Schedule Changes

- Citgo moved to Wednesday at 10:00 in Salon 10 replacing Saudi Aramco presentation
- Cascade moved on Wednesday from 8:00am to 8:45am in Salon 3 & 4
- Don Smith & John Matranga replace Polimeri presentation on Wednesday at 8:45 in Salon 10
- Sign up for Feedback Forums at Registration

OSISOFT USERS CONFERENCE 2004

DISCOVER YOUR PORTAL TO PERFORMANCE

Real Time Performance Monitoring in Taean TPP

Apr. 2004

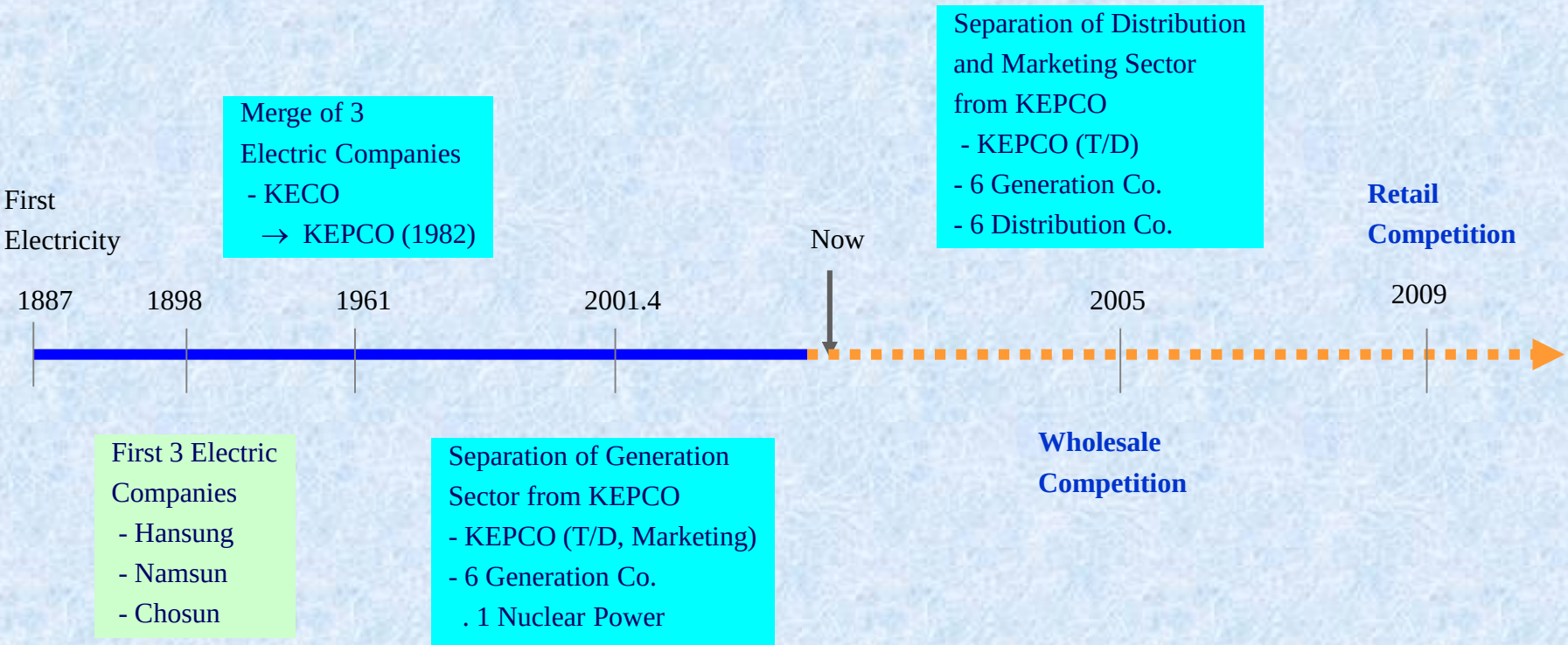
전력연구원
KOREA ELECTRIC POWER RESEARCH INSTITUTE

Overview

1. *Overview of KEPCO/KEPRI*
2. *Overview of WP/Taean TPP*
3. *Introduction of RTPM for Taean TPP*
4. *System Configuration*
5. *Previously…*
6. *Currently…*
7. *Future Samples*
8. *Final Objectives*
9. *Conclusion*

Overview of KEPCO/KEPRI

- ***Brief History of KEPCO***



Overview of KEPCO/KEPRI(cont.)

- *Key Objectives of the Restructuring Plan*

- In January 1999, the Government released the Basic Plan for Restructuring of the Electricity Supply Industry
- The Restructuring Plan involves the unbundling of KEPCO's power generation, transmission, distribution and retail businesses in stages, introducing competition into the electricity market.

The key objectives of the Restructuring Plan

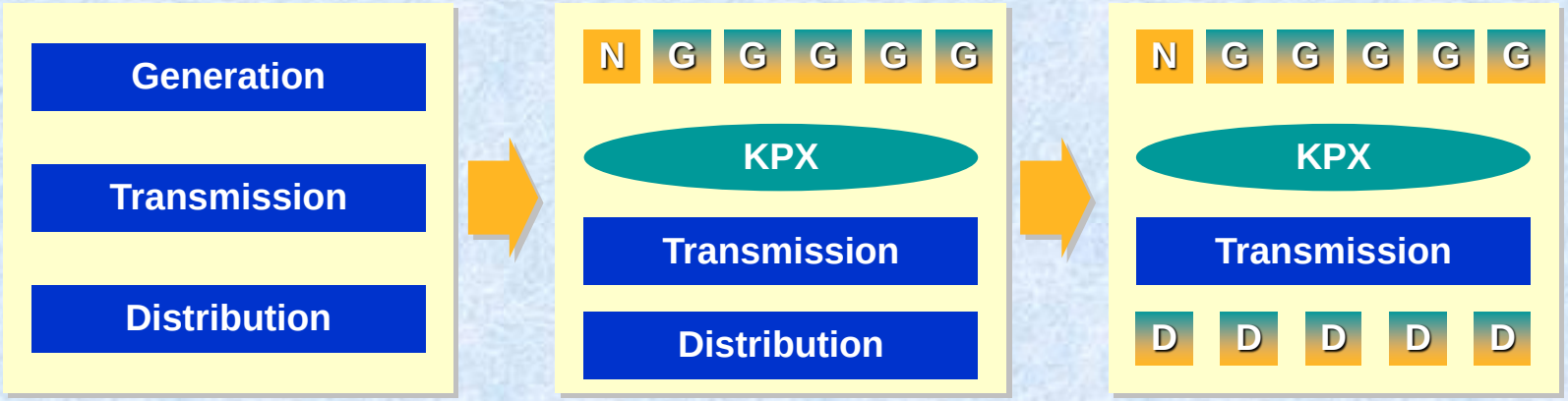
Introduce competition and thereby increase efficiency in the Korean electricity market

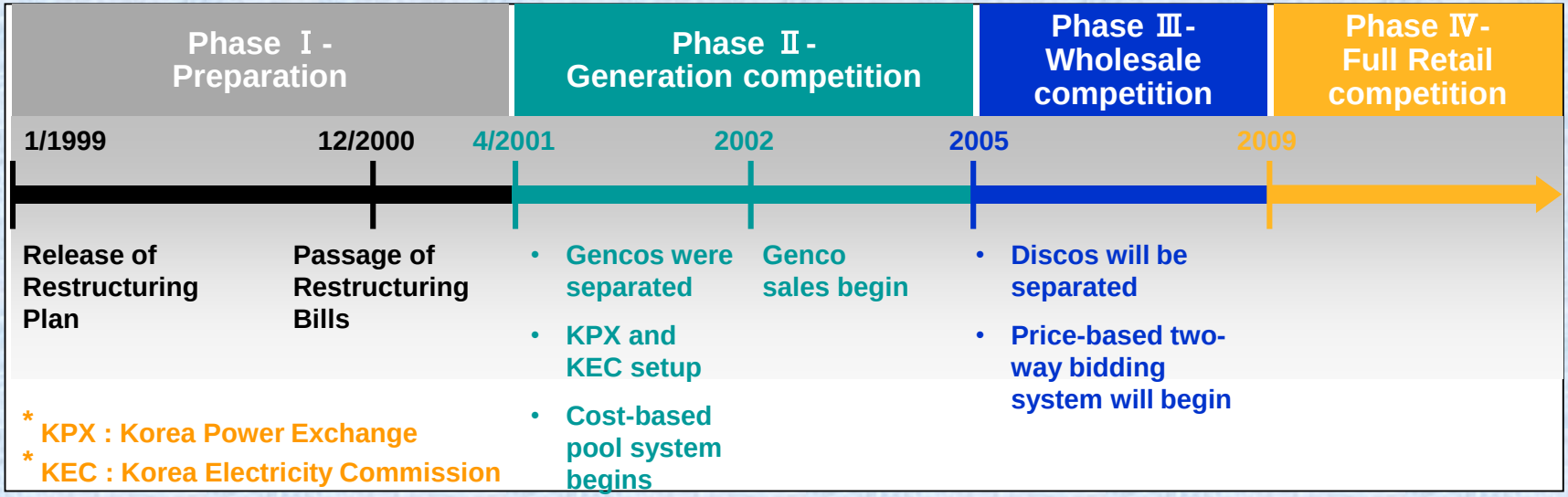
Ensure a long-term, inexpensive and stable electricity supply

Promote consumer convenience through the expansion of consumer choice

Overview of KEPCO/KEPRI(cont.)

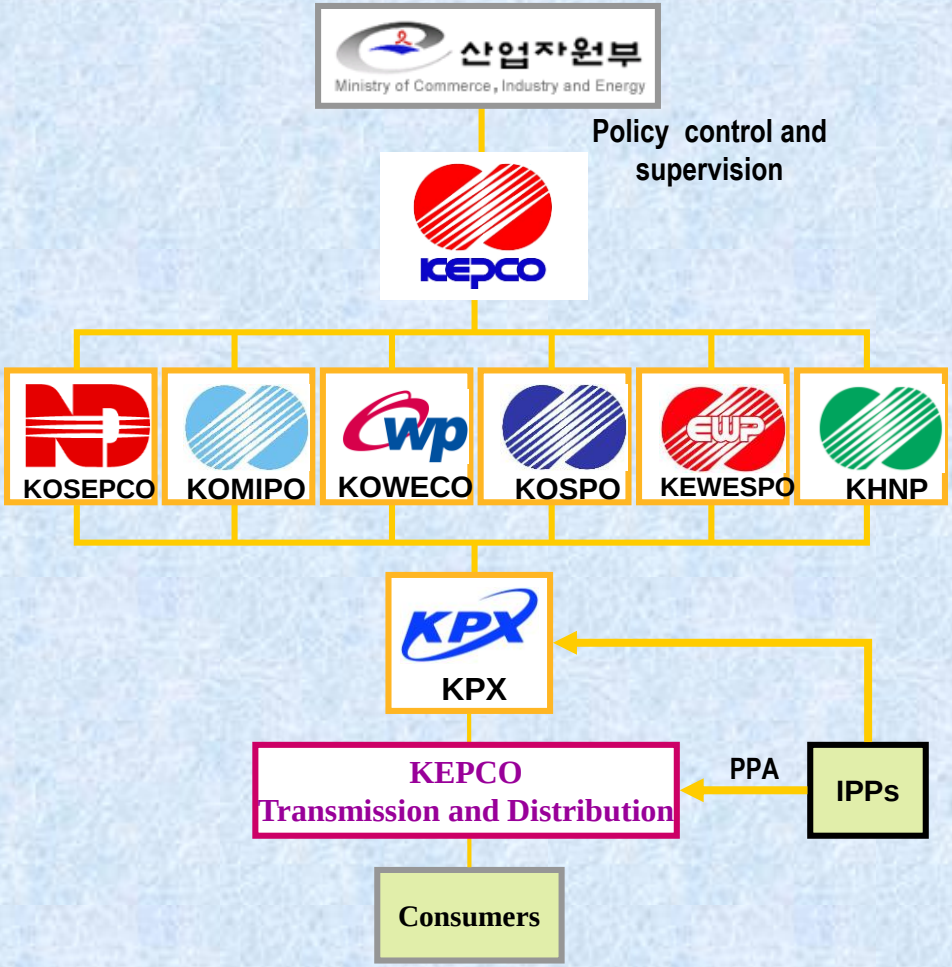
- *Summary of the Restructuring Plan*





Overview of KEPCO/KEPRI(cont.)

- *Phase 1 (Current Industry Structure)*

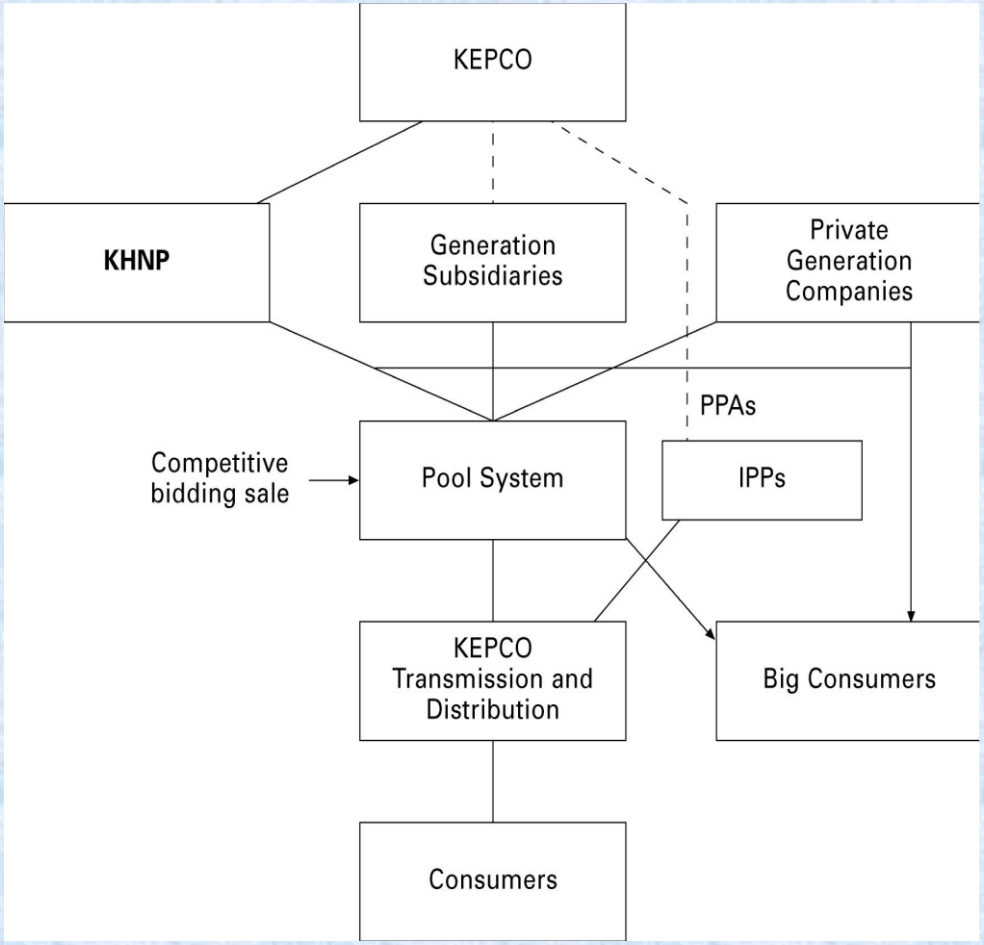


- **Preparation stage**
  (Jan. 1, 1999 to Apr. 2, 2001)
- **IPPs can supply electricity to KEPCO pursuant to existing PPA**
- **April, 2001 : Generation Sector separated from KEPCO**
  - **Non-nuclear and non-hydro part**
    ⇒ 5 separate wholly-owned gencos
  - **Hydro and Nuclear part**
    ⇒ 1 separate wholly-owned genco
- **KEPCO has retained monopoly position for only T&D parts**

- IPP : Independent Power Producer
- PPA : Power Purchase Agreement

Overview of KEPCO/KEPRI(cont.)

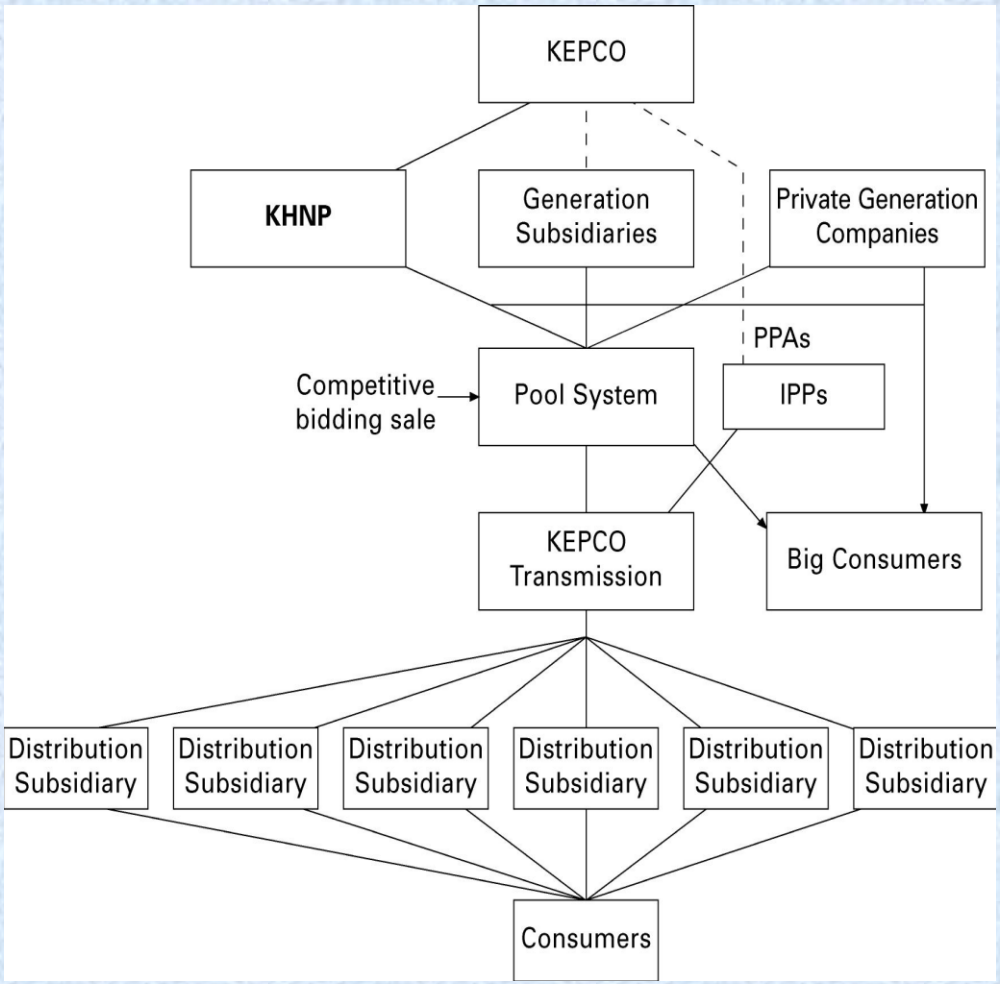
- ***Phase 2 (Generation Competition)***



- *Present phase*
- *Cost-Based Pool (CBP) system*
- *KPX (Korea Power Exchange) to deal with sale of electricity (MO & SO)*
- *KEC (Korea Electricity Commission) for regulation and fair competition*
- *Privatization plan of Gencos*
  - *1) KOSEPCO was selected as a non-nuclear genco to be sold through public offering*
  - *2) After evaluating the result of the 1st stage, next stage will be proceeded.*

Overview of KEPCO/KEPRI(cont.)

