CONTENT

• Country profile
• Economic indicators
• Energy Sector of Mongolia
• Legal and Institutional Framework of Power Sector
• Mid and Short term policy, International Cooperation Policy on Energy sector
• Concession projects on Energy sector
- Area: 1.564 million square km
- Population: 3 million
- Capital city: Ulaanbaatar (1.3 million)
- GDP: 11.8 billion USD
- GDP per capita: 3,971 USD
- Unemployment rate: 7.5%
- Exports: 4.7 billion USD
- Imports: 3.8 billion USD
- Number of state households: 859,106
- In capital city: 376,419 households
• Official language: Mongolian
• Official script: Mongolian Cyrillic, Mongolian Script
• Ethnic groups: 96% Mongols, 4% Khazakhs
• Religions: Buddhism 56%, Shamanism 4%, Islam 3%, non 37%
• Highest point: “Huiten Peak’ (4,653 m.a.s.l)
• Lowest point: ”Khukh Nuur” depressions (532 m.a.s.l)
• Lowest annual average temperature: -33°C (-50°C)
• Highest annual average temperature: +23°C (+35.8°C)
About 40% of the population lives in the countryside, primarily nomadic livestock herders.

Mongolia has 4 seasons and there is an extreme continental climate with long, cold winters and short summers.

Precipitation is highest in the north (average 200-350 mm per year) and lowest in the south, which receives 100 - 200 mm annually.

The geography of Mongolia is varied, with the Gobi Desert to the cold and mountainous regions.
Economic activity in Mongolia has traditionally been based on herding and agriculture (16% of GDP), although development of mining sector (21.8% of GDP). (copper, coal, molybdenum, tin, tungsten and gold). Minerals represent more than 80% of Mongolia's exports.

Depending on boom of mining works the economy was developing since 2011. But because of external loan our economy is slowing in last years. The cash-strapped government has made efforts to improve its transparency and fiscal management, which has earned the country support from the IMF and other lenders, including Japan. Meanwhile, higher prices for coal and copper in the first quarter of this year saw the trade surplus up 45.5% from the same period last year, pointing to a gradually improving economic environment.

Mongolia Economy Data (www.focus-economics.com April 25, 2017)

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita (USD)</td>
<td>4,377</td>
<td>4,598</td>
<td>4,165</td>
<td>3,971</td>
</tr>
<tr>
<td>GDP (USD bn)</td>
<td>12.4</td>
<td>13.3</td>
<td>12.2</td>
<td>11.8</td>
</tr>
<tr>
<td>Economic Growth (GDP, annual variation in %)</td>
<td>12.5</td>
<td>11.6</td>
<td>8.1</td>
<td>2.5</td>
</tr>
<tr>
<td>Current Account (% of GDP)</td>
<td>-43.3</td>
<td>-24.1</td>
<td>-15.9</td>
<td>-8.1</td>
</tr>
<tr>
<td>Exports (annual variation in %)</td>
<td>-9.1</td>
<td>-2.5</td>
<td>35.1</td>
<td>-19.1</td>
</tr>
<tr>
<td>Imports (annual variation in %)</td>
<td>2.1</td>
<td>-5.8</td>
<td>-17.5</td>
<td>-27.5</td>
</tr>
<tr>
<td>International Reserves (USD)</td>
<td>4.1</td>
<td>2.2</td>
<td>1.7</td>
<td>1.3</td>
</tr>
<tr>
<td>External Debt (% of GDP)</td>
<td>124</td>
<td>144</td>
<td>172</td>
<td>185</td>
</tr>
</tbody>
</table>

In 2016: GDP (nominal) total-$36.6 billion, per capita -$4.353 (2015 estimate)
ENERGY ENDOWMENTS IN MONGOLIA

COAL BASINS

- Estimated total resources ~ 173 billion ton in 15 coal basins
- Over 370 identified occurrence in 85 deposits
- Proven Reserves 12 billion ton, of which 2 billion is coking coal
- Around 1/3 in Gobi Region
- Around 1/3 in Eastern Region

