A Smart Energy Creator

2022, May 10th
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Chapter I

Domestic Business
History

In business for 123 years since 1898

1898
- Foundation of Hansung Electric Co., the original entity of KEPCO

1982
- Integration of utilities into Korea Electric Power Corp. (KEPCO)

1994
- Listing of KEPCO shares on the New York Stock Exchange

2001
- Spin off of the business into six power generation subsidiaries

2014
- Relocation of the headquarters to Najusi, Jeollanamdo
Dominant Player in Korea

Korean Government

<table>
<thead>
<tr>
<th></th>
<th>51%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![KEPCO logo]</td>
</tr>
</tbody>
</table>

[Exchange rate KRW/USD]
Asset: Converted at the rate of 1,088.00 per USD as of the end of 2020
Revenues: Converted into USD at annual average rate of 1,180.05 per USD

<table>
<thead>
<tr>
<th></th>
<th>USD 186.7 billion (KRW 203.1 Tn)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USD 49.6 billion (KRW 58.6 Tn)</td>
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</table>

Transmission & Distribution

- 100% market share in Korea

<table>
<thead>
<tr>
<th></th>
<th>Moody’s</th>
<th>S&amp;P</th>
<th>Fitch</th>
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<tbody>
<tr>
<td></td>
<td>Aa2</td>
<td>AA</td>
<td>AA-</td>
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</table>

Generation

- 61.5% of total capacity in Korea

<table>
<thead>
<tr>
<th></th>
<th>KHNP</th>
<th>KOEN</th>
<th>KOMIPO</th>
<th>WP</th>
<th>KOSPO</th>
<th>EWP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nuclear &amp; Hydro</td>
<td>Thermal &amp; Renewable</td>
<td>Thermal &amp; Renewable</td>
<td>Thermal &amp; Renewable</td>
<td>Thermal &amp; Renewable</td>
<td>Thermal &amp; Renewable</td>
</tr>
<tr>
<td></td>
<td>Asset $56.9 bn</td>
<td>Revenue $8.4 bn</td>
<td>Asset $10.0 bn</td>
<td>Revenue $3.6 bn</td>
<td>Asset $11.9 bn</td>
<td>Revenue $3.6 bn</td>
</tr>
<tr>
<td></td>
<td>Asset $9.6 bn</td>
<td>Revenue $3.1 bn</td>
<td>Asset $9.8 bn</td>
<td>Revenue $3.4 bn</td>
<td>Asset $8.8 bn</td>
<td>Revenue $3.6 bn</td>
</tr>
</tbody>
</table>

Others (1)

- KEPCO E&C (65.8%)
- KEPCO KPS (51.0%)
- KEPID (29.0%)
- Engineering Service
- Maintenance & Repair
- Retail Metering

KEPCO KDN (100%)
- IT Service
KEPCO NF (96.4%)
- Nuclear Fuel
KOGAS (20.5%)
- Import & Supply of LNG

Share of capacity for 2021: 61.5% (82.5GW) by 6 GENCOs, and 38.5% (51.6GW) by IPPs and MPPs (2)
Share of Electric Trading Volume for 2021: 70.8% (380,216GWh) by 6 GENCOs, and 29.2% (156,798GWh) by IPPs and MPPs
Others include major subsidiaries and affiliates of KEPCO.

Source: (1) 2021 KEPCO Sustainability Report
One of the world’s top 10 power providers with generation capacity of 82.5GW

Average load factor of 72.2% in 2021 (world’s highest)

61.5% of the total capacity in Korea (KEPCO & its subsidiaries) in 2021

- Coal: 32.6 GW, 39.5%
- Nuclear: 23.3 GW, 28.2%
- LNG: 18.1 GW, 21.9%
- Renewable: 7.2 GW, 8.7%
- Oil: 1.4 GW, 1.7%

World’s best T&D efficiency

### T&D Facilities (As of End of 2020)

#### Transmission Lines
- 34,665 c.km
- 42,574 towers & poles
- Underground: 12.3%

#### Substations
- 877 substations
- Capacity: 336,926 MVA
- Unmanned substations: 86.0%

#### Distribution Lines
- 514,779 c.km
- 129,789 MVA transformers
- Underground: 12.7%

### Power Outage per Household

- Live-line maintenance: 523 min
- SCADA, DAS: 30 min
- NDIS, MTPI: 19 min
- Voltage Upgrade: 8.61 min