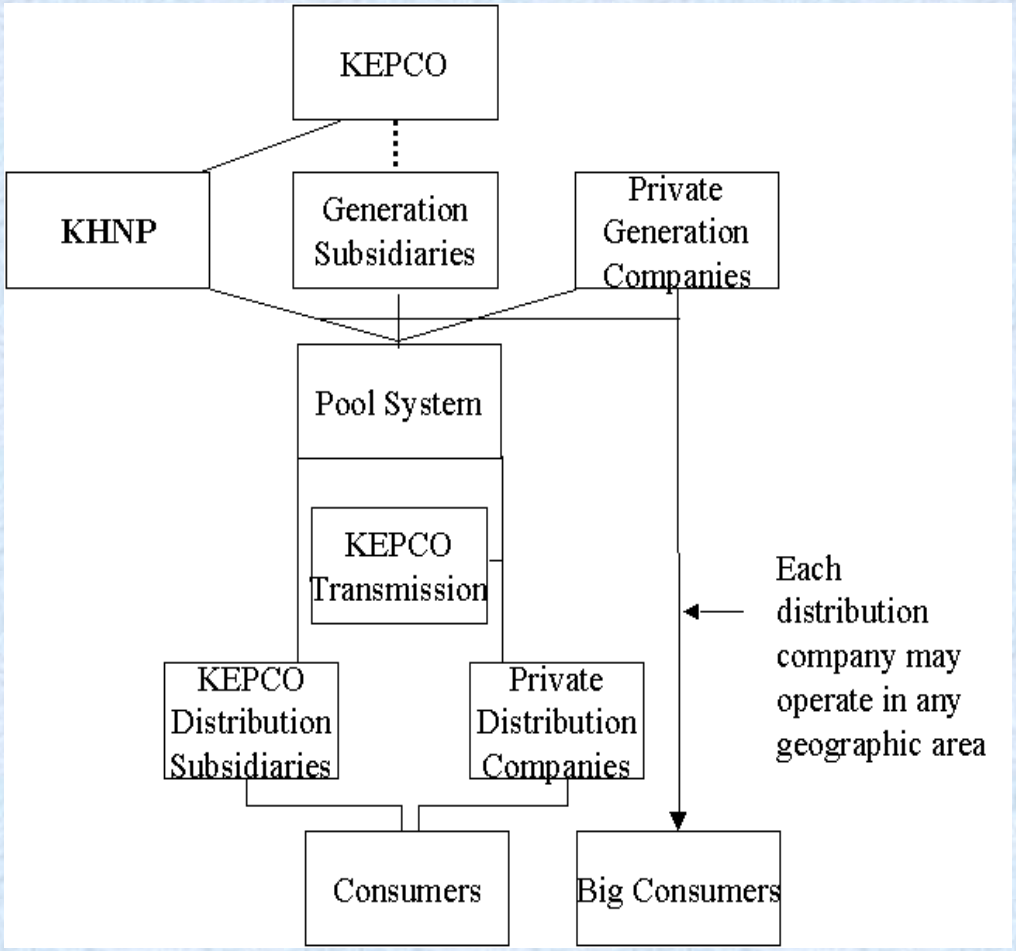
- ***Phase 3 (Wholesale Competition)***



- *April, 2005 ~ 2009*
- *Distribution sector will be separated from KEPCO*
- *Unbundling process : allocate distribution assets*
- *TWBP (Two-way bidding pool) system*
- *Vesting contract will be introduced as a safety mechanism to mitigate pool price volatility.*
- *Large consumers with demand over 50MW can purchase electricity directly from generation company.*

Overview of KEPCO/KEPRI(cont.)

- ***Phase 4 (Retail Competition)***



- *Final phase of the restructuring plan*
- *Consumer can purchase electricity from distribution/retail companies*
- *Large consumers with demand below 5MW can purchase electricity directly from generation company in 2009*
- *KEPCO will act as a sole transmission company in Korea*

Overview of KEPCO/KEPRI(cont.)

- ***Roles and Responsibilities of KEPRI***
  - R&D planning and implementation
  - R&D project proposal, selection, and conduct
  - Evaluation, use, and transfer of R&D results
  - Technical home doctor
  - Engineering support and training for facility operation and construction
  - Electric power industry technology evaluation and planning concerning fund management

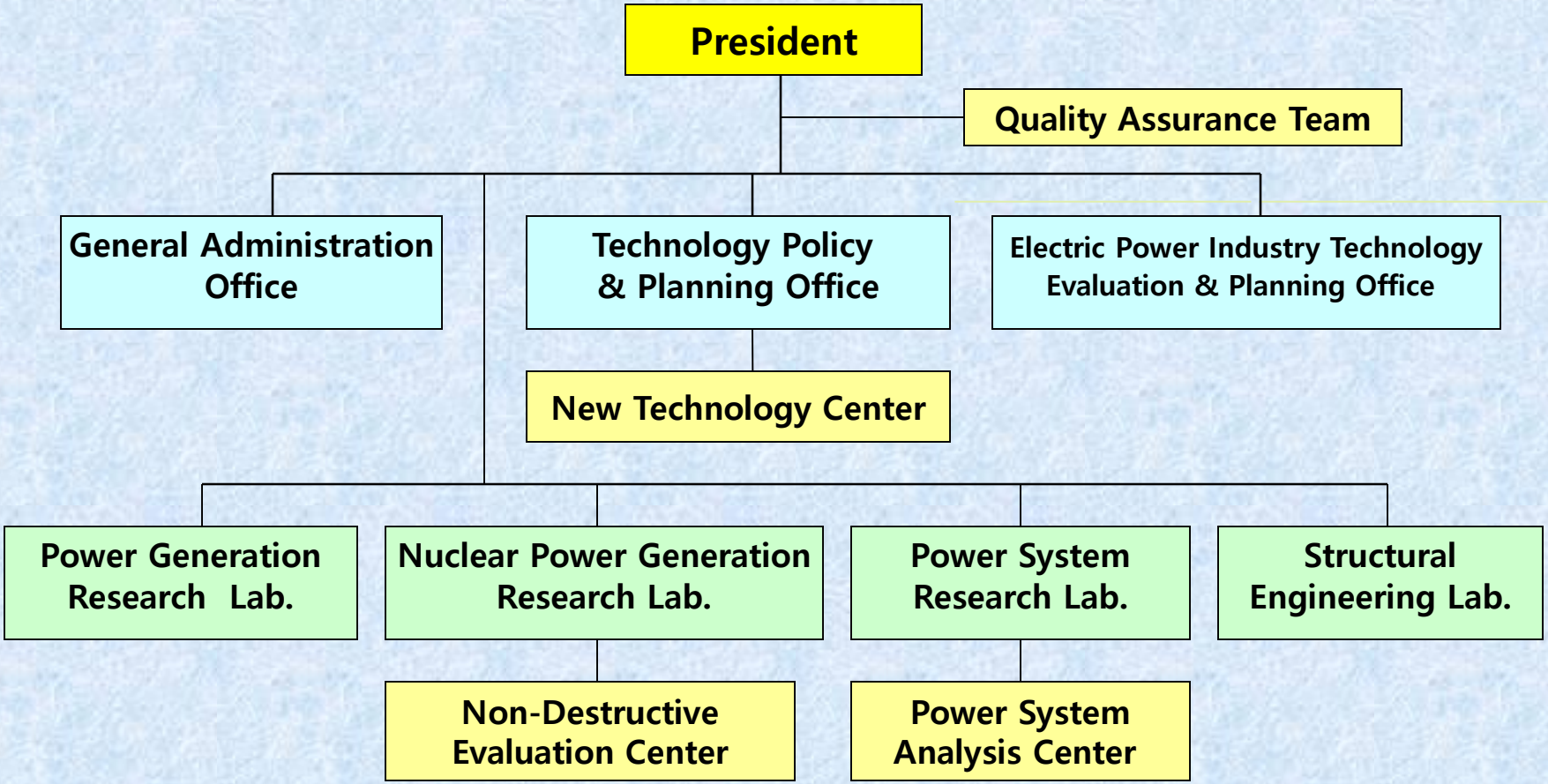
Overview of KEPCO/KEPRI(cont.)

- ***History of KEPRI***

Time	Name	Contents
Now 2001. 4	**KEPRI** **(Big Transition Time)**	• Restructuring of Electricity Industry • Changes in the Role and Responsibility of KEPRI • Research institute for KEPCO and other Gencos • R&D funds from Electricity industry and Government
1995.11	**KEPRI** **(Korea Electric Power Research Institute)**	• Mckinsey Consulting • World Class R&D Institute • Invitation of Foreign Scientists • Focus on the development of O&M Technologies • Significant Economic Contribution to Power Plant
1984. 5	**KEPCO Research Center**	• Government R&D Policy • Technology Research Office at KEPCO Head Office
1972. 3	**Technology Development Research Laboratory**	
1961. 7	**Electricity Laboratory**	

Overview of KEPCO/KEPRI(cont.)

- *Organization*

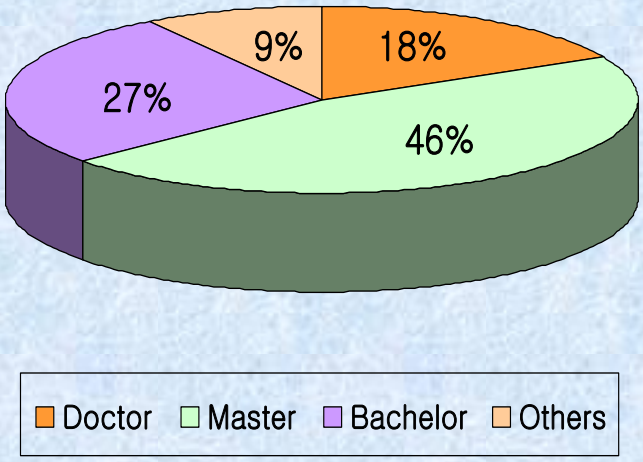


Overview of KEPCO/KEPRI(cont.)

- ***Personnel***

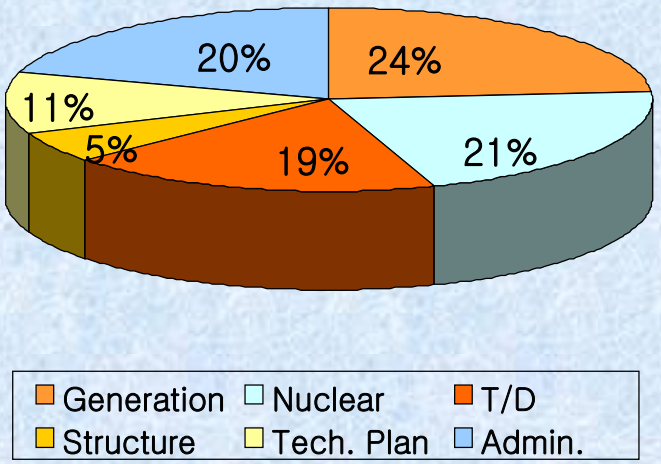
As of Jan. 2004

Academic Background



Degree	Doctor	Master	Bachelor	Others	Total
Number	93	244	144	48	529

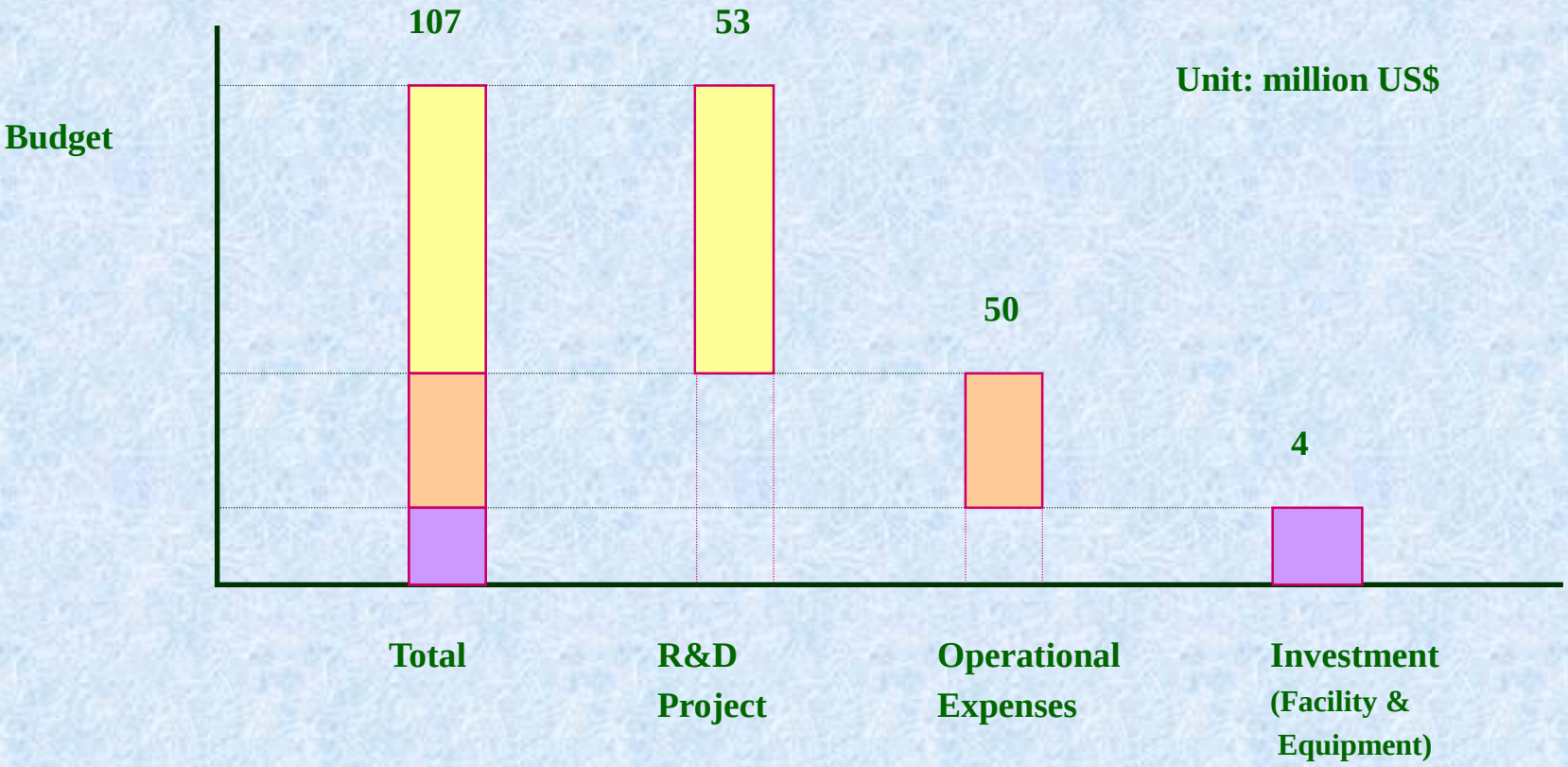
Field



Field	Generation	Nuclear	T/D	Structure	Tech. Planning	Admin.
Number	125	111	101	27	58	107

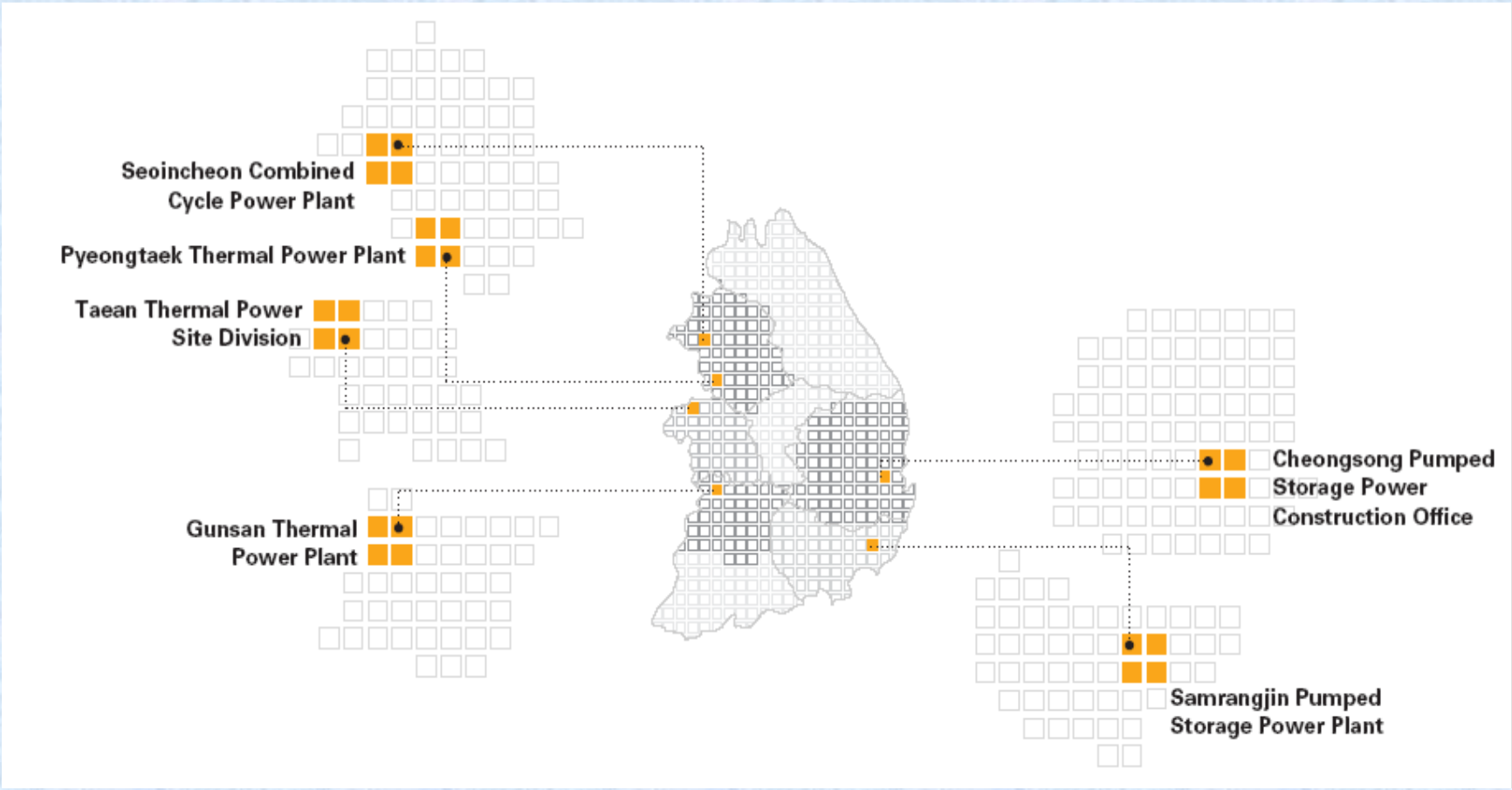
Overview of KEPCO/KEPRI(cont.)

