June 2005, Preliminary settlement

KPX Monthly Market Report

July 2005

KOREA POWER EXCHANGE

Prepared By: Mgr. Kang Ji-hoon, Settlement Team (☎3456-6666)

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Attachment

1. Monthly Summary

☐ **Settlement Price: 48.96 won/kWh**

- 2.57% increase from previous month (47.74), 1.79% increase from the same month previous year (48.10)

☐ **Trading Volume: 26.7 billion kWh**

- 1.02% decrease from previous month (270), 5.64% increase from the same month previous year (253)

☐ **Trading Amount of Money : 1,308.1 billion won**

- 1.52% increase from previous month (1,288.5 billion), 7.53% increase from the same month previous year (1,216.4 billion)

☐ **Number of Regular Members Participating in Power Market: 55 Members, No changes**

☐ **Maximum Power Demand: 50,603,000kW**

- 13.92% increase from previous month, 10.16% increase from the same month, previous year

☐ **Electricity Quality**

- Frequency persistence rate 99.84% (0.08%p increase from previous month, 0.18%p increase from the same month, previous year)
- Voltage persistence rate 100% (same as previous month, 0.06%p increase from the same month, previous year)

Comparison with Previous period

(Unit: won/kWh, 1 million kWh, 100 million, 10 tousandkW)

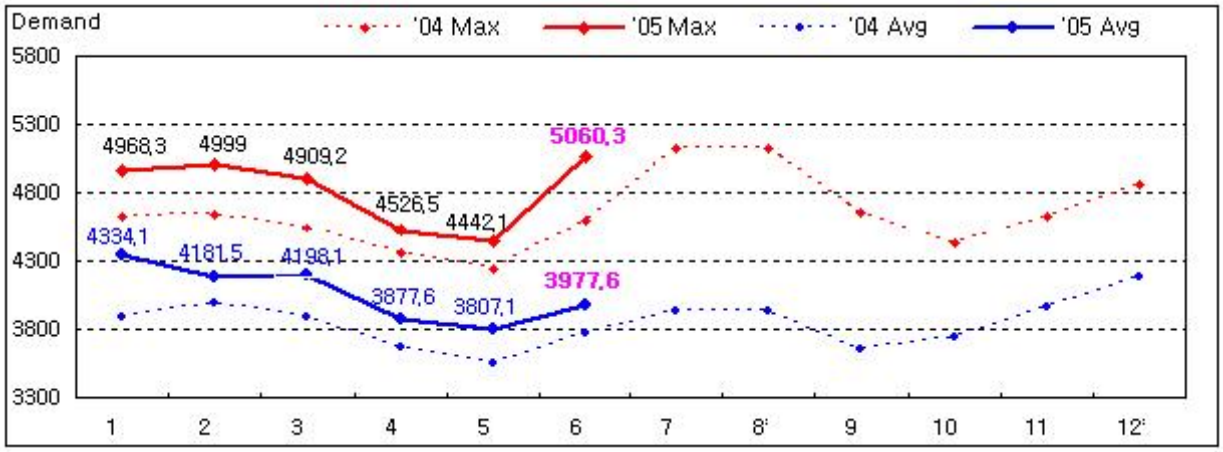
Division	2005			Same Month Previous 2 Years		
	April	May	June	June 2003	June 2004	June 2005
Settlement Price	47.46	47.74	48.96	48.33	48.10	48.96
Trading Volume	26,563	26,991	26,716	23,492	25,289	26,716
Trading Amount of Money	12,608	12,885	13,081	11,354	12,164	13,081
Maximum Demand	4,526	4,442	5,060	4,204	4,594	5,060

2. Power Supply & Demand

☐ Power Demand

○ Maximum demand in June was 50,603,000kW, average demand was 39,776,000kW

(Unit: 10,000kW, %)



Division	February	March	April	May	June	Remarks
Max Demand (Compared with Previous Year%)	4,999.0 (7.77)	4,909.2 (7.99)	4,526.5 (4.08)	4,442.1 (4.85)	**5,060.3 (10.16)**	2006. 6/24(Fri) 15:00
Avg Demand (Compared with Previous Year%)	4,181.5 (4.64)	4,198.1 (7.90)	3,877.6 (5.54)	3,807.1 (6.76)	**3,977.6 (5.50)**	Excluding Power for Pumping

○ The maximum power in June reached **50,603,000kW** showing 10.16% increase from the previous year, and the average power demand recorded **39,776,000kW** showing 5.5% increase from the previous year.

○ The highest average air temperature of 5 major cities recorded 27.8℃ which was similar to the previous year, but the air temperature of the last week (6/21-25) stayed around 30～32℃ which is 3～4℃ higher than previous year that the maximum demand increase rate increased.

