





Korea, Republic of

The Korean electric power industry is being restructured to improve power supply efficiency and to optimally allocate resources to boost its national economic competitiveness. This would also give consumers the option of choosing their power supplier.

KEPCO has played a key role in the growth of the Korean power industry since 1961. In 1993, the government decided to revamp the operation of state-run corporations. The plan for restructuring the power industry was developed in 1998.

The plan called for breaking up KEPCO's power generation business into a number of subsidiaries in the short-term to enhance efficiency through competition and privatization. The power distribution sector will be separated and split into many smaller companies to introduce overall competition and base retail sales on market forces.

KEPCO was a vertically integrated electricity company monopolizing the entire process ranging from the purchase of fuel to power generation, transmission and distribution. In April 2001, according to the electricity industry restructuring plan of the government, generating sector was separated from KEPCO spinning off six generation subsidiaries(Korea Hydro and Nuclear Power, Korea Southeast Power, Korea Midland Power, Korea Western Power,

Korea Southern Power, Korea East-West Power: hereinafter referred to as "Gencos"). The Korea Power Exchange (KPX) was founded for power trading and Independent Power Producers (IPPs) began to compete in the power market.

Currently, KEPCO purchases the electricity generated by the Gencos and IPPs through the KPX and sells it to customers. KEPCO is also in charge of building and operating the transmission and distribution networks. From 2003, large-scaled customers using more than 50,000kW were allowed to purchase the electricity directly, bypassing KEPCO, from the KPX. Competition was also introduced into the sales sector by allowing CES (Community Energy Suppliers) to produce electricity and sell it to customers in the licensed region.

Currently, the government decided not to further proceed the original plan of restructuring based on a special committee's evaluation conducted in 2004. Therefore, the power networks will be operated by KEPCO and competition in retail sales would not be introduced until the change of the current government policy. Instead, KEPCO plans to adopt SBU(Sub-Business Units) system in power sales and distribution sector to give more accountability of business operations and management to each unit and boost competition among the units from September 2006.

PROFILE

Capital Area	Seoul	Installed Capacity	59,961MW
Population	48.6 million	Population Electrified	100%
GDP	US\$925.1 billion	Main Voltages (kV)	765, 345, 180,
Currency	Won	Natural Resources	154, 66, 22 coal, hydropower potential

Growth Pattern

Peak Demand

(Unit : %, MW)

Item	2001	2002	2003	2004	2005
Load Factor	75.5	76.4	77.1	76.2	76.2
Peak Demand	43,125	45,773	47,385	51,264	54,631
Peak Availability	48,699	52,113	55,488	57,528	60,818
Capacity R/R	12.9	13.9	17.1	12.2	11.3

Population Electrified : 99.9% (since 1991)

Installed Generating Capacity

(Unit : MW)

Fuel Type	2001	2002	2003	2004	2005
Hydro	3,876	3,876	3,877	3,829	3,829
Anthracite	1,291	1,191	1,191	1,125	1,125
Bituminous	14,240	14,740	14,740	16,340	16,840
Oil	4,868	4,660	6,011	6,048	6,091
LNG	12,868	13,618	14,518	15,746	16,447
Nuclear	13,716	15,716	15,716	16,716	17,716
Others	-	-	-	158	210
Total	50,859	53,801	56,053	59,961	62,258

Power Generation

(Unit : GWh)

Fuel Type	2001	2002	2003	2004	2005
Hydro	4,151	5,311	6,887	5,744	5,015
Thermal	168,940	182,060	185,893	205,226	212,262
Nuclear	112,133	119,103	129,672	130,715	146,779
Others				463	583
Total	285,224	306,474	322,452	342,148	364,639



Future Projection (Unit : MW)

Fuel Type	2006	2008	2010	2012
Hydro	5,490	5,490	6,290	6,290
Thermal	40,595	46,230	49,730	51,424
Nuclear	17,716	17,716	18,716	23,116
Others	1,963	3,407	3,892	4,527
Total	65,764	72,843	78,628	85,357

Electricity Export and Import

Korea imports 97% of the nation's primary energy needs and it does not trade power with neighboring countries due to geo-political conditions. Under the 'Sunshine Policy' of the South Korean government, KEPCO started power supply to the Gaeseong Industrial Complex in North Korea from 2004 for the first time since Korea had been divided.

Electricity Tariffs

Average Electricity Prices (Unit : Won/kWh)

Type	Residential	Industrial	Agricultural	Commercial	Total
2005	91.07	60.25	41.67	95.24	74.46
2004	90.94	60.23	41.95	96.85	74.58
2003	88.00	60.30	43.45	100.59	74.68

Effective Dec. 28, 2005, the Ministry of Commerce, Industry and Energy increased the average electricity rates by 2.8% following fuel price hikes.