- *Budget (2004)*



Overview of WP/Taean TPP

- *Overview of WP*



Overview of WP/Taean TPP (cont.)

- *Overview of WP (cont.)*

Plant name	No of units	Capacity (MW)	Fuel	Year of completion	Remarks
Taean Thermal	6	3,000	Bituminous Coal	Units 1~4 : '95~'97 Unit 5 : Oct. 2001 Unit 6 : May 2002	Base load
Pyeongtaek Thermal	4	1,400	Low Sulfur Fuel Oil	'80~'83	
Gunsan Thermal	1	66	Hard coal	'68	Middle load
Seoincheon Combined Cycle	16	1,800	LNG	'92	
Pyeongtaek Combined Cycle	5	480	LNG	'92~'94	Peak load
Samrangjin Pumped Storage	2	600	Water Pumping	'85	
Total	34	7,346			

Overview of WP/Taean TPP(cont.)

- *Overview of Taean TPP*

Overview of WP/Taean TPP(cont.)

- *Overview of Taean TPP (cont.)*

Overview of WP/Taean TPP(cont.)

- *Overview of Taean TPP (cont.)*



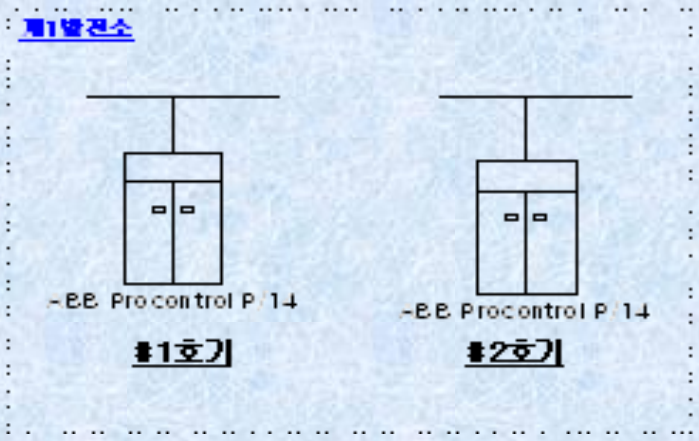


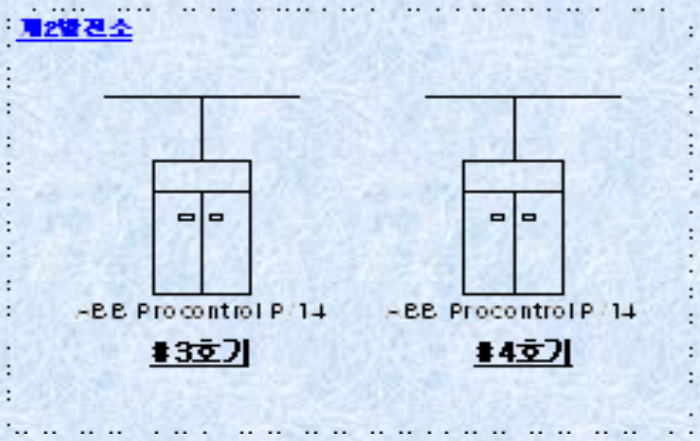

Introduction of RTPM for Taean TPP

- ***Why RTPM is needed in Taean TPP..***
  - Improvement of Power Plant Efficiency
  - Assurance of Reliability, Stability and Safety
  - Decrease in Cost of Power Generation
  - Improved Monitoring of Plant conditions
  - Advanced Method for Long Term & Frequent Data Storage
  - Suggestion of Optimal Operating Condition