☐ Supply Capacity

○ When the maximum Peak time, the power supply capacity was **55,209,000kW** and the supply reserve (rate) was retained at the level of **4,606,000kW** (9.1%)

(Unit: 10,000kW, %)

Division	Performance in 2004 (June 24)	Performance in 2005 (June 24)	Fluctuation Compared to Previous Year
Facility Capacity	5,698.0	**6,099.4**	+401.4
Supply Capacity	5,132.4	**5,520.9**	+388.5
Maximum Demand	4,593.7	**5,060.3**	+466.6
Supply Reserve (Reserve Rate, %)	538.7 (11.7)	**460.6 (9.1)**	-78.1 (-2.6%p)

3. Members and Facilities Status

☐ Market Participant (Member) Status

○ **Regular Member: 55, associate members: 6**(IPP 4, under construction 1, community energy 1) - New member in June: None

※ Details of members : Refer to Attachment #1

☐ Facilities Status

○ **Generation Facilities Participating in the market : 60,070,000kW**(44,710kW ↑ from previous month)

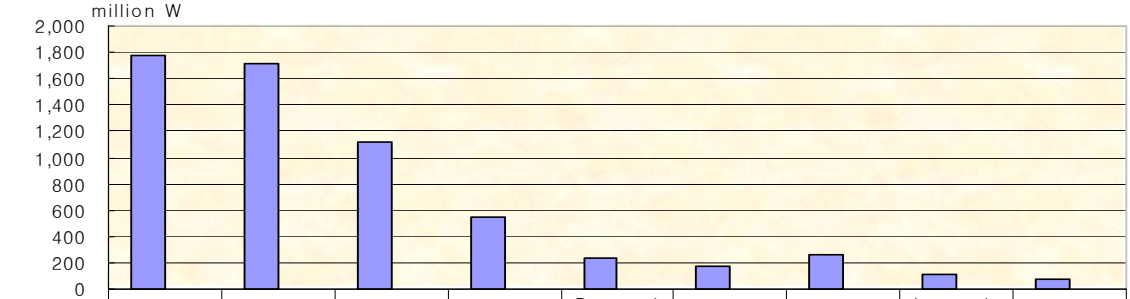
- Jeju Internal Combustion Power (Central Power, 40,460kW ↑), Daegok Dam Small Hydro Power (KOWACO, 300 kW ↑), Yangyang Small Hydro Power (Central Power, 1,400kW ↑), Taebaek Maebong Wind Power(Municipality of Taebaek, 2,550kW ↑)

○ Facilities capacity per power company: Korea Hydro and Nuclear Power(KHNP) takes up 30.4% of total facilities capacity with the capacity of 18,250,000kW

- Among other, POSCO is the largest one (2,430,000kW)

Power Company	KHNP	South East	Central Power	West Power	South Power	East West	Other
Facility Capacity (10,000kW)	1,825	719	744	728	757	800	433
Occupying Rate(%)	30.4	12.0	12.4	12.1	12.6	13.3	7.2

○ The occupying rate of facility capacities per generation type is nuclear (30%), coal (28%), combined (19%), and heavy oil (9%)



	nuclear	coal	combined	heavy oil	Pumped Storage	LNG	etc	domestic coal	hydro
capacity	1,771.6	1,709.2	1,123.5	541.2	230.0	172.3	266.2	112.5	80.6
(%)	29.5%	28.5%	18.7%	9.0%	3.8%	2.9%	4.4%	1.9%	1.3%

4. Energy Trading Settlement

☐ Settlement Price

Payment per Settlement Components

Division		Compared to Previous Year (%)			Same Month Previous 2 Years		
		April	May	June	June 2003	June 2004	June 2005
Settlement Price	won/kWh	47.46	47.74	48.96	48.33	48.10	48.96
	%	−6.34	+0.58	+2.57	+4.08	−0.47	+1.79
Variable Cost	SEP	21.34	20.08	22.39	20.81	22.44	22.39
		−18.62	−5.91	+11.53	+12.32	+7.82	−0.19
	Other	5.33	6.30	6.04	5.79	5.76	6.04
		−3.37	+18.18	−4.11	+12.21	−0.44	+4.82
Capacity Payment		20.79	21.36	20.53	21.73	19.90	20.53
		+9.80	+2.72	−3.89	−3.88	−8.42	+3.14

※ SEP(Scheduled Energy Payment) : Payment for the power amount of the generator that generated power, included into the price setting schedule

○ Settlement price was 48.96 won/kWh. 2.57% increase from previous month, 1.79% increase from the same month, previous year

- The increase from previous month attributes to the increase of marginal price due to the increase of power demand and the decrease of capacity available for supply (SMP +12.42%, BLMP +0.55%)
  · Power Demand: 4.48% increase (May: 38,071,000kW, June: 39,776,000kW)
  · Daily Capacity Available for Supply: 0.6% decrease (May: 1,177GWh, June: 1,170GWh)

- The increase from the same month, previous year, attributes to the marginal price due to the increase of power demand and the increase of the cost of major fuels (SMP +0.71%, BLMP +1.97%)
  · Power Demand: 5.50% increase (June 2004 37,703,000kW, June 2005 39,776,000kW)
  · Fuel Cost: Coal +2.41%, LNG +8.29%, heavy oil +12.99%, and domestic coal 9.29% increase

○ For settlement components, the capacity payment took up 45%(20.53 won), SEP among variable cost took up 42%(22.39 won), and others took up 13%(6.04 won).

