



Korea, Republic of



Electric Power Industry Structure

The six power generation companies (GENCOs) and independent power producers (IPP) generate electric power and sell it to KEPCO in the Korea Power Exchange (KPX). KEPCO, in turn, sells electric power to general customer over its transmission/distribution network.

The sales segment of the electric power market is getting open to competition with the introduction of such programs as direct purchase by large-volume customers (30,000kW or more) and community energy suppliers who are allowed to sell to special area customers.

KEPCO's Role

KEPCO is a special corporation incorporated under the "Korea Electric Power Corporation Act." As the largest public enterprise in Korea, KEPCO bears great responsibility and is taking the lead in the effort to enhance international competitiveness.

KEPCO clearly understands that electric power is the bloodline of national economic development. It will contribute to national economic development by securing high-quality electric power supplies and enhancing international competitiveness. Also, by adopting environment-friendly management practices, it will strive to protect the environment of the earth and advance environmental values for our future generations. As a company serving the general public, it will try hard to win trust and support from stakeholders and contribute to



Photo: Bloomberg

the betterment of society.

KEPCO will pursue continued growth and development in order to become a globally respected company.

Electricity Export and Import Electricity

Korea imports 97% of nation's primary energy needs and it does not trade power with neighboring countries due to geo-political conditions. Under "Sunshine Policy" of the South Korean government, KEPCO started power supply to the Gaeseong Industrial Complex in

PROFILE

Capital Area	Seoul	Installed Capacity	72,491MW
Population	99,720 km ²	Population Electrified	100%
GDP	48,607,000 million	Main Voltages (kV)	765, 345, 154, 22.9
Currency	\$947 billion	Natural Resources	coal, hydro
	Won		

Growth Patterns

Peak Demand

(Unit: %, MW)

Item	2005	2006	2007	2008
Load Factor	76.2	73.8	73.9	76.6
Peak Demand	54,631	58,994	62,285	62,794
Peak Availability	60,818	65,183	66,778	68,519
Capacity R/R	11.3	10.5	7.2	9.1

Installed Generating Capacity

(Unit: MW)

Fuel Type	2005	2006	2007	2008	Share(%)
Hydro	3,829	5,485	5,492	5,505	7.6
Anthracite	1,125	1,125	1,125	1,125	1.6
Bituminous	16,840	17,340	19,340	22,580	31.1
Oil	6,091	6,172	6,808	6,867	9.5
LNG	16,447	17,436	17,436	17,969	24.8
Nuclear	17,716	17,716	17,716	17,716	24.4
Alternative Energy	210	240	351	728	1.0
Total	62,258	65,514	68,268	72,491	100

Power Production by Fuel Type

(Unit: GWh)

Fuel Type	2004	2005	2006	2007	2008	Share(%)
Fuel	5,861	5,189	5,219	5,042	5,563	1.3
Thermal	205,222	212,267	226,703	254,316	264,742	62.7
Nuclear	130,715	146,779	148,749	142,937	150,958	35.7
Alternative	350	404	511	829	1,092	0.3
Total	342,148	364,639	364,639	403,125	422,355	100

Future Projection

(Unit: MW)

Fuel Type	2008	2010	2012	2014
Hydro	5,429	5,429	6,289	6,289
Thermal	47,510	49,411	53,418	55,933
Nuclear	17,716	18,716	21,716	24,516
Other	4,555	4,853	5,480	5,480
Total	75,310	78,409	86,903	92,218

North Korea from 2004 for the first time since Korea had been divided.

Fuel Type	Korea south - East Power	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) Ulljin(5,900)
Bituminous Coal	Samchonpo (3,240) Yeonghung (3,340)	Boryeong (4,000)	Taeon (4,000)	Hadong (3,500)	Dangjin (3,000) Honam (500)	-
Anthracite Coal	Yeongdong (325)	Seochon (400)	-	-	Donghae (400)	-
Oil	Yeosu(528.6)	Jeju(215) Jeju Internal Combustion(40)	Pyeongtaek (1,400)	Yeongnam (400) Namjeju(200) 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(387.5)	Seincheon C/C(1,800) Pyeongtaek C/C(480)	Sincheon C/C(1,800) Busan(1,800)	Ulsan-3 (1,200) Ilisan C/C (900)	-
Hydro	Muju P/S(600)	Yangyang P/S(1,000)	Samrangjin P/S(600) Cheongsong P/S(600)	Cheongpyong P/S(400)	Sanchung P/S(700) Sanchung S/H(0.4)	Paldang, etc 27 Hydro(536.9)
Wind		Yangyang Wind Powered (3)		Hankyong Wind powered(21)		
Total	8,941.3	9,505.0	8,885.3	8,267.4	9,501.4	18,256.4