Hardcoal Basins
1. Kharkhiraa
2. Bayan-Uleigei
3. Mongol Altay
4. Altay-Chandmani
5. South Khangay
6. South Govi

Browncoal Basins
7. Orkhon-Selenge
8. Ongiynbol
9. Big Bogdyn
10. Choir-Nlarga
11. Middle Govi
12. East Govi
13. Sukhe Bator
14. Choybalsan
15. Tamtsak
Total CBM Reserve of 40 MM ton
- 1 MM ton/year of CBM supply to run a power plant of 250 MW capacity
  ※ 4 MM ton/year for 1 GW capacity
- For households as city gas

CAPEX estimation
- 634 million USD (ISBL+OSBL+Contingency)

Economic analysis
- Can be profitable with IRR up to max. 30% depending on CBM cost and price at the market
- For example,
  IRR 17% : $2.0(c) → $4.0(p)/MMBtu
• Total 31 exploration blocks
• Current Proven reserve is 332 million ton
An annual average amount of solar energy is 1,400 kWh/m²/y with solar intensity of 4.3-4.7 kWh/m² per day. Total annual radiation intensity equals to $2.2 \times 10^6$ TW.
Energy Sector of Mongolia

HYDRO

Theoretical potential 6.2 GW, more than 1 GW of these has been identified.
Wind resources assessment made by NREL (USA) 2001. Good-to-excellent wind resources equivalent to 1,100 GW of wind electric potential. Potentially deliver over 2.5 trillion kWh per year.
**URANIUM**

- Mongolia contains six uranium strata and more than 100 uranium deposits.
- Mongolian geologists now believe that Mongolia has 60,000 metric tons of uranium reserves, while Russian experts have much higher estimates, ranging from 120,000 to 150,000 metric tons.
Current state Power Systems of Mongolia

Western Power System

Eastern Power System

Altai-Uliastai Power System

Ulaanbaatar

Energy Sector of Mongolia

LEGEND

Central Energy System

Eastern Energy System

Western Energy System

Altai-Uliastai Energy System

Southern Energy System

Administration

Capital
Center of Province
Small city
Soum center
Village
Borderport

Mineral resources

Coal
Silver
Gold
Copper
Zinc
Oil
Uranium
Mongolian power system consists of five detached segments,

- Central Energy System (CES),
- Western Energy System (WES),
- Altai- Uliastai Energy System (AUEN),
- Eastern Energy System (EES),
- South Gobi Region

comprising 7 combined heat and power plants, 2 hydropower plants, coal-fired power plant, wind park, off-gird renewable energy systems, regional diesel generators and nine distribution systems.
Mongolia has 331 administrative units (soum) of which 304 soums had connected to domestic electricity system and 12 soums out of remaining 27 are provided by renewable energy resources and 13 border soums of 7 aimags connected to electricity systems of neighboring countries China and Russia.
BALANCE OF ELECTRICITY, mln.kW.h /2015/

- Industry and construction: 1277.5
- Transport and communication: 473.3
- Agriculture: 3261.4
- Other: 54.8
- Household and communal housing: 216.5
### 2012

- **Import**: 19.69%
- **Hydro**: 0.86%
- **Diezel**: 0.47%
- **CHP**: 78.98%

### 2015

- **Solar**: 0.08%
- **Hydro**: 0.84%
- **Diezel**: 0.01%
- **Wind**: 2.16%
- **CHP**: 77.38%

#### Electricity:
- **470.0 Thousand**: 26 %
- **876 MW**: 30 %
- **189.6 Thousand**: 54 %
- **2120 Gcal/h**: 37 %

#### Thermal:
- **592.4 Thousand**:
- **1140 MW**: 26 %
- **291.7 Thousand**: 54 %
- **2921 Gcal/h**: 37 %
ELECTRICITY GENERATION mln.kw.h