☐ Bid Rate and Power Generation Rate

○ The **bid rate** to facilities was 82.09%, and it was 0.41%p decrease from previous month, and 3.34%p increase from the same month, previous year.

· Baseload Generator: 90.04% (1.27%p decrease from previous month, 4.12%p increase from the same month, previous year)

· Regular Generator: 70.26% (0.90%p increase from previous month, 1.96%p decrease from the same month, previous year)

- The decrease from the previous month attributes to the decrease of bid rate of nuclear and pumped storage generators (increase in coal and heavy oil)

· Decrease - Nuclear: 98%→89%, Pumped Storage: 24%→21%, LNG : 90%→88%

· Increase - Coal: 85%→ 91%, Heavy Oil: 81%→84%,

- The increase from the same month, previous year attributes to the increase of bid rate for major power sources including coal and heavy oil

Division	Nuclear	**Coal**	Combined	**Heavy Oil**	LNG	Domestic Coal
June 2004	88%	**83%**	91%	**67%**	81%	93%
June 2005	89%	**91%**	91%	**84%**	88%	95%

○ The **generation rate** to bid rate was 75.25%, and it was 1.99%p increase from previous month, and 1.79%p decrease from the same month, previous year.

- The increase from the previous month attributes to the fact that daily average capacity available for supply decreased (-0.56%), but the energy trade increased (2.28%).

· Capacity available for supply(daily average): 1,177GWh→1,170GWh, energy trade rate (daily average): 871GWh→ 891GWh

- The decrease from the same month, previous year attributes to the fact that the increase rate for the daily average capacity available for supply (8.57%) was higher than the increase rate of the energy trade (5.64%)

· Capacity available for supply(daily average): 1,078GWh→1,170GWh, energy trade rate (daily average): 843GWh→ 891Wh

Bid Rate and Generation Rate

Division	2005 (%)			Same Month, Previous 2 Years (%)		
	April	May	June	June 2003	June 2004	June 2005
Bid Rate	82.44	82.50	82.09	79.07	78.75	82.09
Baseload Generator	90.16	91.31	90.04	87.73	85.92	90.04
Regular Generator	71.01	69.36	70.26	66.94	68.30	70.26
Generation Rate	75.38	73.26	75.25	75.86	77.04	75.25

☐ Energy Trading Volume

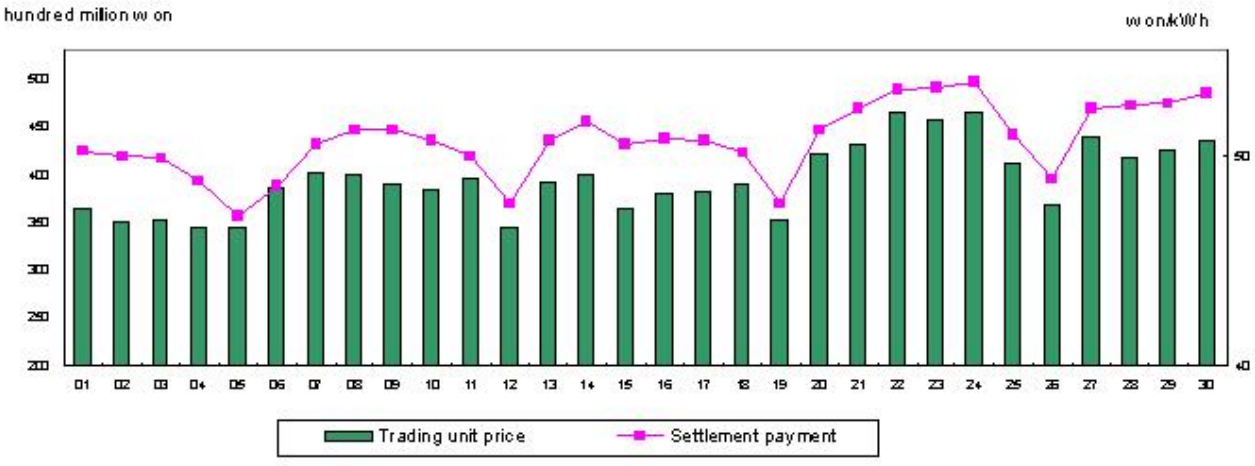
○ Energy trading volume in June was 26.7 billion kWh, and it was 1.02% decrease from previous month (daily average increased by 2.28%), 5.64% increase from the same month, previous year.

