MONGOLIA: POWERHOUSE TO A CLEAN ENERGY FUTURE
MONGOLIA

COUNTRY INFO

- AREA: 1.56 mln sq.km
- POPULATION: 2.9 mln
- LANGUAGE: Mongolian
- CURRENCY: Tugrug (MNT)
  1 USD = 1736 MNT

MACROECONOMIC INFO

- GDP (2012E): $9.9 bln
- GDP per capita (2012): $3,600
- Real GDP growth (2012): 12.3%
- Inflation (2012): 15%
- Unemployment rate (2012): 6.8%

HIGHLIGHTS OF MINING DEPOSITS SOUTHERN MONGOLIA

<table>
<thead>
<tr>
<th>Deposit name</th>
<th>Minerals</th>
<th>Mine life</th>
<th>Production ‘000 ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tavan Tolgoi</td>
<td>coal</td>
<td>200</td>
<td>20’000</td>
</tr>
<tr>
<td>Ukhaa Khudag</td>
<td>coal</td>
<td>40</td>
<td>10’000</td>
</tr>
<tr>
<td>Baruun Naran</td>
<td>coal</td>
<td>20</td>
<td>10’000</td>
</tr>
<tr>
<td>Tsagaan Tolgoi</td>
<td>coal</td>
<td>20</td>
<td>2’000</td>
</tr>
<tr>
<td>Nariin Sukhait</td>
<td>coal</td>
<td>40</td>
<td>2’000</td>
</tr>
<tr>
<td>Ovoot Tolgoi</td>
<td>coal</td>
<td>50</td>
<td>14’000</td>
</tr>
<tr>
<td>Sumber</td>
<td>coal</td>
<td>50</td>
<td>5’000</td>
</tr>
<tr>
<td>Oyu Tolgoi</td>
<td>copper</td>
<td>50</td>
<td>2’000</td>
</tr>
<tr>
<td>Tsagaan Suvraga</td>
<td>copper</td>
<td>50</td>
<td>250</td>
</tr>
</tbody>
</table>

MONGOLIA ECONOMY GROWTH

1 Bank of Mongolia (Central Bank) official exchange rate as of 10 Jan 2014
2 Bank of Mongolia data: average annual rate of balances for 12 months
### MONGOLIA ECONOMY & ENERGY 2013 → 2020

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity consumption</td>
<td>5.1 TWh</td>
<td>8.1 TWh</td>
</tr>
<tr>
<td>GDP</td>
<td>$9.9 bln</td>
<td>$44 bln</td>
</tr>
<tr>
<td>FDI for RE</td>
<td>$0.04 bln</td>
<td>$12 bln</td>
</tr>
<tr>
<td>Wind installed capacity</td>
<td>50 MW</td>
<td>10 GW</td>
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<tr>
<td>Wind energy</td>
<td>0.05 TWh</td>
<td>33 TWh</td>
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<tr>
<td>Investment for wind</td>
<td>$100 mln</td>
<td>$15 bln</td>
</tr>
<tr>
<td>Wind Energy Export</td>
<td>0</td>
<td>$1.2 bln</td>
</tr>
<tr>
<td>Coal Export</td>
<td>18 mln t</td>
<td>30 mln t</td>
</tr>
<tr>
<td>Revenue from coal export</td>
<td>$0.8 bln</td>
<td>$1.4 bln</td>
</tr>
</tbody>
</table>

### POLICY SUPPORT FOR RENEWABLE ENERGY

#### Global
- UNFCCC
- Kyoto protocol
- Copenhagen accord

#### Domestic
- Policy on climate change 2000 & 2011 (mitigation and adaptation)
- National RE Program and Target 2005 (25% by 2020)
- RE Law 2007 (feed-in tariff)
- With new Foreign Investment law, Mongolia opens to investors 2013
We make Mongolia home to world’s best practices and cutting-edge technologies:
- Our close and trusted cooperation with multinational corporations and international development institutions helps Mongolia bridge and shorten distances to the world’s best know-hows and skills, technologies and equipment.