- Residential rate : 2.4%^{°E} Industrial rate : 3.3%
- Commercial rate : 1.9%^{°E} Educational rate : 15.3%[°]

Procedure of Rates Revisions

- KEPCO(Korea Electric Power Corporation) submits recommendations for revisions of rates to the MOCIE(Ministry Of Commerce, Industry and Energy) after Board of directors' approval
- The consideration of ERCPEC(Electric Rates and Consumer Protection Expert Committee)
- Deliberations on minister of finance and economy
- The consideration of KEC(Korean Electricity Committee)
- Authorization rates revisions by the minister of MOCIE

(Unit : MW)

Installed Capacity of Power Generation Subsidiaries

Fuel Type	Korea South-East Power Co.	Korea Mid-land Power Co.	Korea Western Power Co.	Korea Southern Power Co.	Korea East-West Power Co.	Korea Hydro & Nuclear Power Co.
Nuclear	-	-	-	-	-	Gori (3,137) Wolsong (2,779) Yeonggwang (5,900) Ulin (4,900)
Bituminous Coal	Samchonpo (3,240) Yeonghung (1,600)	Boryeong (3,000)	Taean (3,000)18,250	Hadong (3,000)	Dangjin (2,000) Honam (500)	
Domestic Coal	Yeongdong (325)	Seochon (400)			Donghae (400)	
Oil	Yeosu (528)	Jeju (215)	Pyeongtaek (1,400)	Yeongnam (400) Namjeju (20) Hallim C/C (105)	Ulsan-1 (600) Ulsan-2 (1,200)	
Gas	Bundang C/C(900)	Boryeong C/C(1,800) Inchon (1,150) Seoul (388)	Seinchon C/C(1,800) Pyeongtaek C/C(480)	Sininchon C/C(1,800) Namjeju (40) Busan (1,800)	Ulsan-3 (1,200) Ulsan C/C (900)	
Hydro	Muju P/S (600)	-	Samrangjin P/S(600)	Cheongpyong P/S(400)	Sanchung P/S(700)	Hydro (534)
Total	7,193	7,497	7,280	7,571	8,000	18,250



Transmission and Distribution

Transmission Facilities(At year 2005-end)

(Unit : c-km, MVA)

Facilities	Line-length (C-km)	Transformer Capacity	Substations
765k V	662	21,111	5
345k V	7,990	84,381	77
154k V	19,191	102,168	537
66k V	567	844	18
180k V (HVDC)	232	-	-
Total	28,642	208,504	637
2004	29,409	103,700	615

Distribution Facilities(At year 2005-end)

Facilities	Line-length (C-km)	Transformers (1,000 units)	Supports (1,000 units)
2005	385,509	1,715	7,412
2004	380,363	1,652	7,261
2003	376,454	1,619	7,171

Long-term Construction Plan

(Unit : c-km)

Voltage	2005	2010	2017	Reference
765kV	662	1,005	1,005	+52%
345kV	7,990	9,515	9,816	+23%
154kV	19,191	23,006	25,473	+33%
Total	27,843	33,526	36,924	+33%

Environment

Integrated Environmental Management System
KEPCO Group-wide environment team is in operation to take responsibilities for managing company's environmental management system, establishing long-term strategy, and coordinating various environmental activities. We will also actively utilize the existing "Environment Friendly Advisory Committee" as a channel for hearing outside opinions and advice to reflect them into our management activities.

It is our long-term goal to acquire ISO14001 certification on environmental management

system and introduce an environmental performance evaluation system for continuous evaluation and feedback on our performance.

Diversifying clean energy sources and coping with climate change

We are implementing a lot of activities to cope with global climate change. The Gencos have continuously raised heat efficiency. The average heat efficiency of the thermal power plants was recorded at 40.6% in 2004. We will enhance heat efficiency by continuously developing technologies and improving facilities to decrease

the use of fossil fuels and reduce the emission of CO₂, which is the main cause of global warming.

We established an organization in charge of the renewable energy at all Gencos to reduce the emission of CO₂ from existing power plants and raise the proportion of the renewable energy in entire power generation. As of 2003, the power generated from renewable energy sources was only 1.59% of all power generated. However, we have developed a long-term power plan to achieve 7% by 2011, a target set by the government, and the progress is being made in line with the plan.

Efforts to reduce transmission and distribution loss

We control the construction of additional power generation facilities and indirectly contribute to the reduction of greenhouse gases through the efforts to reduce the transmission and distribution loss rate. For this, we have raised the transmission and distribution voltage, and installed large-capacity lines and highly efficient equipment. Currently KEPCO's transmission and distribution loss rate is 4.46%, the lowest in the world.

The loss rate in transmission sector stands at 2.7%. We are upgrading the transmission voltage

by expanding the transmission facilities with a capacity of 154kV or higher, and rehabilitating old and weak facilities, including 66kV facilities, for power loss reductions.

The loss rate in the distribution sector is 1.8%, and we will keep the level at 1.7% in the long term, we expanding capacity and reducing power loss by resolving the issue of saturated power lines and excessive voltage drop lines, redressing load imbalance, increasing load conversion capacity and developing high efficiency and high reliability equipment. In the long term, we plan to develop harmonics equipment and superconductivity equipment to be used for distribution loss minimization.

Demand-side management

The importance of implementing Demand-side management programs and improving efficiency in energy use have become more emphasized than ever for the stabilization of power demand and supply, reduction of power generating cost, energy saving, and global environment conservation. By aggressively performing systematic Demand-side management program, the load factor is maintained at 76.2 percent.