※ Energy trading volume per Generation Resources : Refer to Attachment #2

☐ Settlement Payment Amount

○ Total settlement payment for June was 1.3081 trillion won, and it was 1.52% increase from previous month, and 7.53% increase from the same month, previous year.

- Daily average is about 43.6 billion won, and the weekday (Monday～Saturday) average was about 46.7 billion won, and the holiday average was about 37.6 billion won.



※ Settlement Payment Per Generation Resources : Refer to Attachment 2

☐ Ancillary Service Payment

Trend of Settlement Payment for Ancillary Service

2005			Same Month, Previous 2 Years		
April	May	June	June 2003	June 2004	June 2005
3.08 billion won	2.91 billion won	3.15 billion won	4.26 billion won	3.33 billion won	3.15 billion won

○ Settlement Payment for Ancillary Service in June was **3.15 billion won**

- Per Settlement Element

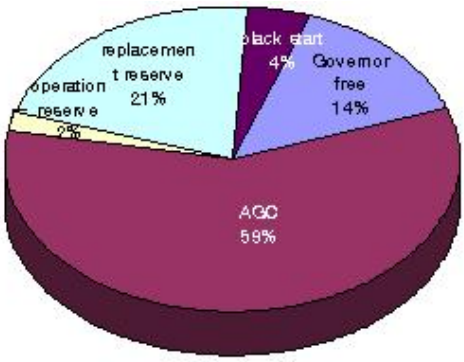
Frequency control 2.29 billion won (73%), reserve power 0.72 billion won (23%), Black start service 0.14 billion won(4%)

· Frequency control : Governor free operation, Automatic generation control operation

· Reserve power: Operation reserve power, Replacement reserve

- Per Power Source

Coal 1.42 billion won(45%), combined 60.8 billion won (22%), pumped storage 0.82 billion won(26%), heavy oil 0.12 billion won(4%), hydro power 0.08 billion won(3%) in respective order



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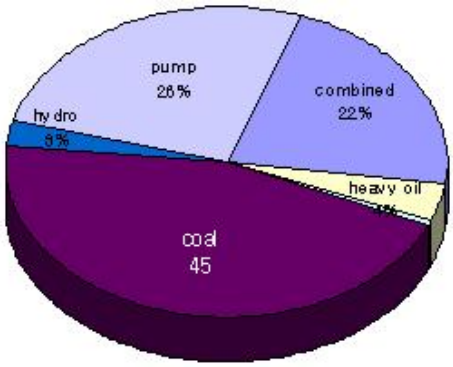

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○ The unit price for Ancillary Service in June was 0.12 won/kWh (0.25% of total settlement price)

- 0.01 won increase from previous month (0.11 won), 0.02 won decrease from the same month, previous year (0.14)

5. Marginal Price

Trend of Marginal Price

Division	Fluctuation from Previous Month (%)			Same Month Previous 2 years (%)		
	April	May	June	June 2003	June 2004	June 2005
System Marginal Price (won)	52.41	47.01	52.85	50.32	52.48	52.85
%	−15.08	−10.31	+12.42	+28.36	+4.29	+0.71
Baseload Marginal Price (won)	19.36	19.48	19.59	18.28	19.21	19.59
%	+0.47	+0.64	+0.55	+0.58	+5.08	+1.97

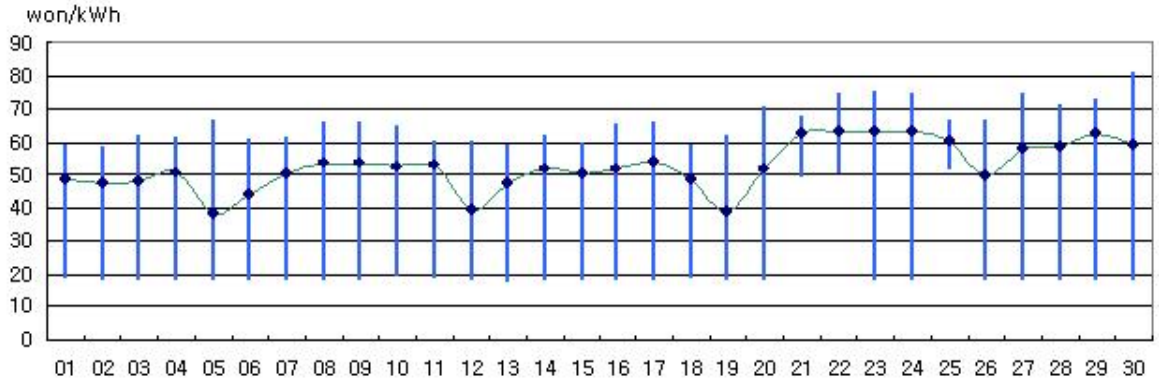
☐ System Marginal Price (SMP)

○ Average system marginal price was 52.85 won/kWh. 12.42% increase from previous month, 0.71% increase from the same month, previous year.