System Configuration

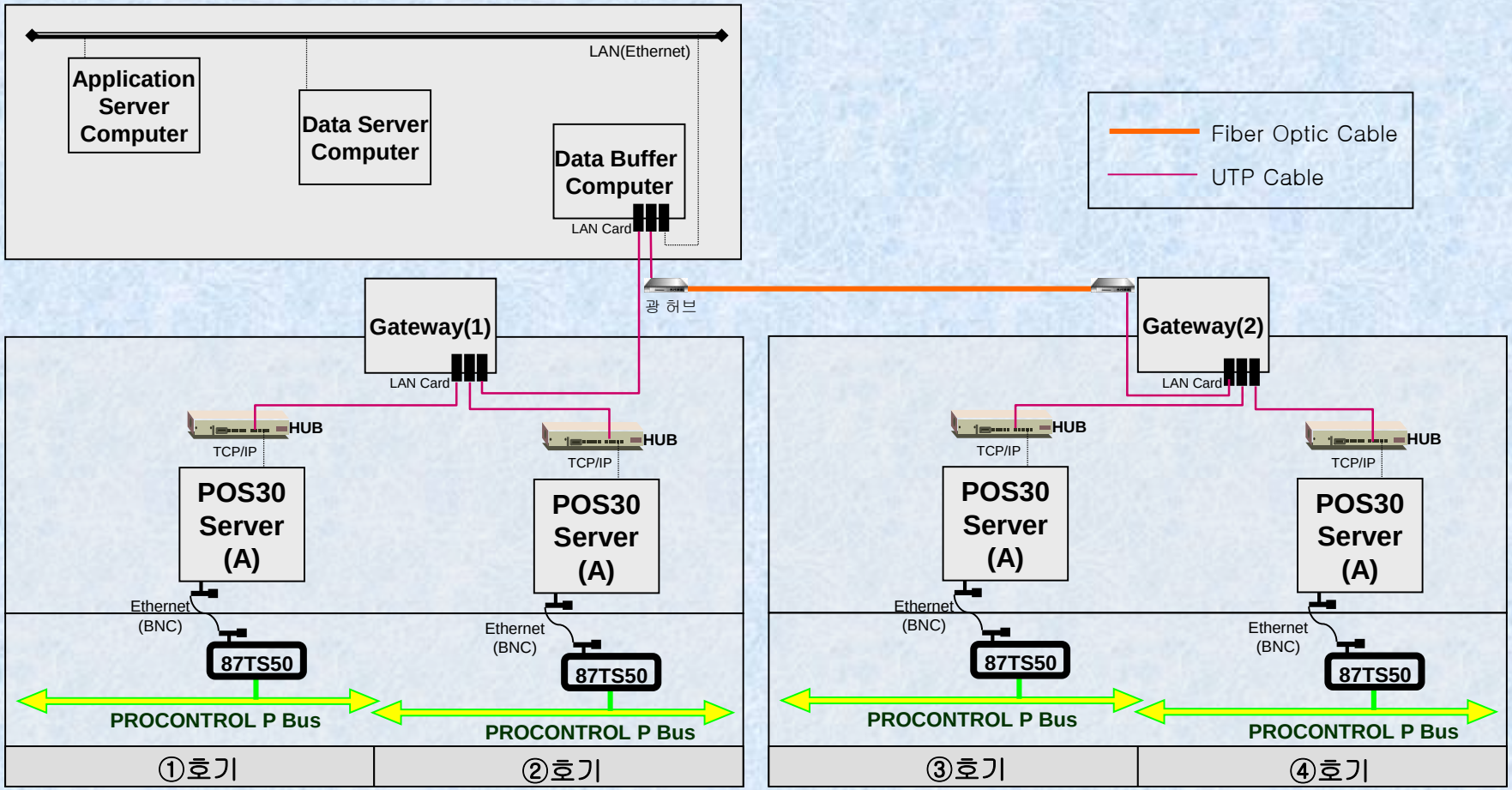
- ***Previous***





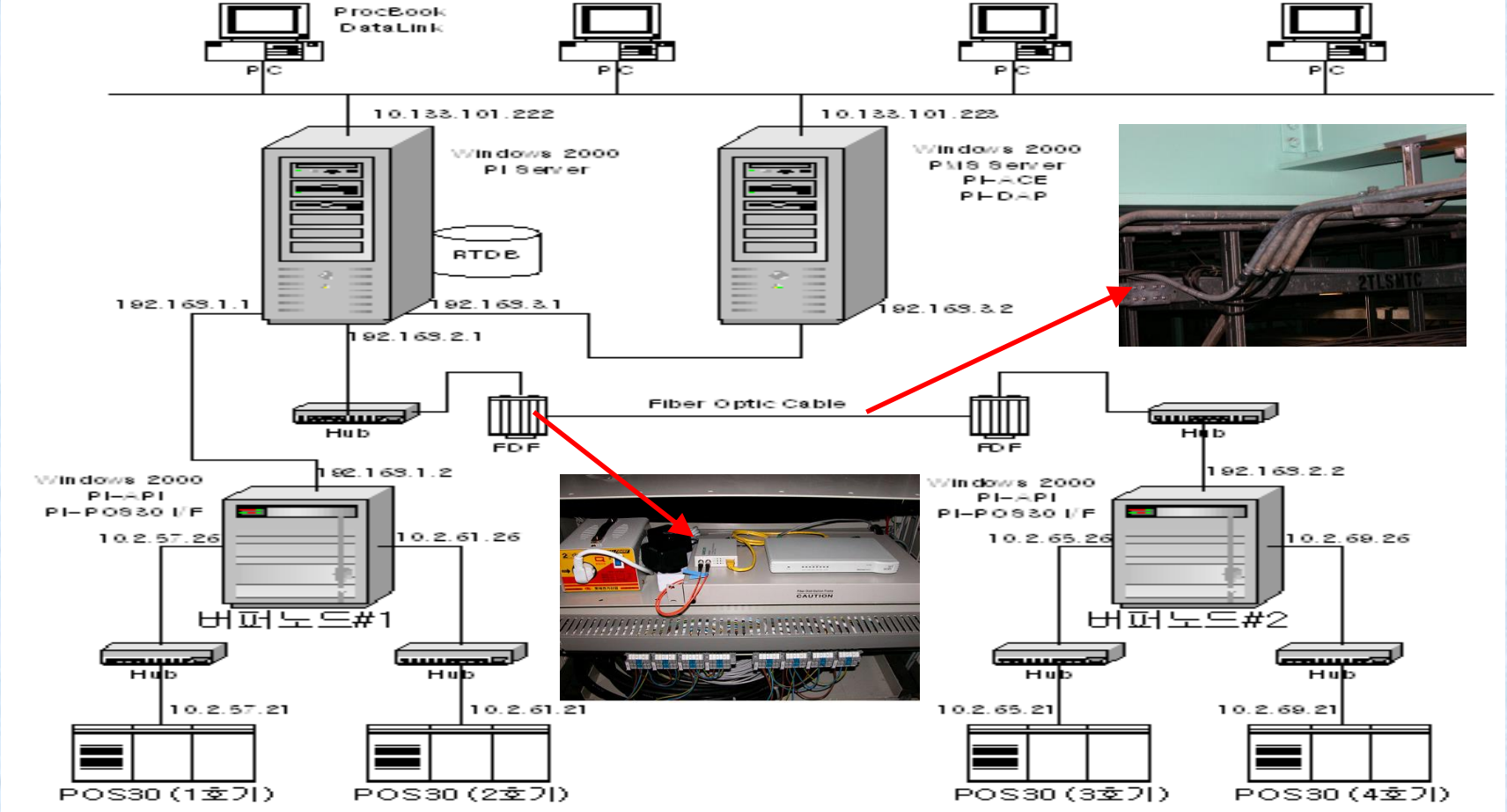
System Configuration

- ***Suggested***

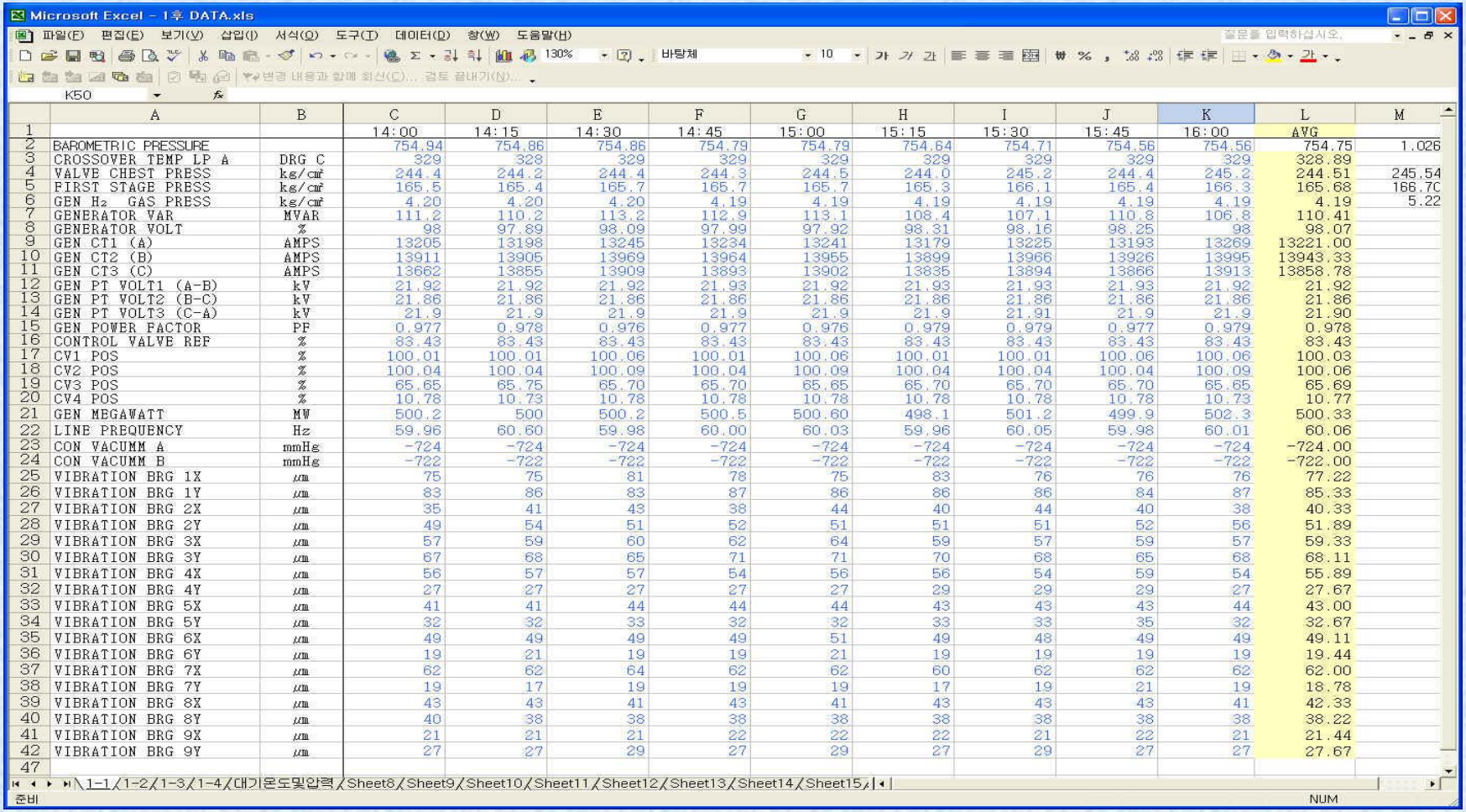


System Configuration

- ***Final***



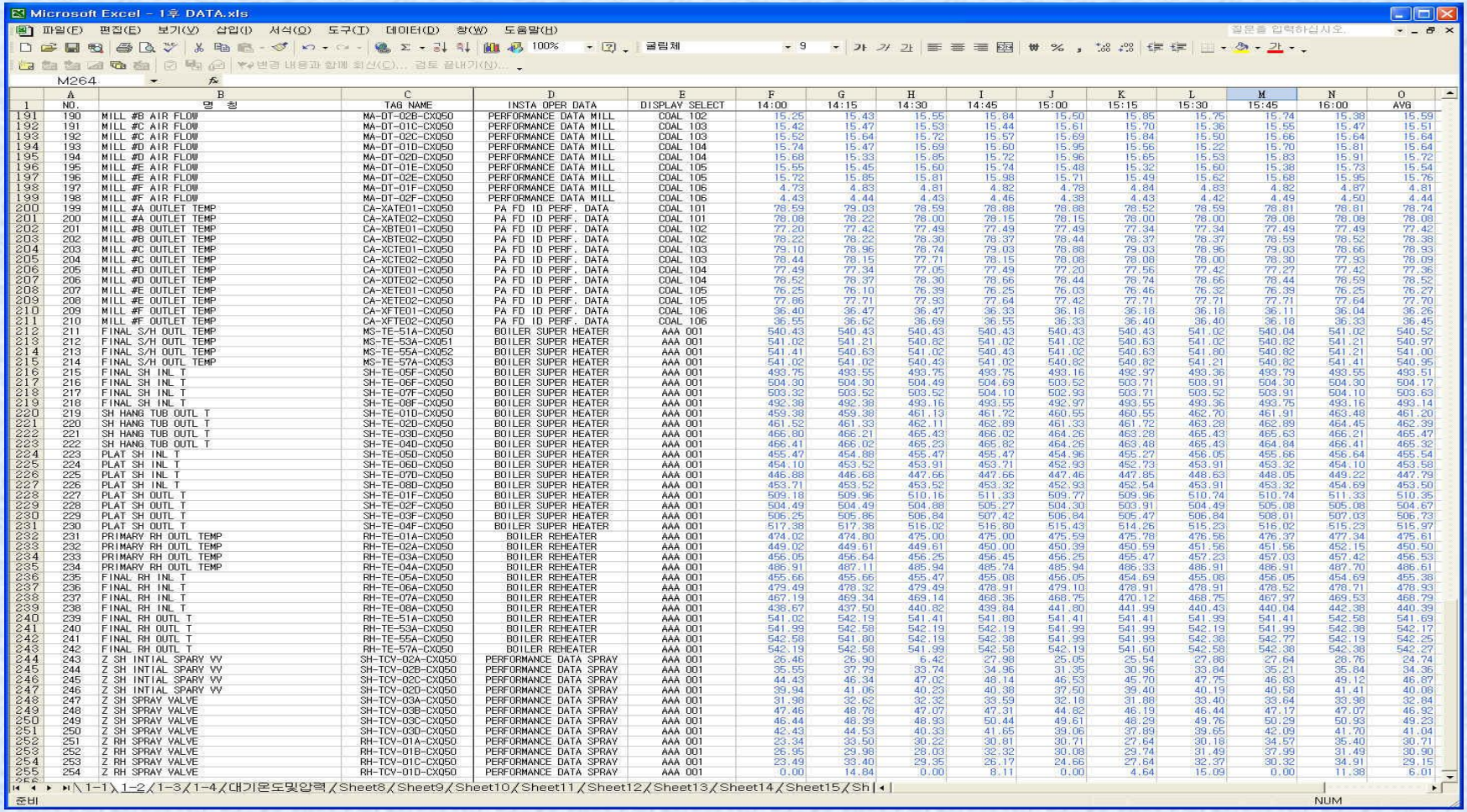
Previously…



Microsoft Excel - 1후 DATA.xls

	A	B	C	D	E	F	G	H	I	J	K	L	M
1			14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	AVG	
2	BAROMETRIC PRESSURE		754.94	754.86	754.86	754.79	754.79	754.64	754.71	754.56	754.56	754.75	1.026
3	CROSSOVER TEMP LP A	DRG C	329	328	329	329	329	329	329	329	329	328.89	
4	VALVE CHEST PRESS	kg/㎠	244.4	244.2	244.4	244.3	244.5	244.0	245.2	244.4	245.2	244.51	245.54
5	FIRST STAGE PRESS	kg/㎠	165.5	165.4	165.7	165.7	165.7	165.3	166.1	165.4	166.3	165.68	166.70
6	GEN H_2 GAS PRESS	kg/㎠	4.20	4.20	4.20	4.19	4.19	4.19	4.19	4.19	4.19	4.19	5.22
7	GENERATOR VAR	MVAR	111.2	110.2	113.2	112.9	113.1	108.4	107.1	110.8	106.8	110.41	
8	GENERATOR VOLT	%	98	97.89	98.09	97.99	97.92	98.31	98.16	98.25	98	98.07	
9	GEN CT1 (A)	AMPS	13205	13198	13245	13234	13241	13179	13225	13193	13269	13221.00	
10	GEN CT2 (B)	AMPS	13911	13905	13969	13964	13955	13899	13966	13926	13995	13943.33	
11	GEN CT3 (C)	AMPS	13662	13855	13909	13893	13902	13835	13894	13866	13913	13858.78	
12	GEN PT VOLT1 (A-B)	kV	21.92	21.92	21.92	21.93	21.92	21.93	21.93	21.93	21.92	21.92	
13	GEN PT VOLT2 (B-C)	kV	21.86	21.86	21.86	21.86	21.86	21.86	21.86	21.86	21.86	21.86	
14	GEN PT VOLT3 (C-A)	kV	21.9	21.9	21.9	21.9	21.9	21.9	21.91	21.9	21.9	21.90	
15	GEN POWER FACTOR	PF	0.977	0.978	0.976	0.977	0.976	0.979	0.979	0.977	0.979	0.978	
16	CONTROL VALVE REF	%	83.43	83.43	83.43	83.43	83.43	83.43	83.43	83.43	83.43	83.43	
17	CV1 POS	%	100.01	100.01	100.06	100.01	100.06	100.01	100.01	100.06	100.06	100.03	
18	CV2 POS	%	100.04	100.04	100.09	100.04	100.09	100.04	100.04	100.04	100.09	100.06	
19	CV3 POS	%	65.65	65.75	65.70	65.70	65.65	65.70	65.70	65.70	65.65	65.69	
20	CV4 POS	%	10.78	10.73	10.78	10.78	10.78	10.78	10.78	10.78	10.73	10.77	
21	GEN MEGAWATT	MW	500.2	500	500.2	500.5	500.60	498.1	501.2	499.9	502.3	500.33	
22	LINE PREQUENCY	Hz	59.96	60.60	59.98	60.00	60.03	59.96	60.05	59.98	60.01	60.06	
23	CON VACUMM A	mmHg	-724	-724	-724	-724	-724	-724	-724	-724	-724	-724.00	
24	CON VACUMM B	mmHg	-722	-722	-722	-722	-722	-722	-722	-722	-722	-722.00	
25	VIBRATION BRG 1X	㎛	75	75	81	78	75	83	76	76	76	77.22	
26	VIBRATION BRG 1Y	㎛	83	86	83	87	86	86	86	84	87	85.33	
27	VIBRATION BRG 2X	㎛	35	41	43	38	44	40	44	40	38	40.33	
28	VIBRATION BRG 2Y	㎛	49	54	51	52	51	51	51	52	56	51.89	
29	VIBRATION BRG 3X	㎛	57	59	60	62	64	59	57	59	57	59.33	
30	VIBRATION BRG 3Y	㎛	67	68	65	71	71	70	68	65	68	68.11	
31	VIBRATION BRG 4X	㎛	56	57	57	54	56	56	54	59	54	55.89	
32	VIBRATION BRG 4Y	㎛	27	27	27	27	27	29	29	29	27	27.67	
33	VIBRATION BRG 5X	㎛	41	41	44	44	44	43	43	43	44	43.00	
34	VIBRATION BRG 5Y	㎛	32	32	33	32	32	33	33	35	32	32.67	
35	VIBRATION BRG 6X	㎛	49	49	49	49	51	49	48	49	49	49.11	
36	VIBRATION BRG 6Y	㎛	19	21	19	19	21	19	19	19	19	19.44	
37	VIBRATION BRG 7X	㎛	62	62	64	62	62	60	62	62	62	62.00	
38	VIBRATION BRG 7Y	㎛	19	17	19	19	19	17	19	21	19	18.78	
39	VIBRATION BRG 8X	㎛	43	43	41	43	41	43	43	43	41	42.33	
40	VIBRATION BRG 8Y	㎛	40	38	38	38	38	38	38	38	38	38.22	
41	VIBRATION BRG 9X	㎛	21	21	21	22	22	22	21	22	21	21.44	
42	VIBRATION BRG 9Y	㎛	27	27	29	27	29	27	29	27	27	27.67	
47													

Previously…(cont.)



Microsoft Excel - 1후 DATA.xls

파일(F) 편집(E) 보기(V) 삽입(I) 서식(O) 도구(T) 데이터(D) 창(W) 도움말(H)

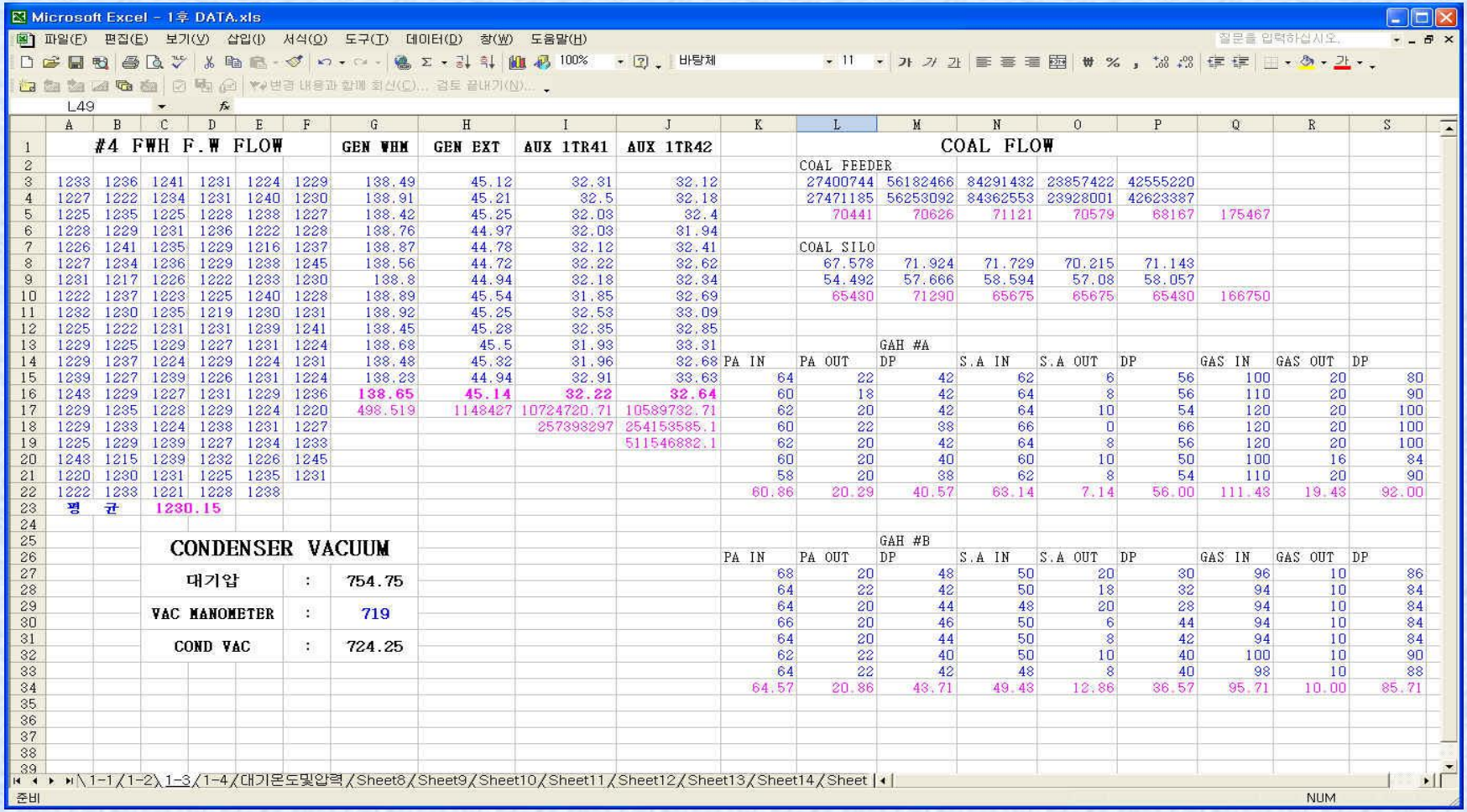
M264

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	NO.	명 칭	TAG NAME	INSTA OPER DATA	DISPLAY SELECT	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	AVG
191	190	MILL #B AIR FLOW	MA-DT-02B-CX050	PERFORMANCE DATA MILL	COAL 102	15.25	15.43	15.55	15.84	15.50	15.85	15.75	15.74	15.38	15.59
192	191	MILL #C AIR FLOW	MA-DT-01C-CX050	PERFORMANCE DATA MILL	COAL 103	15.42	15.47	15.53	15.44	15.61	15.70	15.36	15.55	15.47	15.51
193	192	MILL #C AIR FLOW	MA-DT-02C-CX050	PERFORMANCE DATA MILL	COAL 103	15.52	15.64	15.72	15.57	15.69	15.84	15.50	15.66	15.64	15.64
194	193	MILL #D AIR FLOW	MA-DT-01D-CX050	PERFORMANCE DATA MILL	COAL 104	15.74	15.47	15.69	15.60	15.95	15.56	15.22	15.70	15.81	15.64
195	194	MILL #D AIR FLOW	MA-DT-02D-CX050	PERFORMANCE DATA MILL	COAL 104	15.68	15.33	15.65	15.72	15.96	15.65	15.53	15.83	15.91	15.72
196	195	MILL #E AIR FLOW	MA-DT-01E-CX050	PERFORMANCE DATA MILL	COAL 105	15.55	15.45	15.60	15.74	15.48	15.32	15.60	15.38	15.73	15.54
197	196	MILL #E AIR FLOW	MA-DT-02E-CX050	PERFORMANCE DATA MILL	COAL 105	15.72	15.85	15.81	15.98	15.71	15.49	15.62	15.68	15.95	15.76
198	197	MILL #F AIR FLOW	MA-DT-01F-CX050	PERFORMANCE DATA MILL	COAL 106	4.73	4.83	4.81	4.82	4.78	4.84	4.83	4.82	4.87	4.81
199	198	MILL #F AIR FLOW	MA-DT-02F-CX050	PERFORMANCE DATA MILL	COAL 106	4.43	4.44	4.43	4.46	4.38	4.43	4.42	4.49	4.50	4.44
200	199	MILL #A OUTLET TEMP	CA-XATE01-CX050	PA FD ID PERF. DATA	COAL 101	78.59	79.03	78.59	78.88	78.88	78.52	78.59	78.81	78.81	78.74
201	200	MILL #A OUTLET TEMP	CA-XATE02-CX050	PA FD ID PERF. DATA	COAL 101	78.08	78.22	78.00	78.15	78.15	78.00	78.00	78.08	78.08	78.08
202	201	MILL #B OUTLET TEMP	CA-XBTE01-CX050	PA FD ID PERF. DATA	COAL 102	77.20	77.42	77.49	77.49	77.49	77.34	77.34	77.49	77.49	77.42
203	202	MILL #B OUTLET TEMP	CA-XBTE02-CX050	PA FD ID PERF. DATA	COAL 102	78.22	78.22	78.30	78.37	78.44	78.37	78.37	78.59	78.52	78.38
204	203	MILL #C OUTLET TEMP	CA-XCTE01-CX050	PA FD ID PERF. DATA	COAL 103	79.10	78.96	78.74	79.03	78.88	79.03	78.96	79.03	78.66	78.93
205	204	MILL #C OUTLET TEMP	CA-XCTE02-CX050	PA FD ID PERF. DATA	COAL 103	78.44	78.15	77.71	78.15	78.08	78.00	78.08	78.30	77.93	78.09
206	205	MILL #D OUTLET TEMP	CA-XDTE01-CX050	PA FD ID PERF. DATA	COAL 104	77.49	77.34	77.05	77.49	77.20	77.56	77.42	77.27	77.42	77.36
207	206	MILL #D OUTLET TEMP	CA-XDTE02-CX050	PA FD ID PERF. DATA	COAL 104	78.52	78.37	78.30	78.66	78.44	78.74	78.66	78.44	78.59	78.52
208	207	MILL #E OUTLET TEMP	CA-XETE01-CX050	PA FD ID PERF. DATA	COAL 105	76.25	76.10	76.39	76.25	76.03	76.46	76.32	76.39	76.25	76.27
209	208	MILL #E OUTLET TEMP	CA-XETE02-CX050	PA FD ID PERF. DATA	COAL 105	77.86	77.71	77.93	77.64	77.42	77.71	77.71	77.71	77.64	77.70
210	209	MILL #F OUTLET TEMP	CA-XFTE01-CX050	PA FD ID PERF. DATA	COAL 106	36.40	36.47	36.47	36.33	36.18	36.18	36.18	36.11	36.04	36.26
211	210	MILL #F OUTLET TEMP	CA-XFTE02-CX050	PA FD ID PERF. DATA	COAL 106	36.55	36.62	36.69	36.55	36.33	36.40	36.40	36.18	36.33	36.45
212	211	FINAL S/H OUTL TEMP	MS-TE-51A-CX050	BOILER SUPER HEATER	AAA 001	540.43	540.43	540.43	540.43	540.43	540.43	541.02	540.04	541.02	540.52
213	212	FINAL S/H OUTL TEMP	MS-TE-53A-CX051	BOILER SUPER HEATER	AAA 001	541.02	541.21	540.82	541.02	541.02	540.63	541.02	540.82	541.21	540.97
214	213	FINAL S/H OUTL TEMP	MS-TE-55A-CX052	BOILER SUPER HEATER	AAA 001	541.41	540.63	541.02	540.43	541.02	540.63	541.80	540.82	541.21	541.00
215	214	FINAL S/H OUTL TEMP	MS-TE-57A-CX053	BOILER SUPER HEATER	AAA 001	541.02	541.02	540.43	541.02	540.82	540.82	541.21	540.82	541.41	540.95
216	215	FINAL SH INL T	SH-TE-05F-CX050	BOILER SUPER HEATER	AAA 001	493.75	493.55	493.75	493.75	493.16	492.97	493.36	493.79	493.55	493.51
217	216	FINAL SH INL T	SH-TE-06F-CX050	BOILER SUPER HEATER	AAA 001	504.30	504.30	504.49	504.69	503.52	503.71	503.91	504.30	504.30	504.17
218	217	FINAL SH INL T	SH-TE-07F-CX050	BOILER SUPER HEATER	AAA 001	503.32	503.52	503.52	504.10	502.93	503.71	503.52	503.91	504.10	503.63
219	218	FINAL SH INL T	SH-TE-08F-CX050	BOILER SUPER HEATER	AAA 001	492.38	492.38	493.16	493.55	492.97	493.55	493.36	493.75	493.16	493.14
220	219	SH HANG TUB OUTL T	SH-TE-01D-CX050	BOILER SUPER HEATER	AAA 001	459.38	459.38	461.13	461.72	460.55	460.55	462.70	461.91	463.48	461.20
221	220	SH HANG TUB OUTL T	SH-TE-02D-CX050	BOILER SUPER HEATER	AAA 001	461.52	461.33	462.11	462.89	461.33	461.72	463.28	462.89	464.45	462.39
222	221	SH HANG TUB OUTL T	SH-TE-03D-CX050	BOILER SUPER HEATER	AAA 001	466.80	466.21	465.43	466.02	464.26	463.28	465.43	465.63	466.21	465.47
223	222	SH HANG TUB OUTL T	SH-TE-04D-CX050	BOILER SUPER HEATER	AAA 001	466.41	466.02	465.23	465.82	464.26	463.48	465.43	464.84	466.41	465.32
224	223	PLAT SH INL T	SH-TE-05D-CX050	BOILER SUPER HEATER	AAA 001	455.47	454.88	455.47	455.47	454.96	455.27	456.05	455.66	456.64	455.54
225	224	PLAT SH INL T	SH-TE-06D-CX050	BOILER SUPER HEATER	AAA 001	454.10	453.52	453.91	453.71	452.93	452.73	453.91	453.32	454.10	453.58
226	225	PLAT SH INL T	SH-TE-07D-CX050	BOILER SUPER HEATER	AAA 001	446.88	446.68	447.66	447.66	447.46	447.85	448.63	448.05	449.22	447.79
227	226	PLAT SH INL T	SH-TE-08D-CX050	BOILER SUPER HEATER	AAA 001	453.71	453.52	453.52	453.32	452.93	452.54	453.91	453.32	454.69	453.50
228	227	PLAT SH OUTL T	SH-TE-01F-CX050	BOILER SUPER HEATER	AAA 001	509.18	509.96	510.16	511.33	509.77	509.96	510.74	510.74	511.33	510.35
229	228	PLAT SH OUTL T	SH-TE-02F-CX050	BOILER SUPER HEATER	AAA 001	504.49	504.49	504.88	505.27	504.30	503.91	504.49	505.08	505.08	504.67
230	229	PLAT SH OUTL T	SH-TE-03F-CX050	BOILER SUPER HEATER	AAA 001	506.25	505.86	506.84	507.42	506.84	505.47	506.84	508.01	507.03	506.73
231	230	PLAT SH OUTL T	SH-TE-04F-CX050	BOILER SUPER HEATER	AAA 001	517.38	517.38	516.02	516.80	515.43	514.26	515.23	516.02	515.23	515.97
232	231	PRIMARY RH OUTL TEMP	RH-TE-01A-CX050	BOILER REHEATER	AAA 001	474.02	474.80	475.00	475.00	475.59	475.78	476.56	476.37	477.34	475.61
233	232	PRIMARY RH OUTL TEMP	RH-TE-02A-CX050	BOILER REHEATER	AAA 001	449.02	449.61	449.61	450.00	450.39	450.59	451.56	451.56	452.15	450.50
234	233	PRIMARY RH OUTL TEMP	RH-TE-03A-CX050	BOILER REHEATER	AAA 001	456.05	456.64	456.25	456.45	456.25	455.47	457.23	457.03	457.42	456.53
235	234	PRIMARY RH OUTL TEMP	RH-TE-04A-CX050	BOILER REHEATER	AAA 001	486.91	487.11	485.94	485.74	485.94	486.33	486.91	486.91	487.70	486.61
236	235	FINAL RH INL T	RH-TE-05A-CX050	BOILER REHEATER	AAA 001	455.66	455.66	455.47	455.08	456.05	454.69	455.08	456.05	454.69	455.38
237	236	FINAL RH INL T	RH-TE-06A-CX050	BOILER REHEATER	AAA 001	479.49	478.32	479.49	478.91	479.10	478.91	478.52	478.71	478.71	478.93
238	237	FINAL RH INL T	RH-TE-07A-CX050	BOILER REHEATER	AAA 001	467.19	469.34	469.14	468.36	468.75	470.12	468.75	467.97	469.53	468.79
239	238	FINAL RH INL T	RH-TE-08A-CX050	BOILER REHEATER	AAA 001	438.67	437.50	440.82	439.84	441.80	441.99	440.43	440.04	442.38	440.39
240	239	FINAL RH OUTL T	RH-TE-51A-CX050	BOILER REHEATER	AAA 001	541.02	542.19	541.41	541.80	541.41	541.41	541.99	541.41	542.58	541.69
241	240	FINAL RH OUTL T	RH-TE-53A-CX050	BOILER REHEATER	AAA 001	541.99	542.58	542.19	542.19	541.99	541.99	542.19	541.99	542.38	542.17
242	241	FINAL RH OUTL T	RH-TE-55A-CX050	BOILER REHEATER	AAA 001	542.58	541.80	542.19	542.38	541.99	541.99	542.38	542.77	542.19	542.25
243	242	FINAL RH OUTL T	RH-TE-57A-CX050	BOILER REHEATER	AAA 001	542.19	542.58	541.99	542.58	542.19	541.60	542.58	542.38	542.38	542.27
244	243	Z SH INTIAL SPARY VV	SH-TCV-02A-CX050	PERFORMANCE DATA SPRAY	AAA 001	26.46	26.90	6.42	27.98	25.05	25.54	27.88	27.64	28.76	24.74
245	244	Z SH INTIAL SPARY VV	SH-TCV-02B-CX050	PERFORMANCE DATA SPRAY	AAA 001	35.55	37.79	33.74	34.96	31.35	30.96	33.84	35.21	35.84	34.36
246	245	Z SH INTIAL SPARY VV	SH-TCV-02C-CX050	PERFORMANCE DATA SPRAY	AAA 001	44.43	46.34	47.02	48.14	46.53	45.70	47.75	46.83	49.12	46.87
247	246	Z SH INTIAL SPARY VV	SH-TCV-02D-CX050	PERFORMANCE DATA SPRAY	AAA 001	39.94	41.06	40.23	40.38	37.50	39.40	40.19	40.58	41.41	40.08
248	247	Z SH SPRAY VALVE	SH-TCV-03A-CX050	PERFORMANCE DATA SPRAY	AAA 001	31.98	32.62	32.32	33.59	32.18	31.88	33.40	33.64	33.98	32.84
249	248	Z SH SPRAY VALVE	SH-TCV-03B-CX050	PERFORMANCE DATA SPRAY	AAA 001	47.46	48.78	47.07	47.31	44.82	46.19	46.44	47.17	47.07	46.92
250	249	Z SH SPRAY VALVE	SH-TCV-03C-CX050	PERFORMANCE DATA SPRAY	AAA 001	46.44	48.39	48.93	50.44	49.61	48.29	49.76	50.29	50.93	49.23
251	250	Z SH SPRAY VALVE	SH-TCV-03D-CX050	PERFORMANCE DATA SPRAY	AAA 001	42.43	44.53	40.33	41.65	39.06	37.89	39.65	42.09	41.70	41.04
252	251	Z RH SPRAY VALVE	RH-TCV-01A-CX050	PERFORMANCE DATA SPRAY	AAA 001	23.34	33.50	30.22	30.81	30.71	27.64	30.18	34.57	35.40	30.71
253	252	Z RH SPRAY VALVE	RH-TCV-01B-CX050	PERFORMANCE DATA SPRAY	AAA 001	26.95	29.98	28.03	32.32	30.08	29.74	31.49	37.99	31.49	30.90
254	253	Z RH SPRAY VALVE	RH-TCV-01C-CX050	PERFORMANCE DATA SPRAY	AAA 001	23.49	33.40	29.35	26.17	24.66	27.64	32.37	30.32	34.91	29.15
255	254	Z RH SPRAY VALVE	RH-TCV-01D-CX050	PERFORMANCE DATA SPRAY	AAA 001	0.00	14.84	0.00	8.11	0.00	4.64	15.09	0.00	11.38	6.01