- 1960: 106
- 1965: 196.4
- 1970: 548.3
- 1975: 848.3
- 1980: 1794.1
- 1985: 2943.2
- 1990: 3499.9
- 1995: 2537
- 2000: 2895
- 2005: 3430
- 2010: 4494
- 2012: 5150
- 2016: 5802
# Electricity Generation

<table>
<thead>
<tr>
<th>Type of sources</th>
<th>MW</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined heat and power plants</td>
<td>1050.3</td>
<td>89%</td>
</tr>
<tr>
<td>Hydropower plant</td>
<td>28.2</td>
<td>2%</td>
</tr>
<tr>
<td>Wind and solar power plants</td>
<td>53.7</td>
<td>5%</td>
</tr>
<tr>
<td>Diesel stations</td>
<td>46.1</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1178</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Imported electricity (Russia & China) 350 -

# Heat Generation

<table>
<thead>
<tr>
<th>Type of sources</th>
<th>Gcal/h</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined heat and power plants</td>
<td>2235.5</td>
<td>77.62%</td>
</tr>
<tr>
<td>Heat only power plants</td>
<td>392.5</td>
<td>13.63%</td>
</tr>
<tr>
<td>Boiler Houses</td>
<td>252</td>
<td>8.75%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2880</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Recent challenges

Power sector

1) Capacity shortage on Domestic Power Generation due to:
   • Rapid GDP Growth & Intensively Growing demand of Electricity and Heat

   • Time Lags of the Power Plant Projects
     • Lack of Investment
       • Low capacity of State Budget
       • Precaution of Investors
         • Low tariff of Domestic Power System
         • Uncertainty of Investment Environment
Recent challenges

Power sector

2) Lower Efficiency of Existing Power Plants due to:
   • Aging of main equipments
   • Insufficient financial capacity for Rehabilitations
     • Tariff
     • Low Capacity of State Budget

3) Higher Loss of Transmission & Distribution Network due to:
   • Long transmission & distribution lines to lower demand – lowest population density in the world
     • Social issues for people in remote area
   • Overload in distribution network in the cities
     • Time lag on capacity extension on rehabilitation
       • Lack of investment
   • Aging of distribution network
     • Time lag on rehabilitation
       • Lack of Investment
## Electricity tariff for residential

<table>
<thead>
<tr>
<th>№</th>
<th>Classification</th>
<th>Unit</th>
<th>Tariff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Simple meter</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a Monthly consumption under 150 kWh</td>
<td>USA $/ kWh</td>
<td>0.041</td>
</tr>
<tr>
<td></td>
<td>b Monthly consumption over 150 kWh</td>
<td>USA $/ kWh</td>
<td>0.049</td>
</tr>
<tr>
<td>2</td>
<td><strong>Time use of meter /2 parts/</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a Daytime consumption /06.00 am~21.00 pm/</td>
<td>USA $/ kWh</td>
<td>0.043</td>
</tr>
<tr>
<td></td>
<td>b Evening and nighttime consumption / 21.00 pm~ 06.00 am /</td>
<td>USA $/ kWh</td>
<td>0.032</td>
</tr>
<tr>
<td>3</td>
<td><strong>Monthly base tariff</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>USA $/ kWh</td>
<td>0.828</td>
</tr>
</tbody>
</table>

Remark: Daytime, evening and nighttime tariff will apply duration of the meter hours.
**TARIFF FOR INDUSTRIAL ELECTRICITY CONSUMPTION**

The tariff (VAT excluded) for industrial electricity shall be determined depending on the its classification of units of indicators as follows:

<table>
<thead>
<tr>
<th>№</th>
<th>Classification</th>
<th>Unit</th>
<th>Tariff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Mining industries</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>These: Coal mining exploration and cultivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oil and gas mining exploration and cultivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Iron Mining exploration and cultivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other mining exploration and cultivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Simple meter</td>
<td>USA $/ kWh</td>
<td>0.065</td>
</tr>
<tr>
<td>1.2</td>
<td>Time use of meter /3 parts/</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a Daytime consumption (06.00 am ~17.00 pm)</td>
<td>USA $/ kWh</td>
<td>0.065</td>
</tr>
<tr>
<td></td>
<td>b Evining consumption (17.00 pm ~ 22.00 pm)</td>
<td>USA $/ kWh</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td>c Nighttime consumption (22.00 pm~06.00 am)</td>
<td>USA $/ kWh</td>
<td>0.032</td>
</tr>
</tbody>
</table>
2 **Other sectors**

