more reliable and efficient and provide economic security
  - Consistency with other national programs, such as the Concept of Regional Development of Mongolia, Millennium Road, etc.

- Near Term Priorities (2007-2012) to address sector issues in Key Pillars
  - Provide Secure and Reliable Power Supply of the Region
  - Energy Supply connecting with grid by constructing electrical line and renewable energy resources
  - Energy Access and Affordability
Provide Secure and Reliable Power and Heat Supply

Sector Issue
- Address growing demand for electricity and heat
- Provision of power supply to south regions new mines

Near Term Action (2007-2012)
- Construct Egiin hydro power plant (HPP), 220 MW
- Conduct F/S of Orkhon HPP, 100 MW
- Combined heat and power plant CHP#5 in Ulaanbaatar
- Supply power to newly developing mines (Tavantolgoi coal mine, Oyutolgoi copper/gold deposits, Tsagaan suvraga copper mine) in comprehensive manner
- Develop interim power supply to Southern Gobi by constructing transmission line UB-Mandalgovi-Oyutolgoi, 220kV
## Energy Sector Restructuring

### Sector Issue
- Implement cleaning up arrears at sectoral level
- Ensure sustainable debt management in regard of sovereign guaranteed loans

### Short Term Action (’07-’08)
- Implement necessary measures to write off some debts, arrears with support of external partners, IFI

### Mid-term Action (’08-’12)
- Continue implementing electricity pricing policy and gradually raise tariffs to cost recovery level
## Energy Sector Restructuring (cont.)

### Sector Issue
- Improve heat supply efficiency
  - Technical and non-technical losses in DH systems
  - Lack of incentives of efficient use of heating and hot water
  - Need to enhance capacity of DH to finance investments in efficiency and expansion

### Near Term Action (’07-’12)
- Implement project to promote efficiency of DH systems, demand-side measures, study tariff regulation
- Implement necessary renovation for Darkhan heating system
Energy Access & Affordability

Sector Issue
- Improve access to modern services & satisfy basic needs for electricity (lighting, TV, radio)

Near Term Action (’06-’10)
- Implement “100.000 solar ger program”

Short Term Action (’07-’08)
- Establish mechanism to provide energy access, such as solar home systems, to herders
- Conducting wind surveys at several sites for construction of wind parks
- Conducting surveys for small hydro power plants for soum level

Mid-term Action (’08-’12)
- Program will continue with the funding from the Government and other donors
Energy Access & Affordability (cont.)

Sector Issue
- Mitigate social impact of price adjustment
- Implement lifeline tariffs for electricity, address heating affordability
- Coordination with Energy Regulatory Authority, Ministry of Social Protection, companies

Short Term Action (’07-’08)
- Implement lifeline tariffs in comprehensive manner

Mid-term Action (’08-’10)
- Allocate necessary subsidies for lifeline tariffs and heating assistance from social funds
Energy Access & Affordability (cont.)

Sector Issue
- Implement policy actions to promote export of coal, coal liquefaction technologies, coal gasification, petrochemical processing of coal
- Diversify energy source by new fuel mix

Short Term Action (’06-’08)
- Study experiences of other countries in coal processing technologies
- Develop Feasibility Study of Coal Liquefaction
- Implement “Liquefied Petroleum Gas” program
- Develop Master Plan of LPG

Mid-term Action (’08-’10)
- Studies needs to be conducted
- Promote coal liquefaction technologies, coal gasification, petrochemical processing of coal
Policy measures to improve legal & institutional environment

**Sector Issue**

- Need to improve investment environment
- Need to introduce measures to encourage the use of renewables, promotional subsidies, tax levies
- Promote energy efficiency, energy conservation measures, promote demand side management

**Short Term Action (’06-’08)**

- Draft amendments and new laws
- Submit to the Government, Parliament
- Amend the Energy Law
- Pass Energy Conservation Law

**Mid-term Action (’08-’10)**

- Implement newly passed legislature, introduce new market structure
Institutional Capacity Building in energy sector

Sector Issue
- Enhanced capacity will lead to facilitation of energy sector reforms
- Coordination with Ministry of Fuel and Energy, external partners, IFIs

Short Term Action (’06-’08)
- Conduct capacity building trainings for managers, policymakers, regulators etc

Mid-term Action (’08-’10)
- Develop comprehensive program for capacity building in energy sector
Thank you for your attention!