- The increase from previous month attributes to the increase of power demand and the reduction of capacity available for supply
  · Power Demand: 4.48% Increase (May: 38,071,000kW, June: 39,776,000kW)
  · Daily Average Capacity Available for Supply: 0.6% Decrease (May: 1,177GWh, June: 1,170GWh)
- The increase from the same month, previous year, attributes to the increase of power demand and the increase of the cost of major fuels
  · Power Demand: 5.50% increase (June 2004: 37,703,000kW, June 2005: 39,776,000kW)
  · Fuel Cost: Coal +2.41%, LNG +8.29%, heavy oil +12.99% and domestic coal 9.29% increase
  · Daily average capacity available for supply: 8.57% increase

☐ Comparison Between the Highest and Lowest SMP

○ The highest SMP in June was 81.15 won/kWh determined by Southern Jeju Internal Combustion Power Plant #1 at 15:00, Thursday, 30th, and the lowest SMP was 18.40 won/kWh determined by Honam Power Plant #2 at 3:00 to 5:00, Monday, 13th.



☐ SMP Determination by Power Source

○ The power source that determined most SMPs in June was combined power (72.4%), coal 20.1%, domestic coal 4.0%, and heavy oil 3.5% in respective order.

- The increase of combined power in determining the SMP (decreased for coal) as compared with the previous month attributes to the increase of peak generator price determination ratio due to the increase of power demand.
  · Power demand: 4.48% increase (May: 38,071,000kW, June: 39,776,000kW)

○ The determination ratios for SMP per power company were Korea West Power 20.1%(145 times), Korea South Power 17.9%(129 times), Korea Central Power 14.4%(104 times), Korea Southeast Power 11.8%(85 times), Korea East West Power 10.3%(74 times), and others 25.4%(183 times) in respective order,

○ and the determination ratios per generator were Bugok Combined Power Plant CC#1(LG Energy), Boryeong Combined Power Plant CC#1(Central Power), Western Incheon Combined Power Plant 1CC#8(West Power), Western Incheon Combined Power Plant 1CC#4(West Power), Hanhwa Combined Power Plant CC#2(Hanjong) in respective order.

Determination of SMP

Generator	Bugok Combined CC#1	Boryeong Combined CC#1	Western Incheon Combined 1CC#8	Western Incheon Combined 1CC#4
Determination (times)	49	43	33	32
Average SMP (won/kWh)	54.90	54.38	56.34	58.75

☐ Base Load Marginal Price (BLMP)

○ Average BLMP in June was 19.59 won/kWh. 0.55% increase from previous month, 1.97% increase from the same month, previous year.

- The increase from the previous month attributes to the increase of power demand (+4.48%) and the decrease of daily average capacity of baseload generator available for supply (-1.74%).
  · Daily average capacity of baseload generator available for supply: May 782GWh → June 768GWh

- The increase from the same month, previous year mainly attributes to the increase of fuel cost for coal (+2.41%)

○ The highest BLMP in June was 32.49 won/kWh determined by Boryeong Power Plant #4 at 19:00, Wednesday, 8th, and the lowest BLMP was 18.40 won/kWh determined by Honam Power Plant #2 at 3:00 to 5:00, Monday, 13th.

- The generator which determined most BLMPs was Samcheonpo Power Plant #1.
  · Samcheonpo #1 221 times, Yeongheung #2 96 times, Samcheonpo #2 80 times, Boryeong #1 61 times, Honam #1 55 times, Taean #1 37 times, Hadong #4 30 times, Boryeong #4 29 times

6. Electricity Quality

☐ System Frequency

○ Frequency Standards

- Statutory standard: 60±0.2[Hz]
- KPX's internal standard: : 60±0.1[Hz]

○ Annual target for persistence rate: 99.60% (internal persistence standards)

- Frequency persistence in June 2005: 99.84%

Division	Persistence		Fluctuation	
	June 2004	June 2005	Compared with Target	Compared with Previous Year
Persistence Rate	99.66%	99.84%	+0.24%p	+0.18%p

- The frequency persistence in June 2005 achieved 99.84%, 0.24% higher than the target

☐ System Voltage

○ Persistence Standard: 154kV standard voltage per time period ±4kV

○ Annual Persistence Target: 99.90%

○ System Voltage Persistency in June 2005: 100%

Division	Persistence		Fluctuation	
	June 2004	June 2005	Compared with Target	Compared with Previous Year
Persistence Rate	99.94%	100%	+0.10%p	+0.06%p

- System voltage persistence in June 2005 achieved 100%, 0.10%p higher than the target

7. Other

☐ Scheduled Outage for maintenance

○ Maintenance Started

- 8 Plants including Uljin #5, Gori #3, Dangjin #4 (3,740,000 ㎾)

※ Including 5 generators whose maintenance started and completed in the same month (1,715,000 ㎾)

○ Generators whose maintenance began before June and still in progress

- 4 including Yeongnam #2 (700,000 ㎾)

○ Maintenance Completed (Maintenance began before June)