1-1 1-2 1-3 1-4 대기온도및압력 Sheet8 Sheet9 Sheet10 Sheet11 Sheet12 Sheet13 Sheet14 Sheet15 Sh

준비 NUM

Previously…(cont.)



Microsoft Excel - 1후 DATA.xls

파일(F) 편집(E) 보기(V) 삽입(I) 서식(O) 도구(T) 데이터(D) 창(W) 도움말(H)

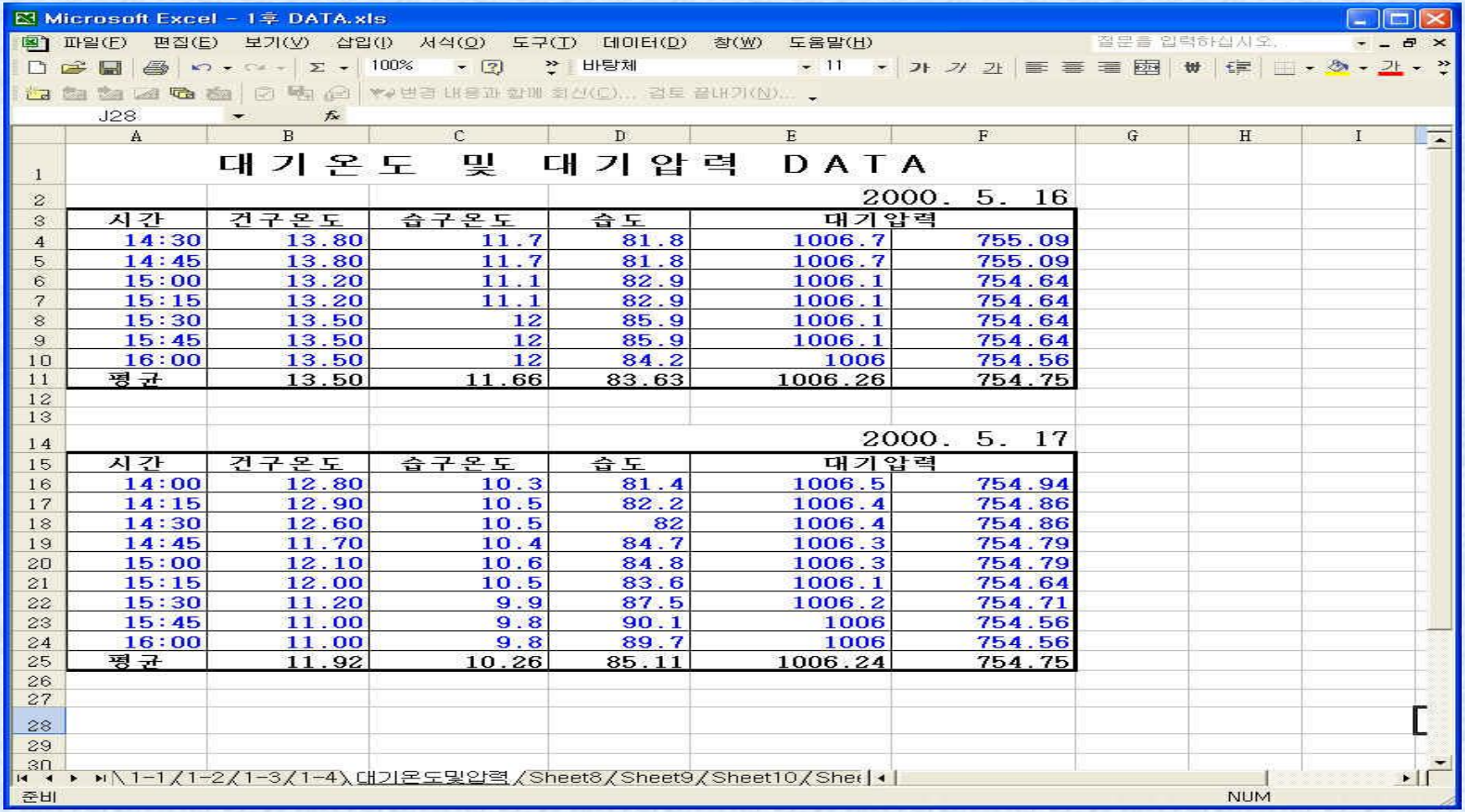
L49

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	#4 FWH F.W FLOW						GEN WHM	GEN EXT	AUX 1TR41	AUX 1TR42		COAL FLOW							
2												COAL FEEDER							
3	1233	1236	1241	1231	1224	1229	138.49	45.12	32.31	32.12		27400744	56182466	84291432	23857422	42555220			
4	1227	1222	1234	1231	1240	1230	138.91	45.21	32.5	32.18		27471185	56253092	84362553	23928001	42623387			
5	1225	1235	1225	1228	1238	1227	138.42	45.25	32.03	32.4		70441	70626	71121	70579	68167	175467		
6	1228	1229	1231	1236	1222	1228	138.76	44.97	32.03	31.94									
7	1226	1241	1235	1229	1216	1237	138.87	44.78	32.12	32.41		COAL SILO							
8	1227	1234	1236	1229	1238	1245	138.56	44.72	32.22	32.62		67.578	71.924	71.729	70.215	71.143			
9	1231	1217	1226	1222	1233	1230	138.8	44.94	32.18	32.34		54.492	57.666	58.594	57.08	58.057			
10	1222	1237	1223	1225	1240	1228	138.89	45.54	31.85	32.69		65430	71290	65675	65675	65430	166750		
11	1232	1230	1235	1219	1230	1231	138.92	45.25	32.53	33.09									
12	1225	1222	1231	1231	1239	1241	138.45	45.28	32.35	32.85									
13	1229	1225	1229	1227	1231	1224	138.68	45.5	31.93	33.31			GAH #A						
14	1229	1237	1224	1229	1224	1231	138.48	45.32	31.96	32.68	PA IN	PA OUT	DP	S.A IN	S.A OUT	DP	GAS IN	GAS OUT	DP
15	1239	1227	1239	1226	1231	1224	138.23	44.94	32.91	33.63	64	22	42	62	6	56	100	20	80
16	1243	1229	1227	1231	1229	1236	138.65	45.14	32.22	32.64	60	18	42	64	8	56	110	20	90
17	1229	1235	1228	1229	1224	1220	498.519	1148427	1072472D.71	10589732.71	62	20	42	64	10	54	120	20	100
18	1229	1233	1224	1238	1231	1227			257398297	254153585.1	60	22	38	66	0	66	120	20	100
19	1225	1229	1239	1227	1234	1233				511546882.1	62	20	42	64	8	56	120	20	100
20	1243	1215	1239	1232	1226	1245					60	20	40	60	10	50	100	16	84
21	1220	1230	1231	1225	1235	1231					58	20	38	62	8	54	110	20	90
22	1222	1233	1221	1228	1238						60.86	20.29	40.57	63.14	7.14	56.00	111.43	19.43	92.00
23	평	균	1230.15																
24																			
25			CONDENSER VACUUM										GAH #B						
26											PA IN	PA OUT	DP	S.A IN	S.A OUT	DP	GAS IN	GAS OUT	DP
27			대기압	:	754.75						68	20	48	50	20	30	96	10	86
28											64	22	42	50	18	32	94	10	84
29			VAC MANOMETER	:	719						64	20	44	48	20	28	94	10	84
30											66	20	46	50	6	44	94	10	84
31			COND VAC	:	724.25						64	20	44	50	8	42	94	10	84
32											62	22	40	50	10	40	100	10	90
33											64	22	42	48	8	40	98	10	88
34											64.57	20.86	43.71	49.43	12.86	36.57	95.71	10.00	85.71
35																			
36																			
37																			
38																			
39																			

1-1 / 1-2 / 1-3 / 1-4 / 대기온도및압력 / Sheet8 / Sheet9 / Sheet10 / Sheet11 / Sheet12 / Sheet13 / Sheet14 / Sheet

준비 NUM

Previously…(cont.)



Microsoft Excel - 1후 DATA.xls

대 기 온 도 및 대 기 압 력 DATA

2000. 5. 16

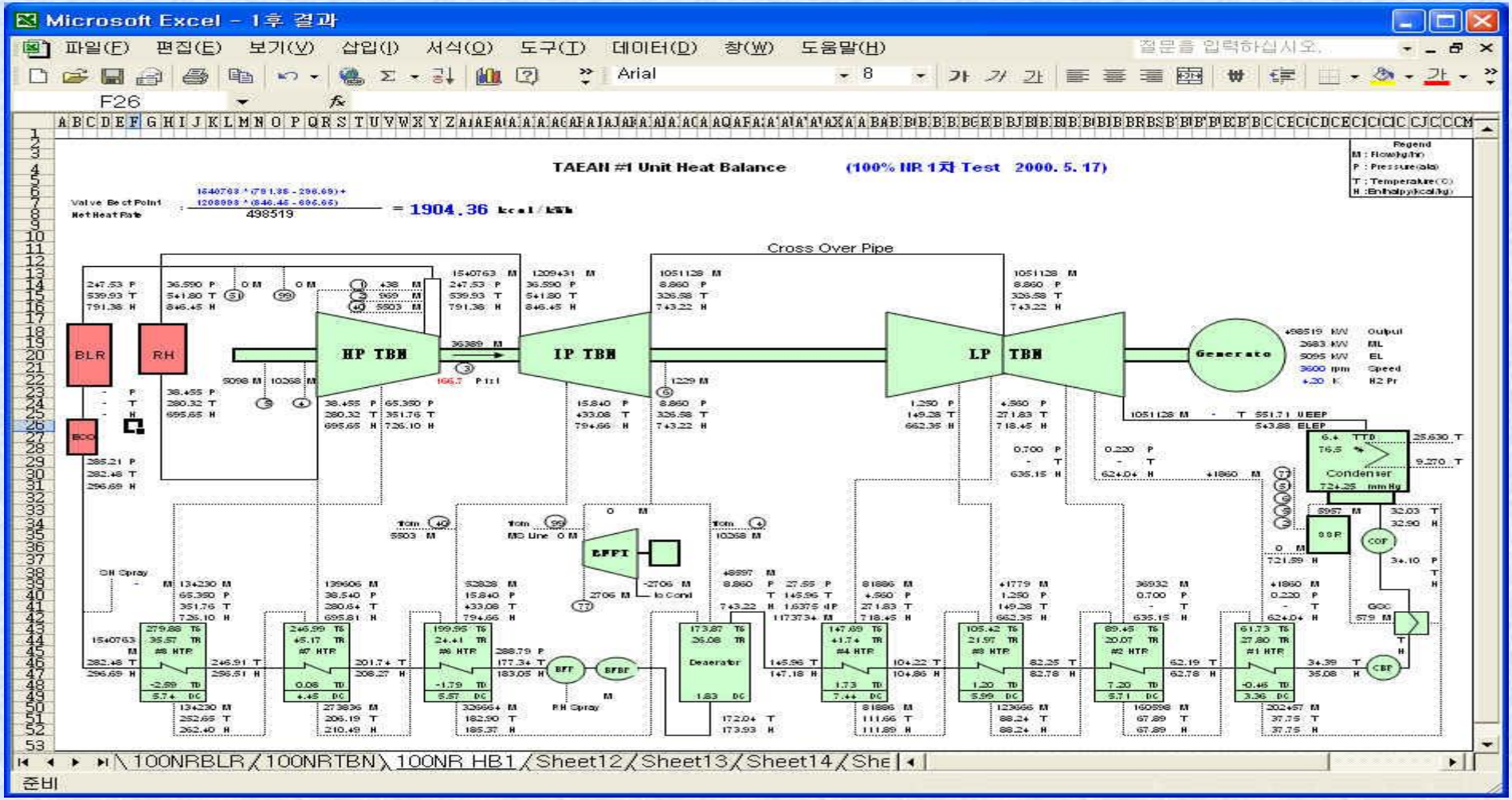
시간	건구온도	습구온도	습도	대기압력	
14:30	13.80	11.7	81.8	1006.7	755.09
14:45	13.80	11.7	81.8	1006.7	755.09
15:00	13.20	11.1	82.9	1006.1	754.64
15:15	13.20	11.1	82.9	1006.1	754.64
15:30	13.50	12	85.9	1006.1	754.64
15:45	13.50	12	85.9	1006.1	754.64
16:00	13.50	12	84.2	1006	754.56
평균	13.50	11.66	83.63	1006.26	754.75

2000. 5. 17

시간	건구온도	습구온도	습도	대기압력	
14:00	12.80	10.3	81.4	1006.5	754.94
14:15	12.90	10.5	82.2	1006.4	754.86
14:30	12.60	10.5	82	1006.4	754.86
14:45	11.70	10.4	84.7	1006.3	754.79
15:00	12.10	10.6	84.8	1006.3	754.79
15:15	12.00	10.5	83.6	1006.1	754.64
15:30	11.20	9.9	87.5	1006.2	754.71
15:45	11.00	9.8	90.1	1006	754.56
16:00	11.00	9.8	89.7	1006	754.56
평균	11.92	10.26	85.11	1006.24	754.75

Previously…(cont.)