*MTPI: Maintenance Technology without Power Interruption

### T&D Loss Rate

- 1961: 29.4%
- 1980: 8%
- 1995: 6%
- 2020: 3.54%

*Source: The Statistics of Electric Power In Korea, Vol.90, May 2021*
# Transmission & Distribution

## World’s Lowest T&D Loss Rate

<table>
<thead>
<tr>
<th>Country</th>
<th>T&amp;D Loss Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>3.5</td>
</tr>
<tr>
<td>U.S.</td>
<td>5.5</td>
</tr>
<tr>
<td>Germany</td>
<td>6.1</td>
</tr>
<tr>
<td>France</td>
<td>7.5</td>
</tr>
<tr>
<td>U.K.</td>
<td>7.7</td>
</tr>
</tbody>
</table>

(As of 2020)

## World-class Power Outage Performance per Household

<table>
<thead>
<tr>
<th>Country</th>
<th>SAIDI* (per minute/household/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>8.6</td>
</tr>
<tr>
<td>Germany</td>
<td>12.8</td>
</tr>
<tr>
<td>U.K.</td>
<td>39</td>
</tr>
<tr>
<td>France</td>
<td>49</td>
</tr>
<tr>
<td>U.S.</td>
<td>54.6</td>
</tr>
</tbody>
</table>

(As of 2020)

* SAIDI: System Average Interruption Duration Index

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## World-class normal voltage holding rate of 99.99%

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* Source: (1) The Statistics of Electric Power In Korea, Vol.90, May 2021
Chapter II
Global Business
## Organization

### Headquarters (345)

<table>
<thead>
<tr>
<th>Global Business Division (211)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Global Business Planning Department</td>
</tr>
<tr>
<td>- Business Planning / Risk Management / Project Finance / Legal Aid / International Cooperation Team</td>
</tr>
<tr>
<td>• Global Business Development Department</td>
</tr>
<tr>
<td>- Thermal Power &amp; Renewable Energy Development Team</td>
</tr>
<tr>
<td>• Global Business Management Department</td>
</tr>
<tr>
<td>- Project Management / Bylong / Grid Business / Energy Solution Team</td>
</tr>
<tr>
<td>• Global Power Generation Department</td>
</tr>
<tr>
<td>- Thermal &amp; Renewable Power Engineering Team</td>
</tr>
</tbody>
</table>

### Overseas Offices (15)

<table>
<thead>
<tr>
<th>Tokyo</th>
<th>New York</th>
<th>Johannesburg</th>
<th>Frankfurt</th>
<th>UAE Nuclear Power Site (101)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>Riyadh</td>
<td>Jakarta</td>
<td>Hanoi</td>
<td></td>
</tr>
</tbody>
</table>

### Overseas Subsidiaries (94)

<table>
<thead>
<tr>
<th>Philippines (KPHI, Ilijan, Malaya, Cebu, Calatagan)</th>
<th>Jordan (Amman, Al Qatrana, Fujeij)</th>
<th>Australia (Bylong)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China (Shanxi, Neimenggu, Liaoning)</td>
<td>Saudi (Rabigh)</td>
<td>Indonesia (Jawa)</td>
</tr>
<tr>
<td>Japan (Chitose)</td>
<td>UAE (Shuweihat S3)</td>
<td></td>
</tr>
<tr>
<td>Malaysia (Pulau Indah)</td>
<td>USA (Colorado, California, Guam Mangilao, Ukudu)</td>
<td></td>
</tr>
<tr>
<td>Vietnam (Nghi Son II, Vungang II)</td>
<td>Mexico (Norte II, Horus)</td>
<td></td>
</tr>
</tbody>
</table>
48 Projects in 25 Countries (as of December 2021)