We are a risk-bearer, innovator and wealth creator:
- introduced cell phones to Mongolia establishing Mobicom;
- launched Eznis Airways leading private airliner;
- build Mongolia’s first wind farm;

We value and embody the intellectual capacity of Mongolians:
• Salkhit Wind Farm is being built by Clean Energy LLC – a renewable energy company
  – First Independent Power Provider
  – First Power Purchase Agreement
  – First new power plant connected to the grid in 30 years
  – First wind farm in Mongolia
  – First limited recourse project financing in Mongolia

• Investors:
  - Newcom Group - Lead Developer
  - General Electric (GE)
  - European Bank of Reconstruction and Development (EBRD)
  - Dutch Development Bank (FMO)
ABOUT THE SALKHIT WIND FARM

- Investment: 120 million USD
- Average Wind Speed: 8m/s
- Total WTGs: 1.6MW/31 unit
- Wind Farm Capacity: 50 MW
- Annual electricity generation: 168.5M kWh
- Connected to the Central Grid System. Produce 3% of Central Grid
- Providing 100,000 households with long-term electricity supply
- Introducing renewable energy technologies as a viable business model
- Introducing first PPA in Mongolia.
Clean Energy Asia LLC (CEA) was established in 2012 as a joint venture between Newcom LLC and the Japanese telecommunications giant Softbank’s renewable energy arm, SB Energy Corp.

Main goals:
- Survey potential renewable energy power generation sites in Mongolia
- Expanding investment in and development of the renewable energy sector in Mongolia
- Exporting clean energy to other regions and thus facilitating the creation of an Asia Super Grid.

First project: Tsogttsetsii site near to the Tavan Tolgoi coking coal mining in the South Gobi Province
MONGOLIA’S RENEWABLE ENERGY POTENTIAL

WIND RESOURCE*

- China 2380GW (on land)*** installed 76GW**
- Mongolia 1130GW*** installed 50MW

SOLAR RESOURCE*

- 320sunny day**
- Mongolia 4’774TWh

* http://globalatlas.irena.org/  ** Wikipedia,  *** NREL

MONGOLIA’S RENEWABLE ENERGY POTENTIAL

- Mongolia 946TWh
- China 3’826TWh
- Japan 34TWh

MONGOLIA’S RENEWABLE ENERGY POTENTIAL

- Mongolia 4’774TWh
- South Korea 309TWh
- Japan 809TWh

- China 27’374TWh*
- Mongolia 4’774TWh

* http://globalatlas.irena.org/  ** Wikipedia,  *** NREL
MONGOLIA IS SUITABLE FOR RENEWABLE ENERGY IN ASIA

POPULATION DENSITY*

- Mongolia is the least densely populated country in the world.

400’000 km² land suitable for wind and solar in Mongolia.
(Japan area is 377’944 km²)

- Low GDP per capital but rapidly expanding economy
- Near from electricity consumers
- No extreme weather
- Lots of land, low population density
  - 1.7 people per km²
- Good wind resource
  - 946TWh/annual
- Good solar resource
  - 1300kWh/sq.m, 320 sunny days
- Plat land cover
  - Low construction cost
- Low average temperature
  - High efficiency for PV

* http://globalatlas.irena.org/
MONGOLIA’S RENEWABLE ENERGY POTENTIAL

- **Gobi Wind resource**: 946 TWh
- **Gobi solar energy resource**: 4’777 TWh
- **World electricity production in 2009**: 20’261 TWh
- **Electricity production of Mongolia in 2013**: 4.9 TWh
- **China electricity production in 2011**: 5000 TWh

- **18%**
- **24%**
- **95%**
• Proven record of bringing global technology & innovation
  • Newcom group have experience Wind farm development
• Strong local market presence and dedication
  • Developing next 50MW wind farm in South region
• Well-empowered and skilled management team
• Committed to high standards of professionalism, transparency, governance, financial prudence
• Have suitable land for Renewable energy
  • Wind, solar measurement in 210,000 he since 2008
Thank you for your attention