### 2.1 Simple meter

USA $/ kWh 0.053

### 2.2 Time use of meters /3 parts/

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>USA $/ kWh</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Daytime consumption /06:00 am ~17:00 pm/</td>
<td>0.053</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Evening consumption /17:00 pm ~ 22:00 pm</td>
<td>0.087</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Nighttime consumption /22:00 pm ~ 06:00 am/</td>
<td>0.032</td>
<td></td>
</tr>
</tbody>
</table>

### 2.3 "Electrical Transport" company /Trolley company/

USA $/ kWh 0.032
### Lighting of public streets and squares in cities and center of province

#### 3.1 Heating season /Oct, Nov, Dec, Jan, Feb, Mar, Apr /

<table>
<thead>
<tr>
<th></th>
<th>Daytime consumption (06.00 am~ 19.00 pm)</th>
<th>USA $/ kWh</th>
<th>0.053</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Evening and Nighttime consumption (22.00 pm~06.00 am)</td>
<td>USA $/ kWh</td>
<td>0.032</td>
</tr>
</tbody>
</table>

#### 3.2 Non heating season /Apr ~Sep /

<table>
<thead>
<tr>
<th></th>
<th>Daytime consumption (06.00 am~ 19.00 pm)</th>
<th>USA $/ kWh</th>
<th>0.053</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Evening and Nighttime consumption (22.00 pm~06.00 am)</td>
<td>USA $/ kWh</td>
<td>0.032</td>
</tr>
</tbody>
</table>

Remark: Daytime, evening and nighttime tariff will apply duration of the meter hours.
LEGAL ENVIRONMENT OF THE ENERGY SECTOR
# Key Documents

## Legal Framework

<table>
<thead>
<tr>
<th>№</th>
<th>Document</th>
<th>Approved/ Last Update</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>Energy Law of Mongolia</td>
<td>2001/2015</td>
<td>Regulate matters relating to energy generation, transmission, distribution, dispatching and supply activities, construction of energy facilities and energy consumption that involve utilization of energy resources &amp; Tariff, License</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Renewable Energy Law of Mongolia</td>
<td>2007/2015</td>
<td>Regulate generation and supply of energy utilizing renewable energy sources &amp; Tariff, License</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Concession Law</td>
<td>2010</td>
<td>Establish the framework for granting concessions to private investors to use existing infrastructure facilities owned by the state, and to construct new infrastructure facilities for the purpose of providing services to the general public</td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>Investment Law</td>
<td>2013</td>
<td>Protect the legal rights and interests of investors in the territory of Mongolia, to establish a common legislative guarantee for investment, to stabilize the tax environment.</td>
</tr>
</tbody>
</table>

## Policy Documents

<table>
<thead>
<tr>
<th>№</th>
<th>Document</th>
<th>Approved/ Last Update</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5</strong></td>
<td>Infrastructure Development Program of Southern Gobi</td>
<td>2010</td>
<td>Plans and actions to develop infrastructure for strategic mineral deposits in Gobi area</td>
</tr>
</tbody>
</table>
Amendments of “Law on Energy”

Purpose:
• Enhance legal environment for investors in energy sector of Mongolia

Amendments:
• Utilization of Natural gas /coal bed methane/
  • Definitions
  • Regulation to relating matters for gas supply infrastructure
• Interagency Relationship
  • Obligation of National Dispatching Center
• Independent Power Producer and its regulations
• Power Purchase Agreement and its regulations
• Interrelationship between supplier and consumer
  • Obligation
Amendments of “Law on Renewable Energy”

Purpose:
• Enhance financial situation of single buyer model of Power sector and ensure feeding tariffs in the Law on Renewable Energy

Amendments:
• New term – “Encouraging tariff”/gap between feeding tariff and consumer’s tariff/
  • Definitions
  • Regulation to relating matters in tariff system
• Power Purchase Agreement and its regulations
  • Regulation to relating matters
“State Policy on Energy” 2015-2030

Expected Results

In the 1st stage 2015-2023: The stage to develop energy safety resources and backup capacity, establish a foundation for the development of renewable, enhance normal documents and improve legal environment.