Electricity Tariffs

Average Electricity Tariffs

Unit : Won/kWh

Type	Residential	Industrial	Agricultural	Commercial	Educational	Total
2008	97.58	66.24	42.38	95.30	72.50	78.76
2007	94.78	64.56	42.45	77.20	71.47	77.85
2006	93.70	61.92	42.96	77.48	68.61	76.43
2005	91.07	60.25	41.67	89.00	65.65	74.46

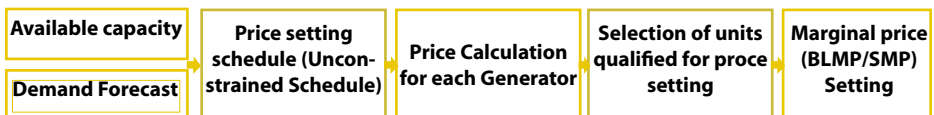
Procedure of Rates Revisions

- KEPCO submits revision plan of electricity rates to the MKE (Ministry Of Knowledge Economy) after Board of directors' approval
- Reviewed by ERCPEC (Electric Rates and Consumer Protection Expert Committee)
- Reviewed by MOSF (Ministry Of Strategy and Finance)
- Reviewed by KEC (Korea Electricity Commission)
- Authorization of tariff revisions by MKE

Market Price

The market price is composed of the System Marginal Price (SMP) and Capacity Payment (CP). Capacity payment is to reimburse the fixed cost to a generating unit that has declared its availability during the day, while SMP compensates for the variable cost, fuel cost, of a generating unit that produces electricity. Price cap is imposed on the base load generating units such as coal and nuclear power.

Method of Determining the System Marginal Price



The system marginal price (SMP) refers to the cost of the most expensive generating unit included in the Price Setting Schedule (PSS). PSS is set up by a computer program that can minimize the total production cost of generating units including the startup cost and incremental fuel cost.

Market Price Setting Procedure

KPX forecasts the demand for the trading day and receives offers for available capacity from generation companies one day ahead. It then determines the market price by running a Price Setting Schedule (PSS). In the PSS, the SMP values for each trading hour are calculated to meet the forecasted demand each hour. Congestions in grid or generation constraints such as fuel limitation and district heat supply are not considered in this procedure. Thus, establishing an efficient Operation Schedule that determines the unit commitment (merit order) and output level of generating units is essential in minimizing the total production cost while meeting the demand.

Transmission and Distribution

Transmission Facilities (2008 year-end)

Facilities	Line (C-KM)		Substation	Transformer
	Overhead	Underground		
765kV	755	-	4	23,114
345kV	8,089	221	56	95,279
154kV	17,933	2,261	97	109,268
66kV	332	3	2	454
180KV	30	202	-	134
Total	27,139	2,791	693	237,300

*The number of unmanned substation as of Dec. 31, 2008 is 496.

Distribution Facilities(At year 2007-end)

(Unit : c-km)

Facilities	Line-length (C-km)	Transformers (1,000 units)	Supports (1,000 units)
2008	410,015	1,917	8,053
2007	401,485	1,859	7,895
2006	393,304	1,788	7,608

*The Route length of underground line as of Dec. 31, 2008 is 31,556c-km.
(Includes subaqueous cable 110c-km)

Green Management

In response to changing paradigms in the industry and society, KPECO is investing its resources in green growth businesses such as establishing the Smart Grid, developing new renewable energy, as well as looking into greenhouse gas reduction methods.

A Leader of the Smart Grid

KEPCO has invested a total of 32.3 billion won in projects for transmission intelligence, large-scale power transmission, digitalized substations, and the ubiquitous application of communication power lines to accelerate the advancement Smart Grid technology. In addition, it is establishing the world's first Smart Grid verification complex on Cheju Island for completion in 2013. Testing of the new technology at the complex will enable KEPCO to lead the global smart grid market by

commercializing and exporting relevant design technologies and systems.

Development of green energy technology to create new growth engines.

KEPCO expanded and reinforced its technology development organization as it newly set up the Power Technology Division and appointed CTO to create new growth engines through the development of future core technologies. It is actively engaged in developing Eight Core Green Power Technologies including the integrated gasification combined cycle (IGCC) technology, export-type nuclear reactors, smart Grid, and charging infrastructure for electric vehicles. It will invest 2.8 trillion won in developing and commercializing such green technologies so that by 2020 a total of 25 core technologies from 8

green power technology sectors will stand at the world's top level.

Green Energy for a Prosperous Future

KEPCO is fervently engaging in developing new and renewable energy including solar voltaic, wind and hydrogen energy to realize low carbon green growth. After signing the Renewable Portfolio agreement (RPA) with the Korean government

to pursue development in this sector, KEPCO developed 63MW of new and renewable energy from 2006 to 2008 (First Phase RPA). It is planning to generate a total 633MW new and renewable energy from 2009 to 2011 (Second Phase RPA) while aggressively pushing ahead with new and renewable energy development projects abroad including Gansu (99MW) and Inner Mongolia (647) in China