- 12 including Yeonggwang #5, Boryeong #2, Honam #1 (2,980,000㎾)

※ Generators under maintenance as of the end of June: Total 7 (2,725,000 kW)

※ Status of predictive maintenance for generators in June: Refer to Attachment #3

☐ Number of Generator Forced/unplanned Outage

○ 9 generator breakdowns in June (7 increase from previous month, 3 decrease from the same month, previous year)

○ Cause for Outage : Facilities defects for 7 cases and management defect for 2 cases

☐ Settlement dispute

○ Received 5 cases and Processing 2 cases

- Requested the correction for under appropriation of the capacity payment of Korea South Power Cheongpyeong Pumped storage #2 (South Power, Date: May 14)
- Requested the correction for the capacity payment, Southeast Power, Yeosu #2 generator trip

for power transmission. (South Power, Date: June 17)

- Input error for measurements for KARICO Donghwa Dam small hydro power (KARICO, Date: May 25) ☞ Reflected and Settled
- Input error for measurements for KARICO Donghwa Dam small hydro power (KARICO, Date: May 26) ☞ Reflected and Settled
- Requested for the payment of reserved settlement payment following the cancellation of the test at South Power Cheongpyeong Pumped Storage (South Power, Date: June 7)

Attachment 1: Status of Members (Regular 55, Associate Member 6)

As of June 30, 2005 (Unit: MW)

No	Name	Membership	Member Type	Date Joined	Facilities Capacity		
					Total Facilities (a)	Market Participation (b)	Other than the Market (a-b)
1	KEPCO	Regular	Sales	2001.04.02	-	-	-
2	Korea Hydro & Nuclear Power	Regular	Power Generator	2001.04.02	18,250.23	18,250.23	-
3	Korea South East Power	Regular	Power Generator	2001.04.02	7,194.00	7,194.00	-
4	Korea Central Power	Regular	Power Generator	2001.04.02	7,444.36	7,444.36	-
5	Korea West Power	Regular	Power Generator	2001.04.02	7,280.00	7,280.00	-
6	Korea South Power	Regular	Power Generator	2001.04.02	7,571.00	7,571.00	-
7	Korea East West Power	Regular	Power Generator	2001.04.02	8,000.40	8,000.40	-
8	Korea Independent Energy Corporation	Associate	Power Generator (All Facilities PPA)	2001.04.02	1,800.00	-	1,800.00
9	LG Energy	Associate	Power Generator (All Facilities PPA)	2001.04.02	500.75	-	500.75
10	GS Power	Associate	Power Generator (All Facilities PPA)	2001.04.02	900.00	-	900.00
11	Sihwa Energy	Regular	Community Energy	2001.04.15	20.80	20.80	-
12	Ansan Urban Development	Regular	Community Energy	2001.06.23	60.00	60.00	0.00
13	Seohee Construction	Regular	Alternative Energy (Landfill Gas)	2001.07.14	15.24	15.24	0.00
14	Provincial Office of Gyeongsangbuk-do	Regular	Alternative Energy (Wind Power)	2001.07.29	0.66	0.66	0.00
15	KOWACO	Regular	Power Generator	2001.08.02	1,014.07	248.37	765.70
16	K-Power	Associate	Power Generator (Under Construction)	2001.10.18	0.00	0.00	0.00
17	MPC	Associate	Power Generator (All Facilities PPA)	2002.05.01	525.50	0.00	525.50
18	KEMCO	Regular	Community Energy	2002.05.15	88.00	88.00	0.00
19	POSCO	Regular	Self Power Generator Facilities Installer	2002.07.03	2,433.10	2,433.10	0.00
20	Hanyeoul	Regular	Alternative Energy (Small Hydro Power)	2002.07.09	2.40	2.40	0.00
21	Daedong Corporation Limited Partnership	Regular	Alternative Energy (Small Hydro Power)	2002.07.27	1.20	1.20	0.00
22	Seowoo Hydro Power	Regular	Alternative Energy (Small Hydro Power)	2002.08.01	2.12	2.12	0.00
23	Clean Energy	Regular	Alternative Energy (Small Hydro Power)	2002.08.01	3.35	3.35	0.00
24	Korea District Heating Corporation	Regular	Community Energy	2002.08.01	161.40	148.10	13.30
25	Jeongseon Small Hydro Power	Regular	Alternative Energy (Small Hydro Power)	2002.08.13	1.92	1.92	0.00