• The installed power capacity will be doubled, and start using critical technology with high parameters. Hydro will be taken place at least 10% of the total installed power capacity and it will increase backup capacity to 10%, and create fundament for renewable sector to development intensively, enhance tariff system.

In the 2nd stage 2024-2030: The stage to export secondary energy and develop sustainably the renewable sector.

• The backup capacity of power system will be reach at 20% and share of renewables will be reach at 30%. Integrated smart energy system will be created by connecting regions with high capacity transmission lines. State owned Power companies will be become a public company. Distribution and supply service will be privatized and energy sector will be worked as a competitive marked with regulation. Secondary energy will be exported by connecting with North east Asian countries with high capacity DC lines.
NEAR-TERM OBJECTIVES

• In the framework for ensuring safety and reliability of power sector
  Commence the power generation projects:
  • CHP 5 of Ulaanbaatar Project,
  • Tavan Tolgoi Power Plant Project,
  • Eg Hydro Power Plant Project

• In the framework for improving efficiency:
  • Reduce loss in transmission and distribution network
  • Develop demand side management

• Improve financial capacity of power sector
  • Enhance tariff system
  • Increase private sector share in power sector
INTERNATIONAL COOPERATION POSSIBILITIES
RESOURCE BASED REGIONAL ENERGY TRADE

Coal Based
• On-Site Electricity Production for Purpose of Export.
  – Abundant thermal coal resources
    • Shivee-Ovoo brown coal deposit
    • Aduunchuluun brown coal deposit
    • Tavantolgoi and Gashuun Sukhait hard coal deposits
  – China, Korea, Japan lead its Electricity demand growth in the region

Renewable based
• Solar and Wind Rich Resources Gobi Area
  • Gobi Tec and Asia Super Grid Initiative
INTERNATIONAL COOPERATION POSSIBILITIES

• **For planned and potential projects of power plant and transmission lines:**
  – As a financier, Contractor, Equipment supplier, Consulting service
    • Concession agreement: Built-Operate-Transfer, Built-Transfer,
    • Independent Power Producer
    • PPP

• **For existing power projects:**
  – In the Projects of Operational enhancement and Restructuring:
    • Operator company
    • Consultant
  – In the Projects of Rehabilitation and Capacity Extension:
    • Investor, Contractor, Equipment supplier, Consulting service

• Until of 8 May 2015, Energy licenses issued by 642.4 MW for renewable energy and 5695 MW for coal-fired sources. Hereof renewable energy license has issued for 8 and coal-fired license for 19, total of 27 licenses.
PLANNED PROJECTS