- ***Result.xls***



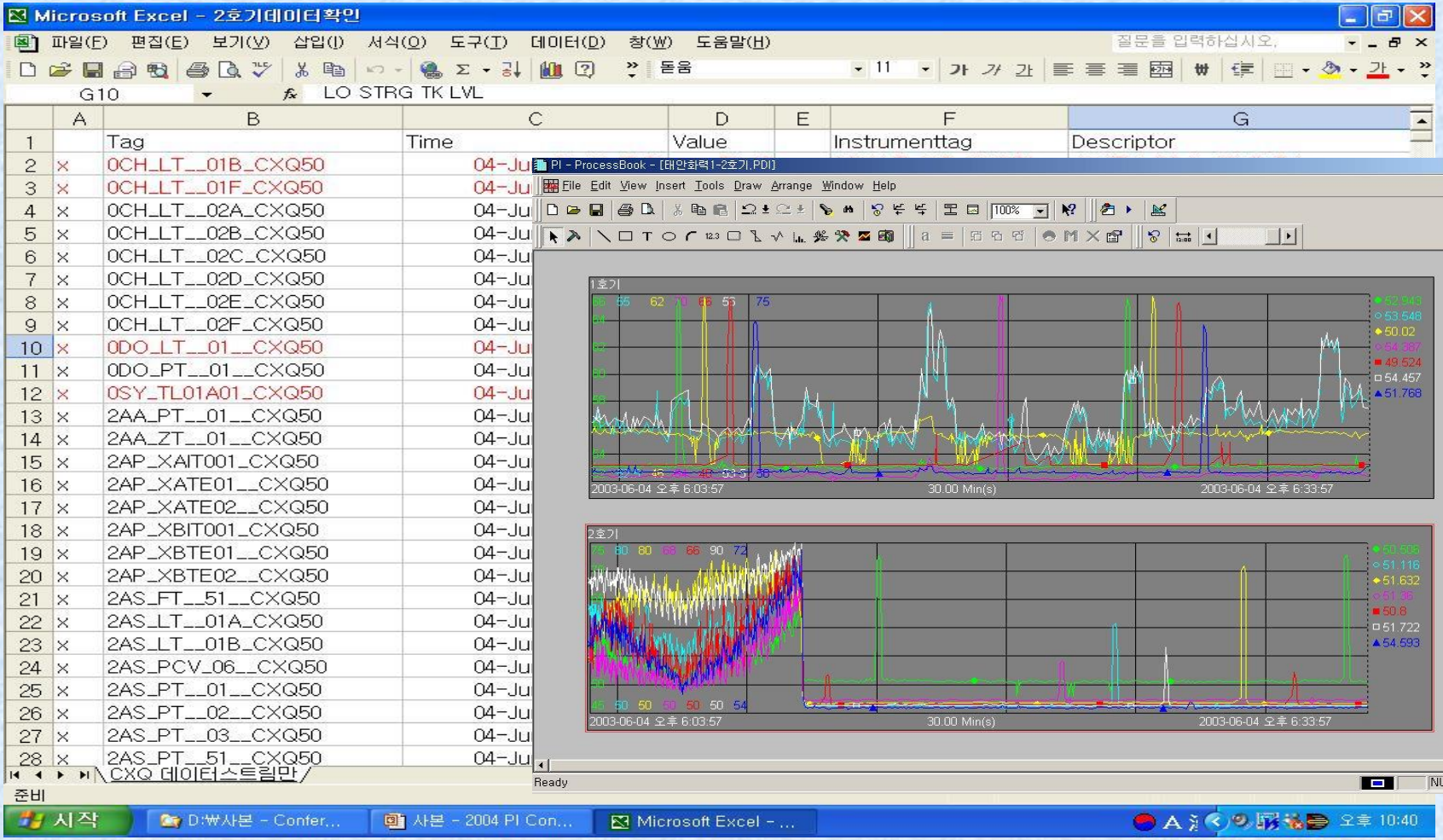
Currently…

- *Periodic tasks such as daily reports, calculating efficiency of equipment and estimates of fuel expenses are automatically generated.*

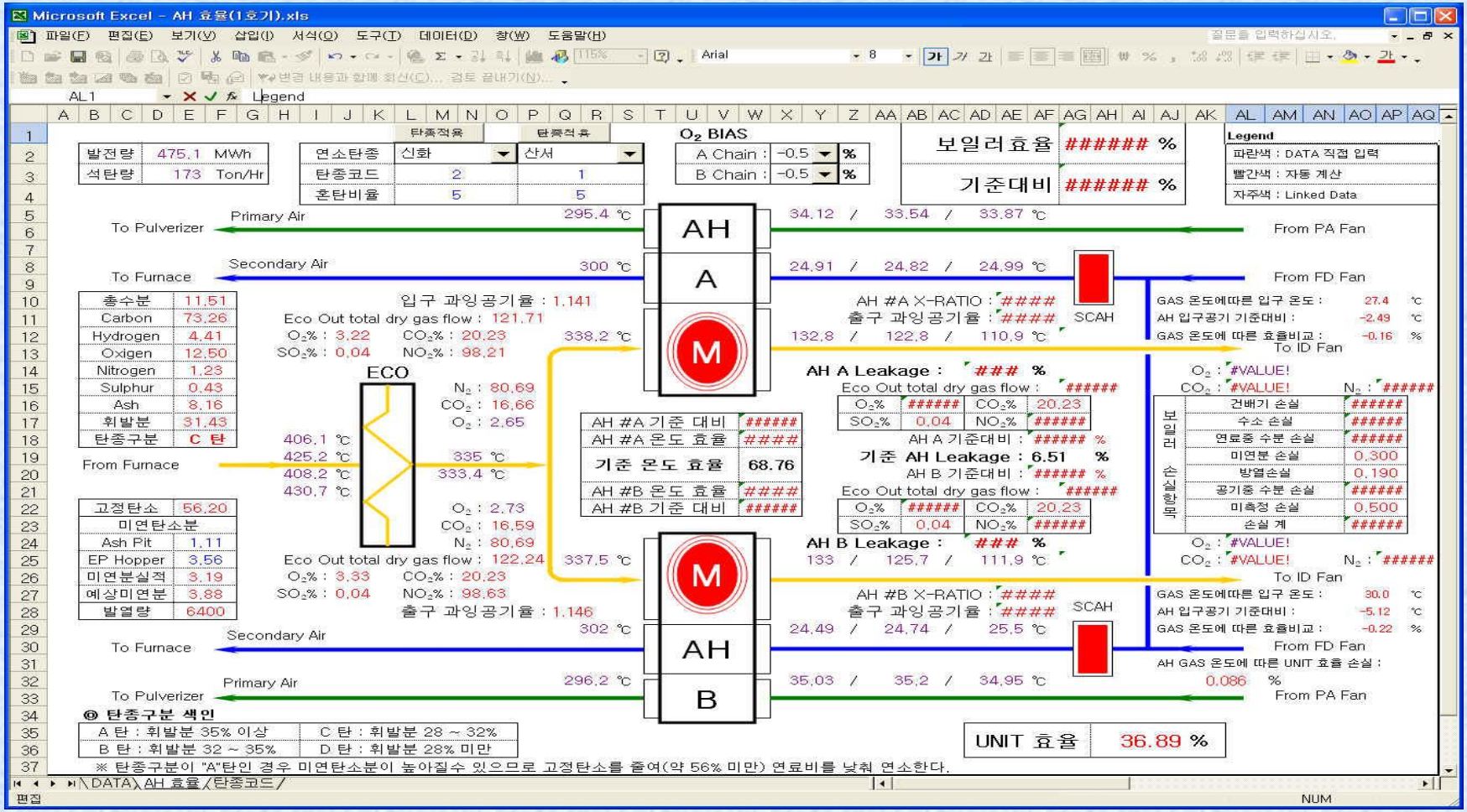
- *Through internet/intranet, any authorized person can access plant information which was only accessible in MCR (Main Control Room). Managers and maintenance workers as well as operators can monitor the performance and condition of the plant.*

- *Long term data storage for the plant is now possible. Though DCS (Distributed Control System) has its own function for data storage, the logging rate and term were so limited that people had difficulty in analyzing data. We learned that the OSI PI System offers better ways to compress and retrieve data.*

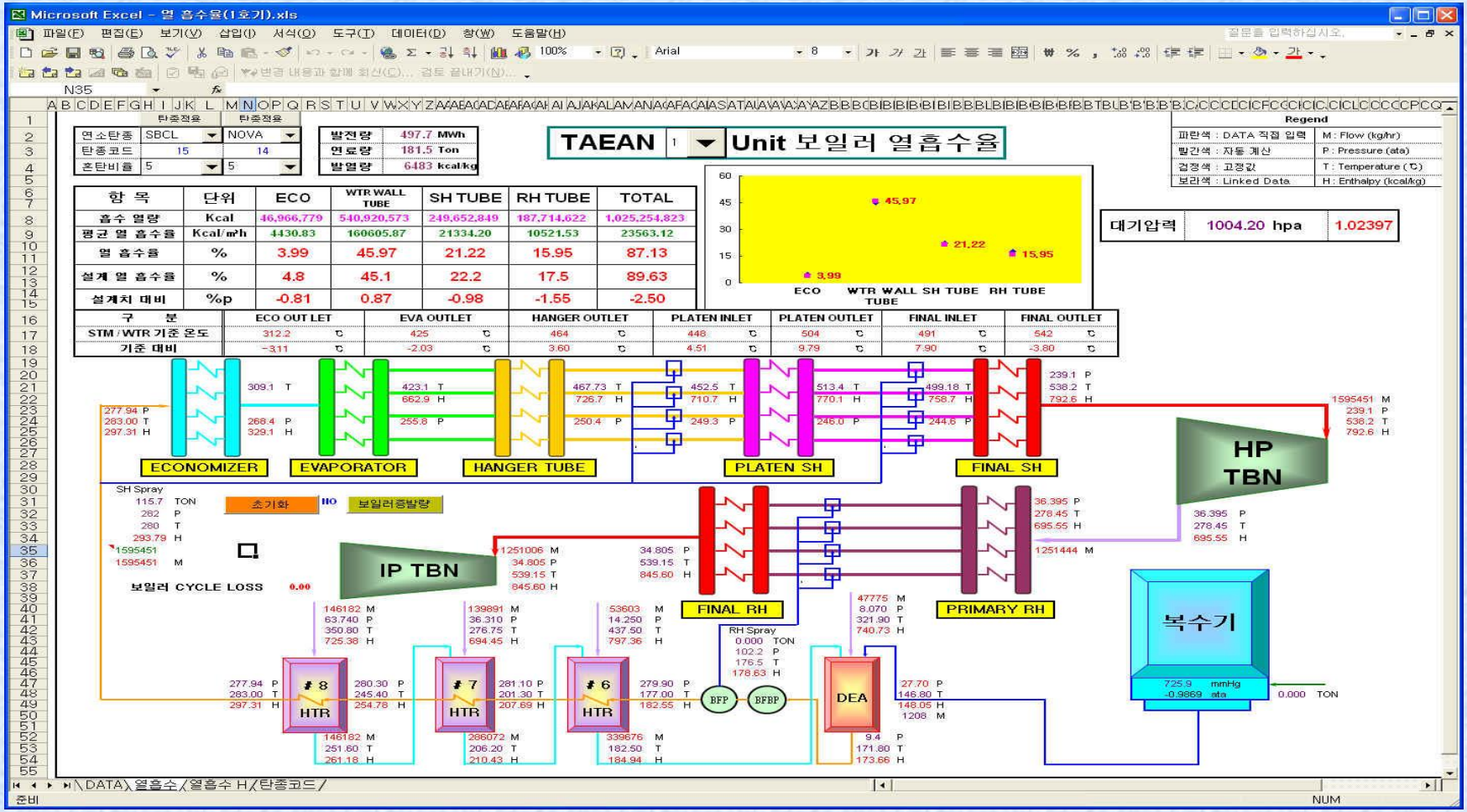
Currently…(cont.)



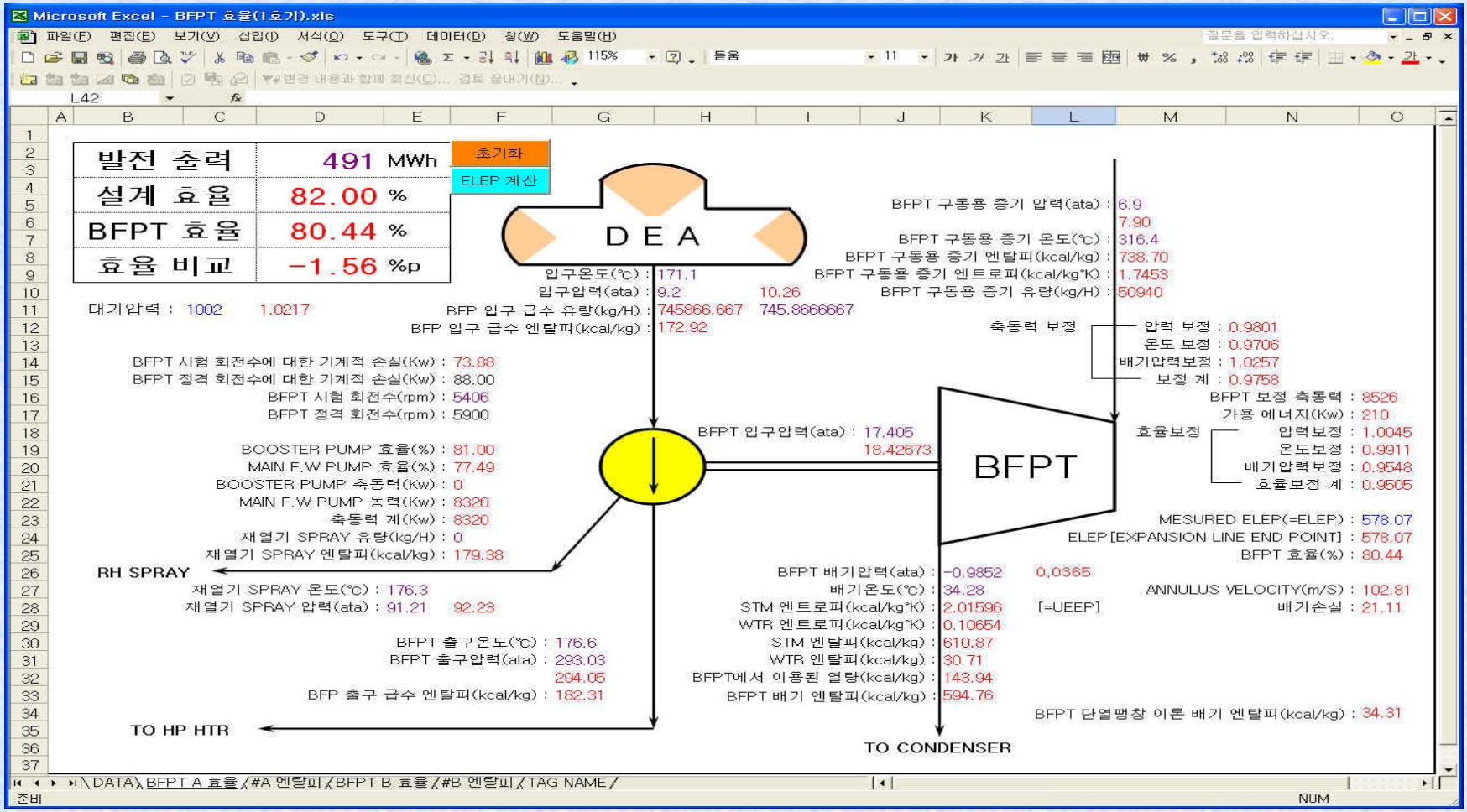
Currently…(cont.)



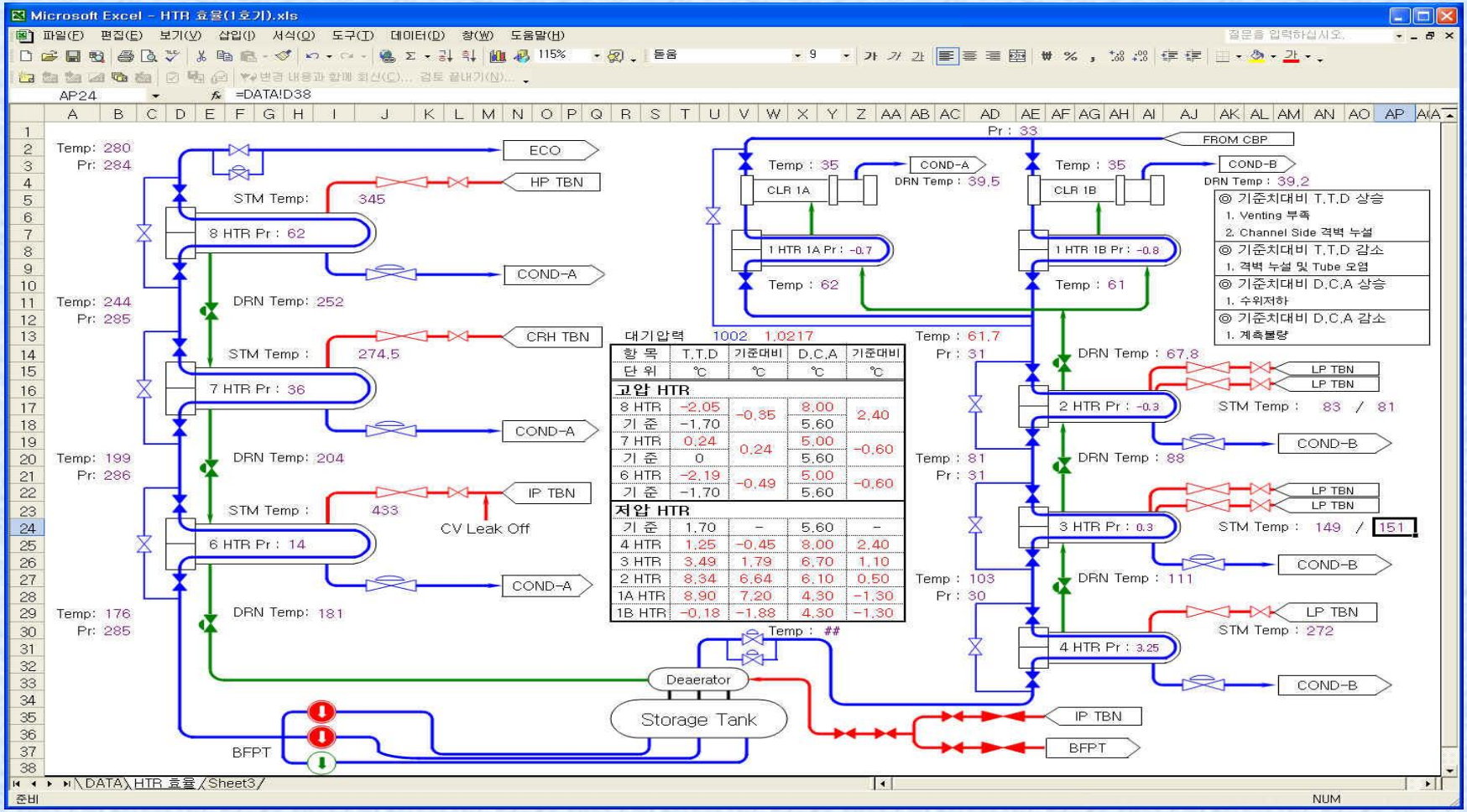
Currently…(cont.)