No	Name	Membership	Member Type	Date Joined	Facilities Capacity		
					Total Facilities (a)	Market Participation (b)	Other than the Market (a-b)
26	Korea Hydro Power	Regular	Alternative Energy (Small Hydro Power)	2002.08.17	1.49	1.49	0.00
27	Deoksong Co.,Ltd.	Regular	Alternative Energy (Small Hydro Power)	2002.11.06	2.60	2.60	0.00
28	Provincial Office of Jeollabuk-do	Regular	Alternative Energy (Wind Power)	2002.11.23	4.50	4.50	0.00
29	Cheongwoo E&C	Regular	Alternative Energy (Landfill Gas)	2002.12.04	1.00	1.00	0.00
30	Iksan Energy	Regular	Community Energy	2003.01.01	21.00	21.00	0.00
31	Shindong Energy	Regular	Community Energy	2003.01.01	42.60	42.60	0.00
32	Hyundai Heavy Industiral	Regular	Community Energy	2003.01.01	507.00	507.00	0.00
33	SH Corporation Community Energy	Regular	Community Energy	2003.01.01	58.00	58.00	0.00
34	Korea Carbon Black	Regular	Power Generator	2003.01.01	42.80	42.80	0.00
35	Incheon Airport Energy	Regular	Community Energy	2003.01.01	127.00	127.00	0.00
36	Donghae Pulp	Regular	Self Power Generator Facilities Installer	2003.01.01	36.40	36.40	0.00
37	STX Energy	Regular	Community Energy	2003.01.01	159.81	159.81	0.00
38	Municipality of Seongnam	Regular	Self Power Generator Facilities Installer	2003.01.01	4.50	4.50	0.00
39	Doosan Industrial Development	Regular	Community Energy	2003.01.01	20.00	20.00	0.00
40	Osan Energy	Regular	Community Energy	2003.01.01	24.00	24.00	0.00
41	Korea Petrochemical Ind.	Regular	Self Power Generator Facilities Installer	2003.01.01	16.18	16.18	0.00
42	LG Petrochem.	Regular	Self Power Generator Facilities Installer	2003.01.01	50.60	50.60	0.00
43	Busan-Gyeongnam Dying Industry Cooperative Association	Regular	Community Energy	2003.01.01	19.00	19.00	0.00
44	DC Chemical	Regular	Self Power Generator Facilities Installer	2003.01.07	19.20	19.20	0.00
45	Sangwon E&C	Regular	Alternative Energy (Landfill Gas)	2003.01.22	9.88	9.88	0.00
46	Hyosung	Regular	Alternative Energy (Landfill Gas)	2003.06.21	3.46	3.46	0.00
47	Municipality of Busan Metropolitan City	Regular	Self Power Generator Facilities Installer (Waste Incineration)	2003.07.15	3.00	3.00	0.00
48	Korea Hydro Power	Regular	Alternative Energy (Small Hydro Power)	2003.10.23	3.00	3.00	0.00
49	Provincial Office of Gangwon-do	Regular	Alternative Energy (Wind Power)	2003.11.25	2.64	2.64	0.00
50	Municipality of Ulsan Metropolitan City	Regular	Alternative Energy (Small Hydro Power)	2004.01.28	0.25	0.25	0.00
51	Daegu Dying Industrial Center	Regular	Community Energy	2004.01.31	72.90	72.90	0.00
52	Hanseok Small Hydro Power	Regular	Alternative Energy (Small Hydro Power)	2004.06.26	2.21	2.21	0.00
53	New Solar Energy	Regular	Alternative Energy (Solar Power)	2004.09.16	0.20	0.20	0.00

No	Name	Membership	Member Type	Date Joined	Facilities Capacity		
					Total Facilities (a)	Market Participation (b)	Other than the Market (a-b)
54	Yeongdeok Wind Power Co.,Ltd.	Regular	Alternative Energy (Wind Power)	2004.11.23	39.60	39.60	0.00
55	Municipality of Taebaek	Regular	Alternative Energy (Wind Power)	2004.12.02	4.25	4.25	0.00
56	Municipality of Incheon Metropolitan City	Regular	Self Power Generator Facilities Installer (Waste Incineration)	2004.12.17	1.80	1.80	0.00
57	Hanryeo Energy Development Co.,Ltd.	Regular	Alternative Energy (Landfill Gas)	2005.01.20	0.92	0.92	0.00
58	Suncheon Solar Power Co.,Ltd.	Regular	Alternative Energy (Solar Power)	2005.05.20	0.15	0.15	0.00
59	Mirae Energy Development Co.,Ltd.	Regular	Alternative Energy (Landfill Gas)	2005.04.30	1.85	1.85	0.00
60	Yeocheon NCC Co., Ltd.	Associate	Community Energy	2005.05.12	148.93	0.00	148.93
61	KARICO	Regular	Alternative Energy (Small Hydro Power)	2005.05.18	1.00	1.00	0.00
	Total				64,724.22	60,070.04	4,654.18

Attachment 2: Energy Trading Volume Per Power Source

□ Scale Per Generation type

Generation type	Energy Trading Volume		Settlement		Settlement Price Won/kWh
	1 Million kWh	Rate	1 Million Won	Rate	
Hydro	175	(0.65%)	11,342	(0.87%)	64.93
Pumped Storage	172	(0.64%)	15,809	(1.21%)	91.91
Combined	3,504	(13.12%)	274,609	(20.99%)	78.37
LNG	26	(0.10%)	9,867	(0.75%)	377.29
Heavy Oil	769	(2.88%)	79,713	(6.09%)	103.67
Domestic Coal	442	(1.65%)	25,839	(1.98%)	58.51
Coal	10,385	(38.87%)	447,708	(34.23%)	43.11
Nuclear	11,185	(41.87%)	440,011	(33.64%)	39.34
Other	58	(0.22%)	3,191	(0.24%)	54.84
Total	26,716	(100.00%)	1,308,088	(100.00%)	48.96

*Other: Seohee E&C LFG-Landfill Gas, Pohang Wind Power, Metropolitan Area Landfill Methane Gas, Etc.