Ulaanbaatar:
• CHP 5 450 MW
• Tuul-Songino Pumped Storage 100 MW

100 MW Capacity Extention of Darkhan and Erdenet

Baganuur PP 600 MW

Western region PP MW, Hovd Hydro PP

EG HPP 315 MW
Shuren HPP 300 MW

Telmen PP 100 MW

Bayanteeg PP 60 MW

Ulaanbaatar- Mandalgobi 220 kV, 240 km OHTL and Substations

Tavan Tolgoi 450 MW

Choir- Sainshand 220 kV, 450 km OHTL and Substations

Sainshand Wind Farm 50 MW

Capacity Expansion of Dornod CHP 100 MW
## Transmission line

<table>
<thead>
<tr>
<th>№</th>
<th>PROJECT</th>
<th>DEFINITION</th>
<th>CONCESSION TYPE</th>
<th>PROJECT COST ESTIMATION (Million US.£)</th>
<th>BIDDING PROCESS</th>
<th>BRIEF INTRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Baganuur-Choir transmission line, substation project</td>
<td>DEVELOP ELECTRIC POWER LINE AND SUBSTATION</td>
<td>Finance-build-transfer</td>
<td>39.1</td>
<td>BIDDING</td>
<td>178 km high voltage transmission line project</td>
</tr>
<tr>
<td>2</td>
<td>Ulaanbaatar-Mandalgovi 330 kV 2 circuit transmission line, 220kV 2 substation project</td>
<td>DEVELOP ELECTRIC POWER LINE AND SUBSTATION</td>
<td>Develop drawing-Finance-build-transfer</td>
<td>87.7</td>
<td>BIDDING</td>
<td>330 kV 2 circuit 260 km high voltage transmission line project, Mandalgovi, Tavantolgoi 220 kV substation project</td>
</tr>
<tr>
<td>3</td>
<td>Baganuur-Undurkhaan 220kV transmission line, substation</td>
<td>DEVELOP ELECTRIC POWER LINE AND SUBSTATION</td>
<td>Develop drawing-Finance-build-transfer</td>
<td>53.3</td>
<td>BIDDING</td>
<td>220 kV 2 circuit 202.4 km high voltage transmission line, substation project</td>
</tr>
<tr>
<td>4</td>
<td>Undurkhaan-Choiabalsan 220kV transmission line, substation project</td>
<td>DEVELOP ELECTRIC POWER LINE AND SUBSTATION</td>
<td>Develop drawing-Finance-build-transfer</td>
<td>72.1</td>
<td>BIDDING</td>
<td>220 kV 2 circuit 317 km high voltage transmission line, substation project</td>
</tr>
<tr>
<td>5</td>
<td>Baganuur-Ulaanbaatar transmission line, substation project</td>
<td>DEVELOP ELECTRIC POWER LINE AND SUBSTATION</td>
<td>Develop drawing and Feasibility study-Finance-build-transfer</td>
<td>43.1</td>
<td>BIDDING</td>
<td>157 km high voltage transmission line, substation project</td>
</tr>
<tr>
<td>6</td>
<td>Choir-Sainshand transmission line, substation project</td>
<td>DEVELOP ELECTRIC POWER LINE AND SUBSTATION</td>
<td>Develop drawing-Finance-build-transfer</td>
<td>54.5</td>
<td>BIDDING</td>
<td>220 kV 2 circuit 216 km high voltage transmission line, substation project</td>
</tr>
<tr>
<td>7</td>
<td>Oyutolgoi-Tsagaan suvraga transmission line, substation project</td>
<td>DEVELOP ELECTRIC POWER LINE AND SUBSTATION</td>
<td>Build-transfer</td>
<td>45.9</td>
<td>BIDDING</td>
<td>Oyutolgoi-Tsagaansuvraga 220 kV 2 circuit 160 km transmission line, Oyutolgoi substation expansion, 220/22 kV Tsagaan suvraga substation project</td>
</tr>
<tr>
<td>8</td>
<td>Mandalgovi-Arvaikheer 220kV transmission line, substation project</td>
<td>DEVELOP ELECTRIC POWER LINE AND SUBSTATION</td>
<td>Build-transfer</td>
<td>66.3</td>
<td>BIDDING</td>
<td>280 km transmission line, substation project</td>
</tr>
<tr>
<td>9</td>
<td>Nariin sukhait-Tavantolgoi 220kV transmission line, substation project</td>
<td>DEVELOP ELECTRIC POWER LINE AND SUBSTATION</td>
<td>Build-transfer</td>
<td>82.9</td>
<td>BIDDING</td>
<td>220 kV 2 circuit 360 km transmission line, substation expansion project</td>
</tr>
</tbody>
</table>
### Power plant