- **Nuclear**: 1 Project in UAE
- **Thermal**: 14 Projects in 10 Countries
- **Renewable**: 8 Projects in 6 Countries
- **Grid Solution**: 24 Projects in 15 Countries
- **Natural Resource**: 1 Project in Australia

- **UAE**
  - Al Qatrana (Gas, 373MW)
  - Amman (Gas, 573MW)
  - Fujairah (Wind, 893MW)

- **China**
  - Shanxi (Coal, 8,350MW)
  - Renewable Energy (947MW)
  - Neimenggu (Wind, 1,024MW)

- **U.S.**
  - Colorado (Solar, 30MW)
  - Guam Mangilao (Solar, 60MW)
  - California (Solar, 235MW)
  - Guam Ukuku (Gas, 198MW)

- **Jordan**
  - Barakah (Nuclear, 5,600MW)
  - Shuweihat S1 (Gas, 1,600MW)

- **Australia**
  - Bylong (Coal)

- **Vietnam**
  - Nghi Son II (Coal, 1,200MW)
  - Vung Ang II (Coal, 1,200MW)

- **Japan**
  - Chitose (Solar, 28MW)

- **Philippines**
  - Iloilo (Gas, 1,200MW)
  - Cebu (Coal, 200MW)
  - SPC (Diesel, 145MW)
  - Calatagan (Solar, 50MW)

- **Other Locations**
  - Jordan, China, U.S., Vietnam, Japan, Philippines, Australia, and several others in various countries.
Generation Facilities

* Numbers in parenthesis represent the output in proportion to KEPCO’s investment.

28,228MW
(9,286MW)

Thermal

- In operation: 14,078 MW (5,340 MW)
- Under construction: 5,600 MW (1,680 MW)
- Completed conclusion: 198 MW (119 MW)

Coal 12,950 MW (4,370 MW)
Heavy Oil 1,204 MW (482 MW)
Gas 5,577 MW (2,229 MW)
Diesel 145 MW (58 MW)

Nuclear

- In operation: 2,318 MW (962 MW)
- Under construction: 434 MW (177 MW)

Renewable

Wind Power 1,106 MW (496 MW)
PV Power 1,646 MW (643 MW)

• Under construction: 5,600 MW (1,008 MW)
Areas - Generation

**Nuclear & Thermal**

- **1 Nuclear Power Plant**
  - Middle East: UAE Barakah

- **14 Thermal Power Plants**
  - Asia: China, The Philippines(3), Malaysia, Indonesia, Vietnam(2)
  - Middle East: UAE, Saudi Arabia, Jordan(2)
  - America: US, Mexico

**Renewable**

- **8 Renewable Power Plants**
  - Asia: China, Japan, The Philippines
  - Middle East: Jordan
  - America: US(3), Mexico

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KEPCO, A Smart Energy Creator
Areas – Other Businesses

Grid Business

6 Grid Projects
- Asia: Tajikistan, Myanmar, Bangladesh(2)
- Middle East: UAE
- Africa: Botswana

Solution Business

18 Solution Projects
- Asia: Bangladesh(2), Myanmar(4), Malaysia, Cambodia
- America: Ecuador, Barbados, Honduras, Dominica(3), Jamaica
- Africa: Tanzania, Mozambique, Ethiopia
All-round Competencies

**Creates Synergy**
with thermal & nuclear generation subsidiaries

**Provides Bundled Services**
ranging from generation to network management

**Vertically Integrated Utility**

**Comprehensive Service Provider**
New Energy Business

1. **xGRID SCADA**
   - Uzbekistan SCADA/EMS consulting (2018)
   - Diagnosis for 500/220kV substations (75)

2. **Micro Grid**
   - Ethiopia Energy Town (2019)
   - Total Capacity: PV (250kW), ESS (1MWh)

3. **Big Data Platform**
   - Sri Lanka AMI (MDMS) Project (2019)
   - Acquisition & analysis of metering data
   - AMI for 1,000 customers

4. **GIS Implementation**
   - Bangladesh GIS Project (2018 ~ 2021)
   - GIS DB for 1 mil. customers

5. **K-SEM Smart Grid Station**
   - UAE building consulting (2019)
   - Energy efficiency enhancement (Electricity, AC)
Thank you