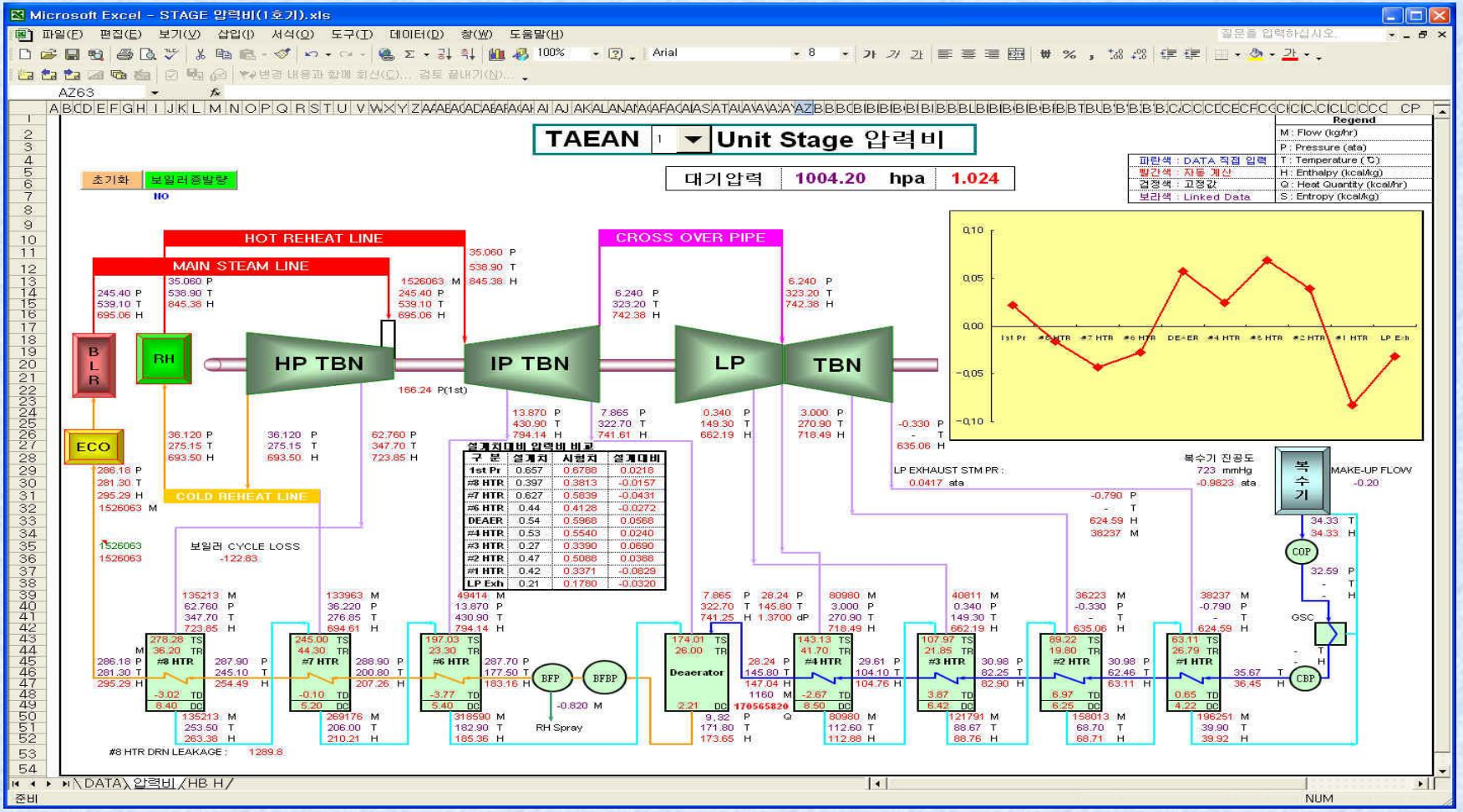
Currently…(cont.)



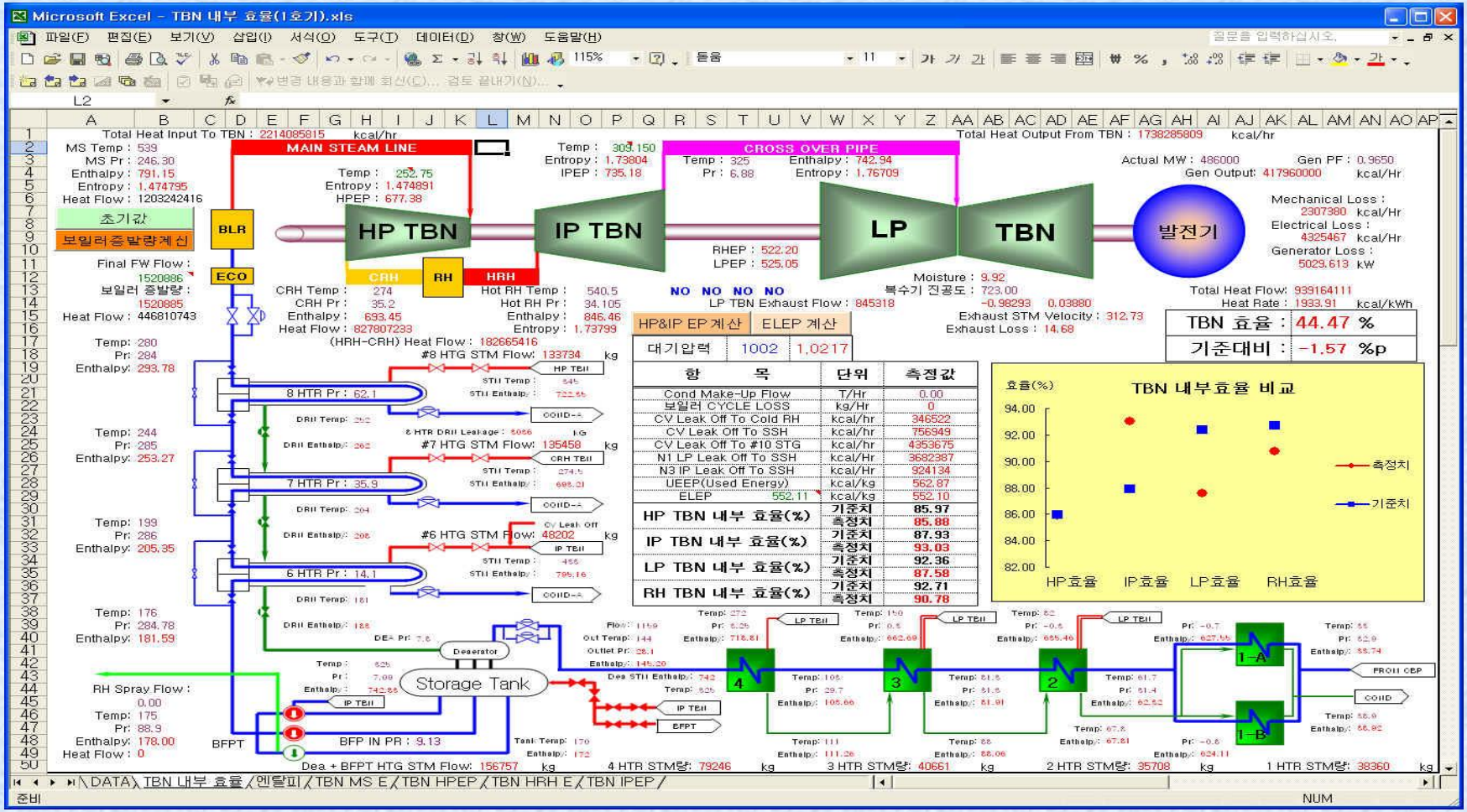
Currently…(cont.)



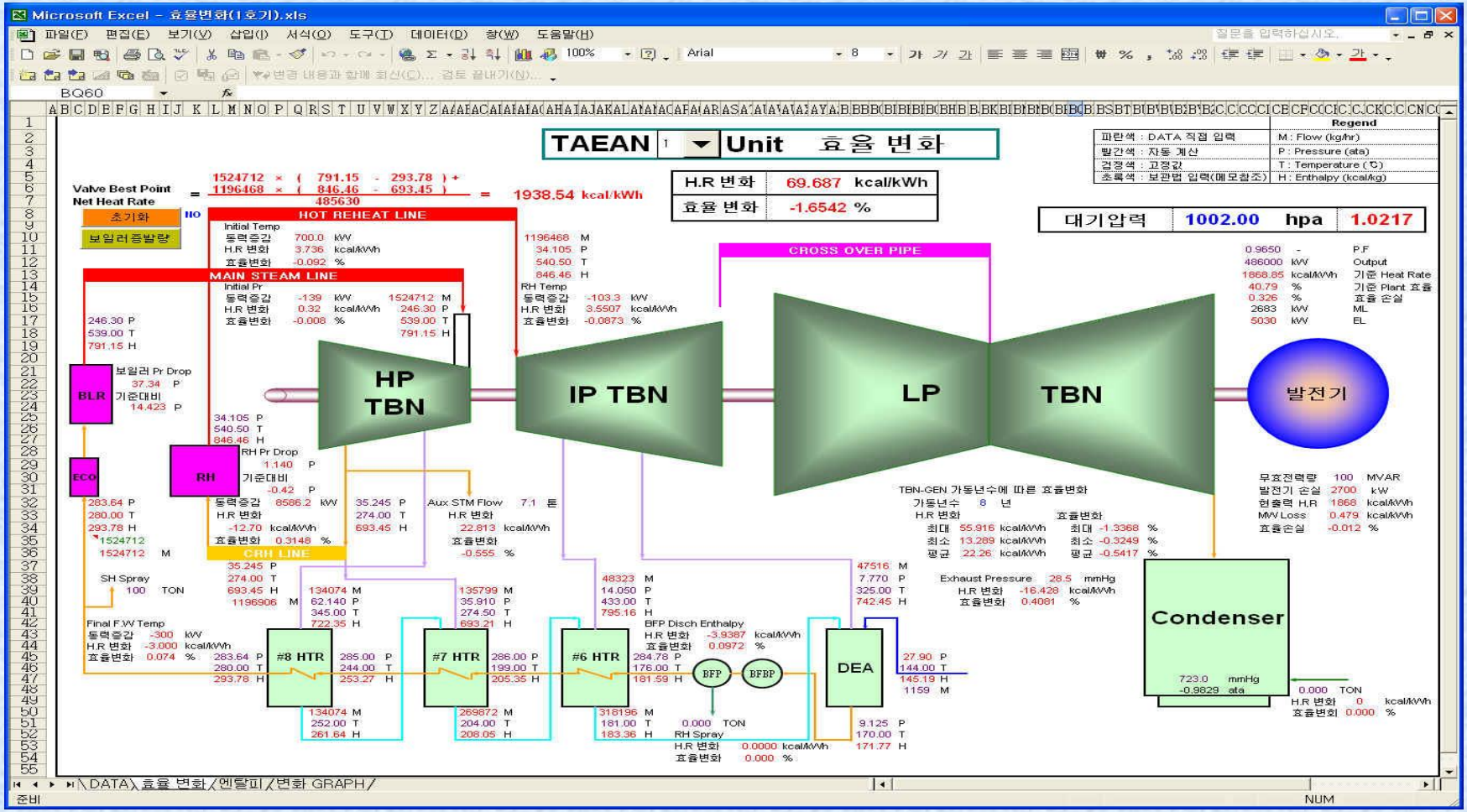
Currently…(cont.)



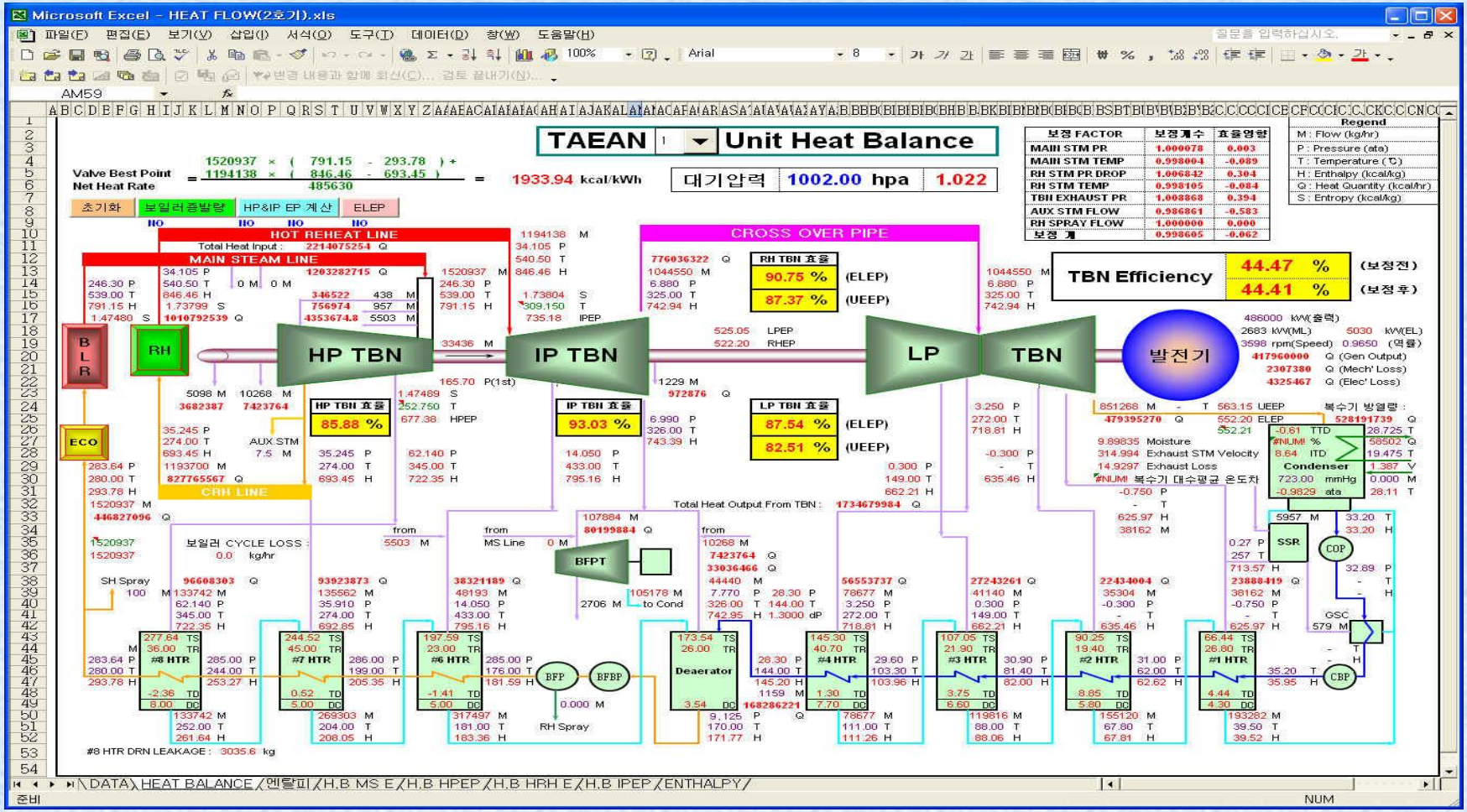
Currently…(cont.)



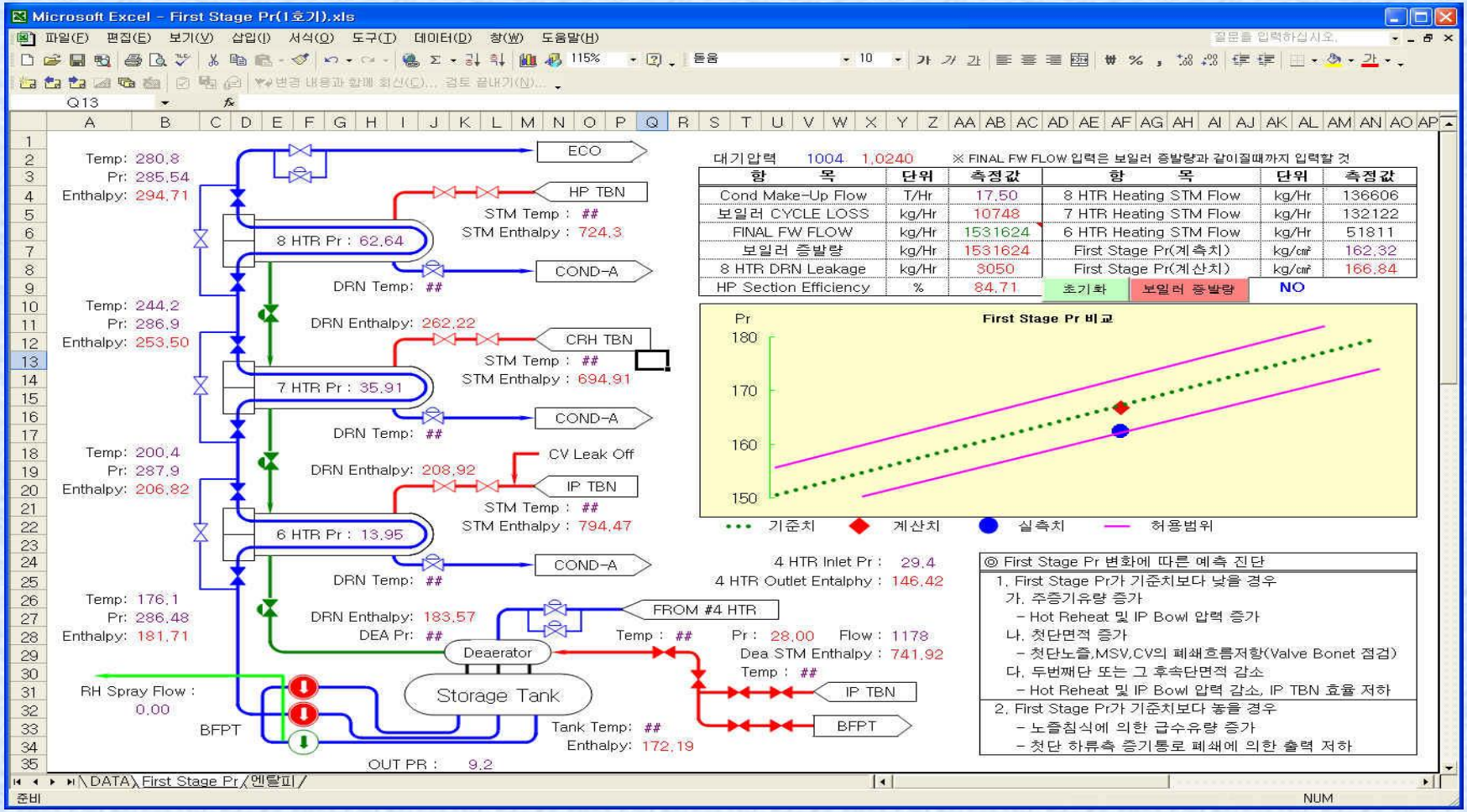
Currently…(cont.)