<table>
<thead>
<tr>
<th>№</th>
<th>PROJECT NAME</th>
<th>DEFINITION</th>
<th>CONCESSION TYPE</th>
<th>CAPACITY</th>
<th>PROJECT Cost /USD</th>
<th>BIDDING PROCESS</th>
<th>PROJECT STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ULAANBAATAR FITH COMBINED HEAT POWER PLANT</td>
<td>DEVELOP COMBINED HEAT POWER PLANT FOR ULAANBAATAR CITY</td>
<td>BUILD-OPERATE-TRANSFER</td>
<td>450 MW CAPACITY POWER PLANT</td>
<td>1.5 Billion USD</td>
<td>PPA NEGOTIATION</td>
<td>CONCESSION AGREEMENT SIGNED ON JUNE, 2014 PPA &amp; OTHER REQUIRED AGREEMENTS ARE UNDER NEGOTIATION</td>
</tr>
<tr>
<td>2</td>
<td>TELMEN POWER PLANT PROJECT</td>
<td>DEVELOP 100 MWT CHP PLANT</td>
<td>BUILD-OPERATE-TRANSFER</td>
<td>100 MW CHP PLANT</td>
<td>285.0 Million USD</td>
<td>ABOUT FINANCIAL CLOSE</td>
<td>CONCESSION AGREEMENT SIGNED ON JUNE 2013 CONCESSIONAIRE IS WORKING FOR REACHING FINANCIAL CLOSE</td>
</tr>
<tr>
<td>3</td>
<td>TUUL-SONGINO WATER RESOURCE PROJET</td>
<td>DEVELOP WATER PURIFY PLANT &amp; 100 MWT WATER LOAD POWER PLANT</td>
<td>BUILD-OWN-OPERATE</td>
<td>100 MW POWER PLANT</td>
<td>183.0 Million USD</td>
<td>ABOUT FINANCIAL CLOSE</td>
<td>CONCESSION AGREEMENT SIGNED ON APRIL, 2014 CONCESSIONAIRE IS WORKING FOR REACHING FINANCIAL CLOSE</td>
</tr>
<tr>
<td>4</td>
<td>BAGANUUR COMBINED HEAT POWER PLANT</td>
<td>DEVELOP POWER PLANT BASED ON BAGANUUR DISTRICT AND COAL ORE</td>
<td>BUILD-OPERATE-TRANSFER</td>
<td>700 MW CAPACITY POWER PLANT</td>
<td>950.0 Million USD</td>
<td>PPA NEGOTIATION</td>
<td>CONCESSION AGREEMENT SIGNED ON APRIL, 2015 PPA &amp; OTHER REQUIRED AGREEMENTS ARE UNDER NEGOTIATION</td>
</tr>
</tbody>
</table>
## BIDDING PROJECTS

<table>
<thead>
<tr>
<th>№</th>
<th>PROJECT NAME</th>
<th>DEFINITION</th>
<th>CONCESSION TYPE</th>
<th>CAPACITY</th>
<th>BIDDING PROCESS</th>
<th>PROJECT STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DORNOD COMBINED HEAT POWER PLANT</td>
<td>DEVELOP CHP POWER PLANT FOR DORNOD PROVINCE</td>
<td>BUILD-OPERATE-TRANSFER</td>
<td>100 MW CAPACITY POWER PLANT</td>
<td>160.0 Million USD</td>
<td>CONTRACT NEGOTIATION</td>
</tr>
<tr>
<td>2</td>
<td>CHANDGANA POWER PLANT, POWER LINE FROM BAGANUUR TO UNDURKHAAN AND UNDURKHAAN TO CHOIBALSAN &amp; SUBSTATION</td>
<td>DEVELOP POWER PLANT BASED ON CHANDGANA COAL ORE AND POWER LINE FROM BAGANUUR PROVINCE TO UNDURKHAAN &amp; UNDURKHAAN TO CHOIBALSAN</td>
<td>BUILD-OWN-OPERATE FOR POWER PLANT, BUILD TRANSFER FOR POWER LINE</td>
<td>600 MW CAPACITY POWER PLANT AND POWER LINE FROM BAGANUUR TO UNDURKHAAN AND SUBSTATION</td>
<td>1.6 Billion USD</td>
<td>BIDDING IN PROGRESS</td>
</tr>
<tr>
<td>3</td>
<td>TEVSHIIN GOBI POWER PLANT</td>
<td>DEVELOP POWER PLANT BASED ON TEVSHIN GOBI COAL ORE</td>
<td>BUILD-OWN-OPERATE</td>
<td>600 MW CAPACITY POWER PLANT</td>
<td>900.0 Million USD</td>
<td>BIDDING IN PROGRESS</td>
</tr>
<tr>
<td>4</td>
<td>&quot;CHOIR&quot; SUBSTATION EXPANSION</td>
<td>EXPANSION ON &quot;CHOIR&quot; SUBSTATION AND DIFFERENTIATION STATION</td>
<td>BUILD-TRANSFER</td>
<td>EXISTING CAPACITY OF 220/110/35/6 KV TO 200 MW, EXPANSION ON EXISTING CAPACITY OF 220/110/35/6 KV DIFFERENTIATION STATION</td>
<td>19.0 Million USD</td>
<td>BIDDING IN PROGRESS</td>
</tr>
</tbody>
</table>
# Energy Sector of Mongolia