Baseload	22,012	(82.39%)	913,558	(69.84%)	41.50
General	4,704	(17.61%)	394,530	(30.16%)	83.87
Total	26,716	(100.00%)	1,308,088	(100.00%)	48.96

※ Pumped Storage Settlement Price in June: 14.05won/kWh-(Pumped Amount 230GWh, Pumping Efficiency 75%)
※ Utilization Rate of Pumped Storage in June: 10.38%, Capacity Report Rate: 21.04%

Attachment 3: Scheduled Outage in June

☐ Maintenance Started

○ 8 Plants including Uljin #5, Gori #3, Dangjin #4 (3,740,000 ㎾)

- Including 5 generators whose maintenance started and completed in the same month (1,715,000 ㎾)

Generator	Capacity (10,000㎾)	Planned Period	Actual Period	Remarks
Uljin #5	100	6/20~8/10 (52)	6/20~8/10 (52)	
Gori #3	95	6/20~7/23 (34)	6/20~7/23 (34)	
Dangjin #4	50	6/7~6/11 (05)	6/7~6/11 (05)	
Yeongheung #2	80	6/4~6/6 (03)		Days Reduced(3 days)
Yeongheung #1	80	6/11~6/23 (13)		Days Reduced(13 days)
Samcheonpo #3	56	6/5~6/14 (10)	6/5~6/13 (09)	Days Reduced(1 day)
Hadong #4	50	6/7~6/13 (07)	6/7~6/13 (07)	
Pyeongtaek GT #4	8	6/1~6/19 (19)	6/1~6/19 (19)	
Bundang GT #1	7.5	6/12~6/18 (07)	6/12~6/17 (06)	Days Reduced (1 days)
Bundang GT #6	7.5	6/13~7/15 (33)	6/13~7/15 (33)	
Hapcheon #1	5	6/6~6/9 (04)		Days Reduced(4 days)
Hapcheon #2	5	6/6~6/9 (04)		Days Reduced(4 days)

☐ In Progress

○ Generators whose maintenance began before June and still in progress: 4 including Yeongnam #2 (700,000 ㎾)

Generator	Capacity (10,000㎾)	Planned Period	Actual Period	Remarks
Yeongnam #2	20	4/15~7/10 (87)	4/15~7/10 (87)	
Yeosu #1	20	5/6~7/15 (71)	5/6~7/15 (71)	
Busan GT #6	15	5/18~7/3 (47)	5/18~7/3 (47)	
West Incheon GT #3	15	5/25~7/18 (55)	5/25~7/18 (55)	

☐ Maintenance Completed

○ 12 including Yeonggwang #5, Boryeong #2, Honam #1 (2,980,000㎾)

Generator	Capacity (10,000㎾)	Planned Period	Actual Period	Remarks
Yeonggwang #5	95	5/20~6/26 (38)	5/20~6/25 (37)	Days Reduced (1 day)
Boryeong #4	50	5/6~6/11 (37)	5/6~6/9 (35)	Days Reduced (2 days)
Honam #1	25	5/13~6/02 (21)	5/13~6/01 (20)	Days Reduced (1 day)
Ulsan #1	20	5/2~6/5 (35)	5/2~6/4 (34)	Days Reduced (1 day
Boryeong GT #3	15	4/29~6/20 (53)	4/29~6/16 (49)	Days Reduced (4 days)
Ilsan GT #2	10	5/8~6/16 (40)	5/8~6/15 (39)	Days Reduced (1 day)
Ilsan ST #1	20	5/15~6/3 (20)	5/15~6/1 (18)	Days Reduced (2 days)
Bundang ST #1	18.5	5/10~6/20 (42)	5/10~6/20 (42)	
Busan GT #5	15	5/10~6/25 (47)	5/10~6/26 (48)	Days Increased (1 day)
Busan ST #3	15	5/18~6/25 (39)	5/18~6/26 (40)	Days Increased (1 day)
Hanhwa GT #8	10	5/22~6/30 (40)		Days Reduced (40 days)
Hanhwa GT #9	10	5/23~6/1 (10)	5/23~6/1 (10)	
Daecheong #2	4.5	4/18~6/6 (50)	4/18~6/6 (50)	