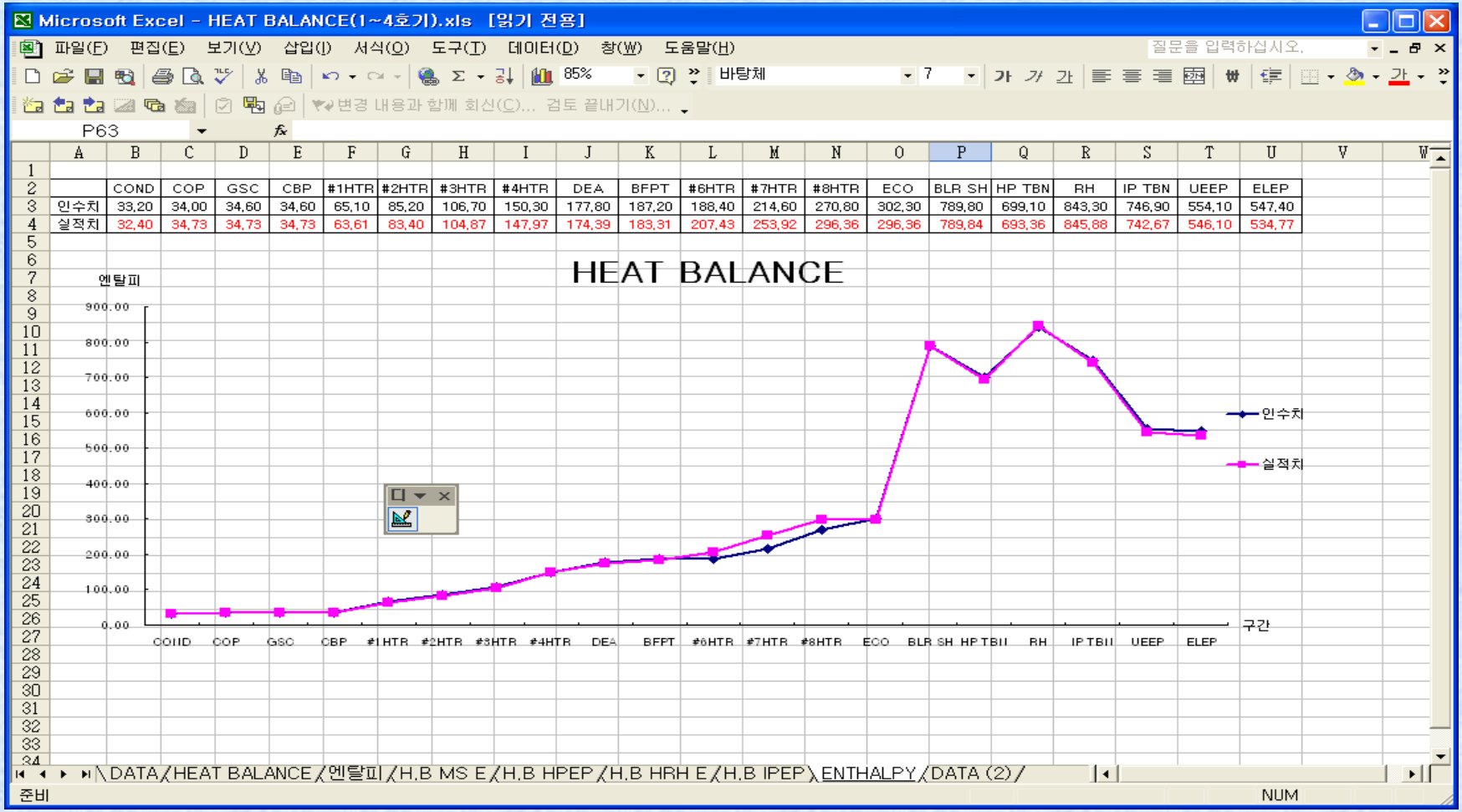
Currently…(cont.)



Currently…(cont.)

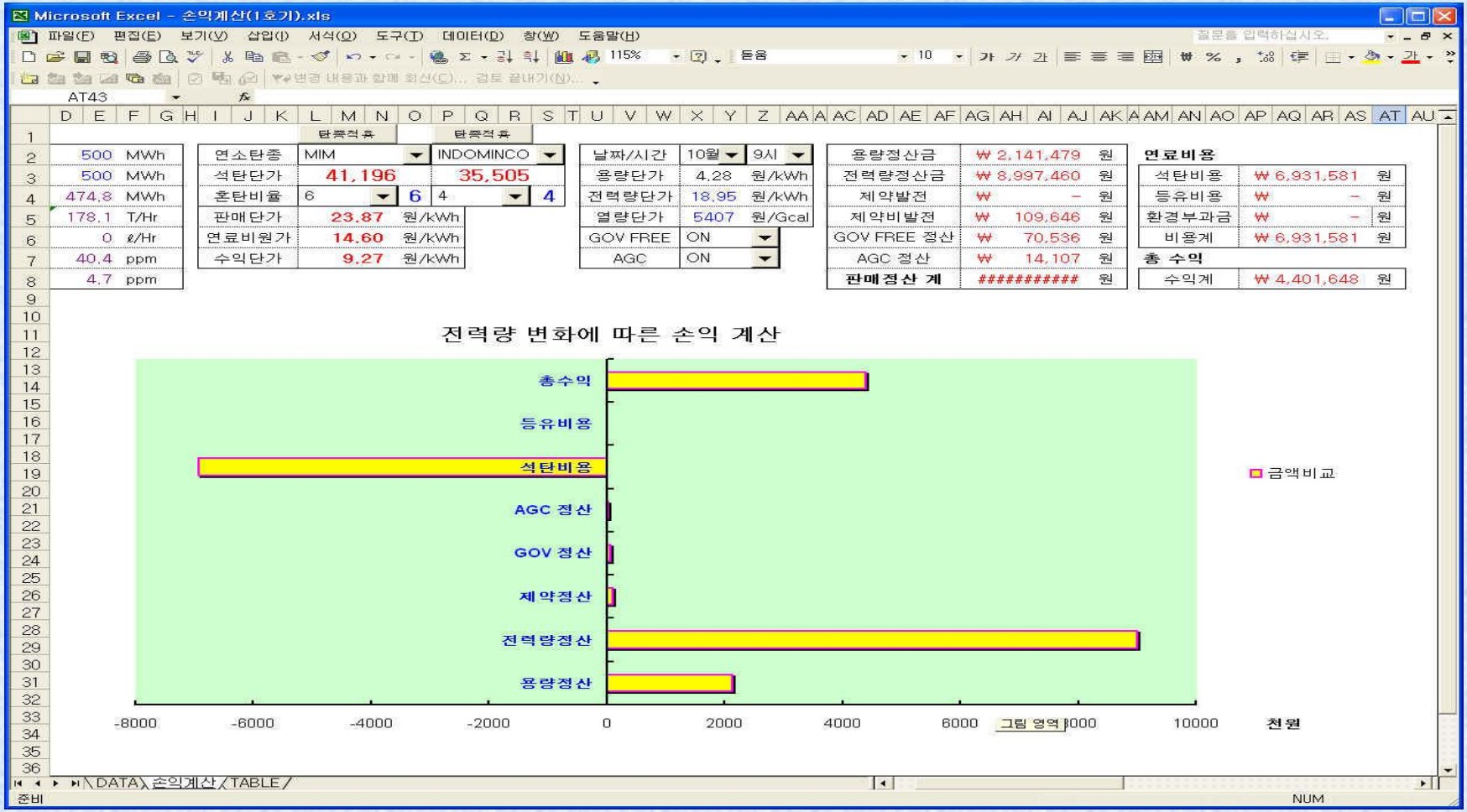


Currently…(cont.)



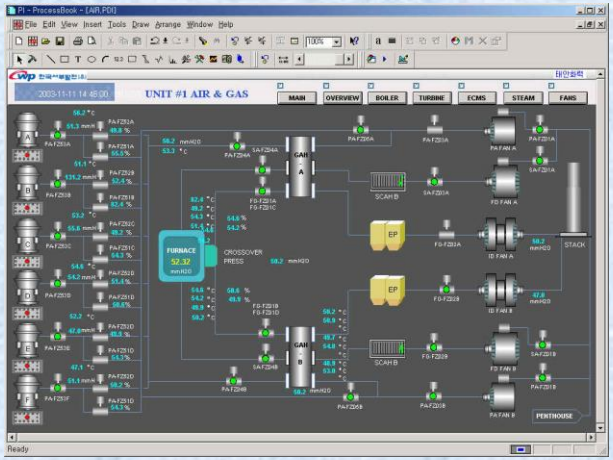
	COND	COP	GSC	CBP	#1HTR	#2HTR	#3HTR	#4HTR	DEA	BFPT	#6HTR	#7HTR	#8HTR	ECO	BLR SH	HP TBN	RH	IP TBN	UEEP	ELEP
인수치	33,20	34,00	34,60	34,60	65,10	85,20	106,70	150,30	177,80	187,20	188,40	214,60	270,80	302,30	789,80	699,10	843,30	746,90	554,10	547,40
실적치	32,40	34,73	34,73	34,73	63,61	83,40	104,87	147,97	174,39	183,31	207,43	253,92	296,36	296,36	789,84	693,36	845,88	742,67	546,10	534,77

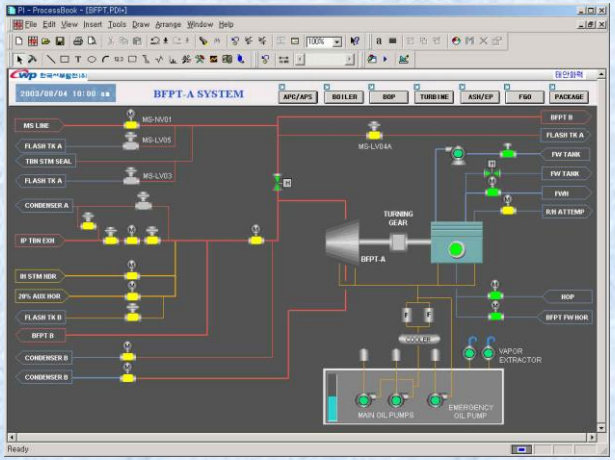
Currently…(cont.)

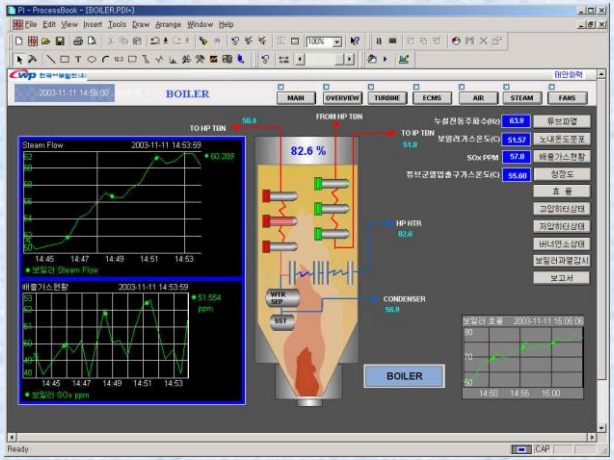


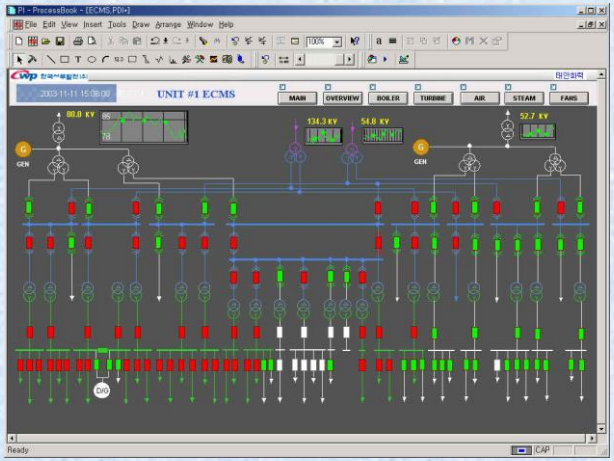
Future Samples

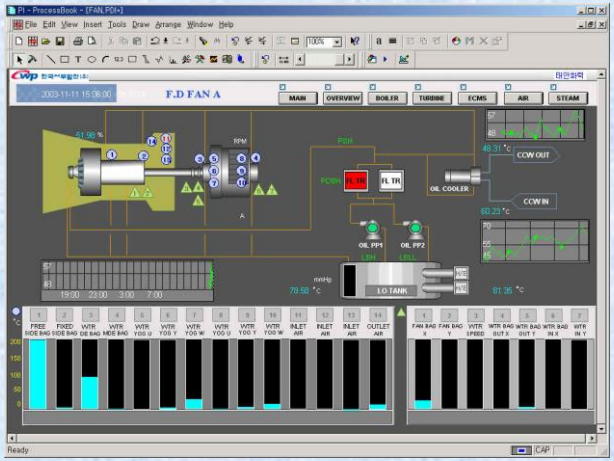
< *Samples* >

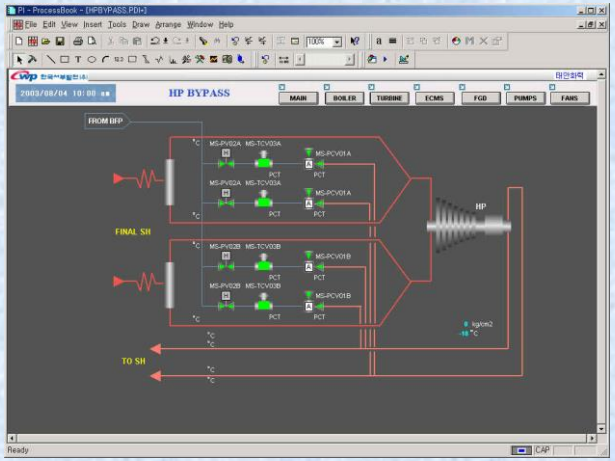






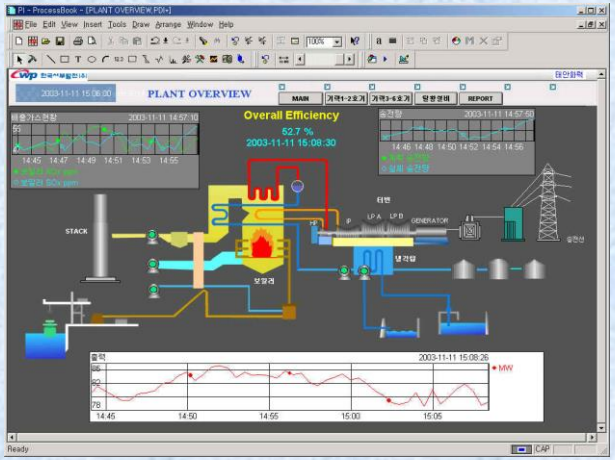


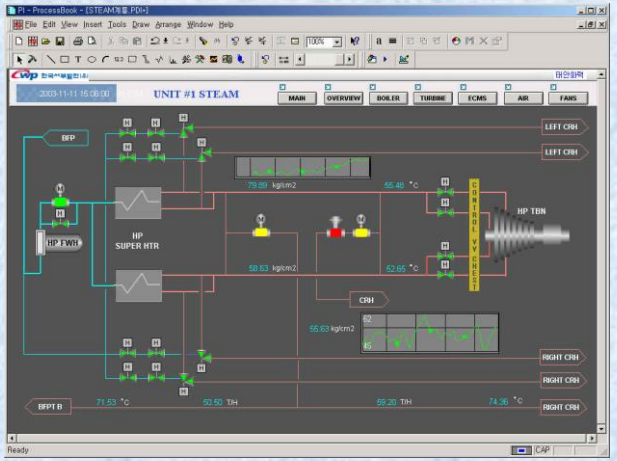


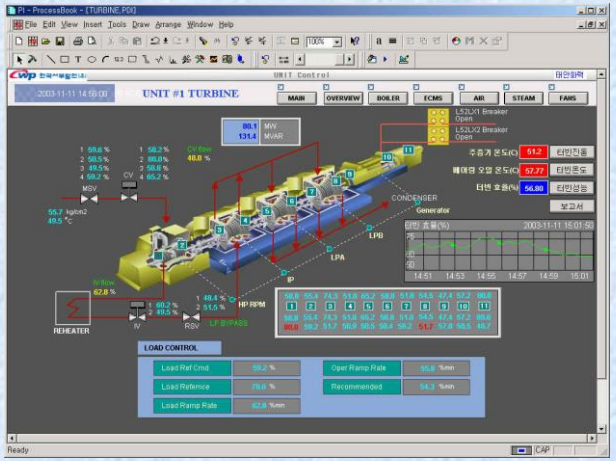


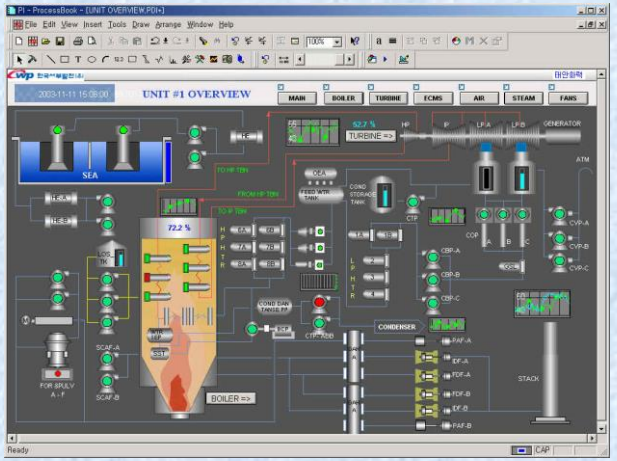
Future Samples (cont.)

< Samples >









Final Objectives

- *Data Reconciliation*
- *Operating Advisory System*
- *Improvement of Reliability and Stability*
- *Enhanced Calculation Accuracy*
- *Analysis of Combustion and Heat Transfer Distribution*

Conclusion

- ***Benefits with PI***
  - Practical Use of Plant Information
  - Sharing of Plant Information
  - Advanced Storage & Retrieve of Plant Information
- ***Requirements for Future Improvement***
  - More Convenient Method for Tag Management
  - Enhanced Graph Features in PI ProcessBook
  - More Solutions for Various DCS Interfaces

OSISOFT USERS CONFERENCE 2004

DISCOVER YOUR PORTAL TO PERFORMANCE

Schedule Changes

- Citgo moved to Wednesday at 10:00 in Salon 10 replacing Saudi Aramco presentation
- Cascade moved on Wednesday from 8:00am to 8:45am in Salon 3 & 4
- Don Smith & John Matranga replace Polimeri presentation on Wednesday at 8:45 in Salon 10
- Sign up for Feedback Forums at Registration