## Power plant

<table>
<thead>
<tr>
<th>№</th>
<th>PROJECT NAME</th>
<th>DEFINITION</th>
<th>CONCESSION TYPE</th>
<th>CAPACITY</th>
<th>BIDDING PROCESS</th>
<th>PROJECT STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TAVALTAIN HAVTSAL HYDRO POWER PLANT PROJECT</td>
<td>DEVELOP HYDRO POWER PLANT ON KHOVD RIVER, BAYAN-ULGII AIMAG</td>
<td>BUILD-OPERATE-TRANSFER</td>
<td>88.7 MWT HYDRO POWER PLANT</td>
<td>NO BIDDING</td>
<td>NO BIDDING IN PROGRESS YET</td>
</tr>
<tr>
<td>2</td>
<td>KHOVD IRVER HYDRO POWER PLANT PROJECT</td>
<td>DEVELOP HYDRO POWER PLANT ON KHOVD RIVER, KHOVD AIMAG</td>
<td>BUILD-OPERATE-TRANSFER</td>
<td>64 MWT HYDRO POWER PLANT</td>
<td>NO BIDDING</td>
<td>NO BIDDING IN PROGRESS YET</td>
</tr>
</tbody>
</table>

## TOTAL REQUIRED INVESTMENT IN ENERGY SECTOR /Including: Transmission line and power plants/

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total transmission line estimated costs:</td>
<td>544.9 Million US.D</td>
</tr>
<tr>
<td>Total power plant estimated costs:</td>
<td>5.5 Billion US.D</td>
</tr>
<tr>
<td>-Awarded projects:</td>
<td>2.9 Billion US.D</td>
</tr>
<tr>
<td>-Bidding projects:</td>
<td>2.6 Billion US.D</td>
</tr>
<tr>
<td>Total investments required in the Energy sector:</td>
<td>6.1 Billion US.D</td>
</tr>
<tr>
<td>№</td>
<td>Lincese Holders</td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Sainshand wind park</td>
</tr>
<tr>
<td>2</td>
<td>AB Solar Wind</td>
</tr>
<tr>
<td>3</td>
<td>Aidiner Global</td>
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<td>Cleantech</td>
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<td>5</td>
<td>Clean Energy Asia</td>
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<tr>
<td>6</td>
<td>Desert Solar Power Wind</td>
</tr>
<tr>
<td>7</td>
<td>Huduugiin tsahilgaan</td>
</tr>
<tr>
<td>8</td>
<td>Ulaanbaatar Usan tseneg power plant</td>
</tr>
</tbody>
</table>

**Total** 642.4 MW
THANK YOU FOR YOUR ATTENTION

Website: http://www.energy.gov.mn/