Industrial Energy Efficiency Promotion Policies in Republic of KOREA

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Contents

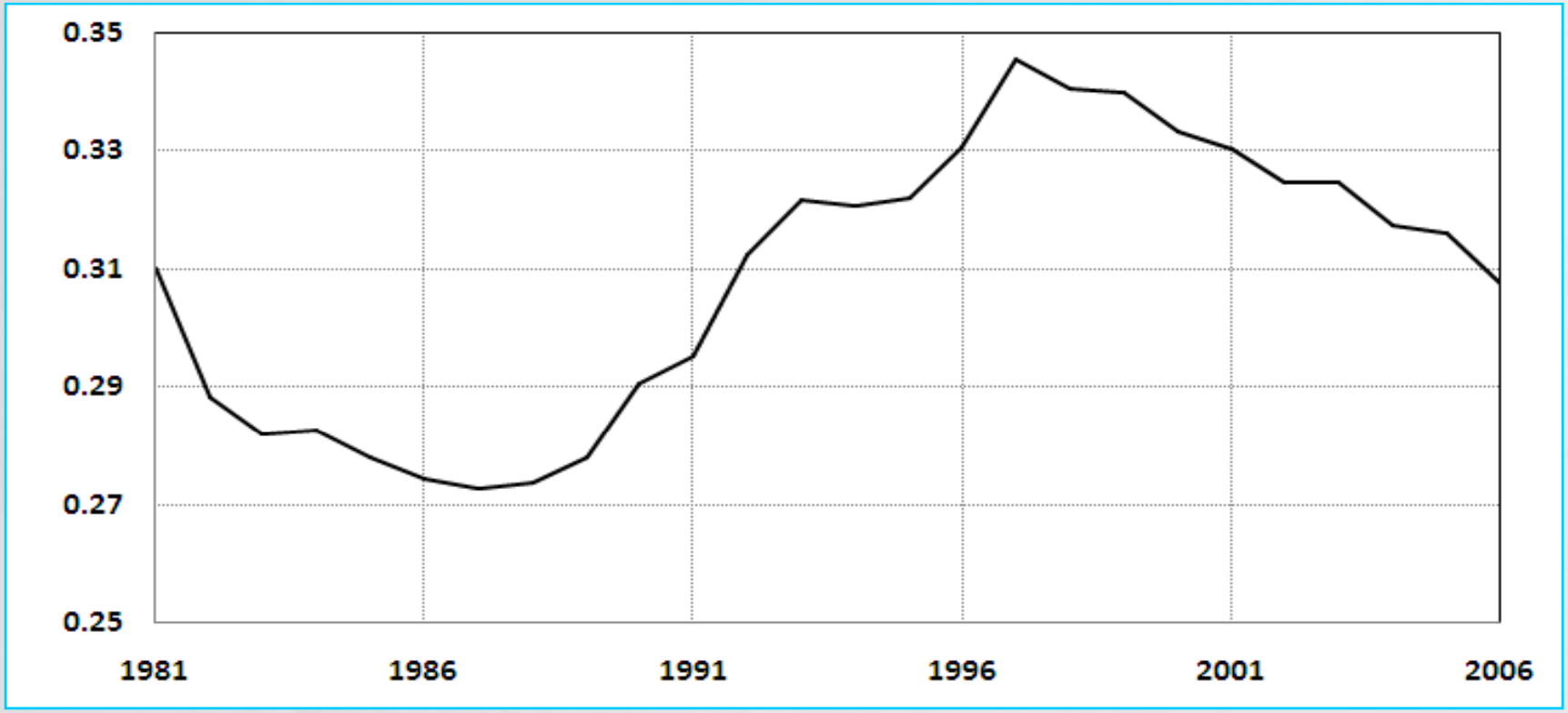
- Energy Consumption in Trend and Projection
- Policies and Measures for Energy Efficiency Improvement in Industrial Sector
- Energy Efficiency policies w/Climate Change Policy

Final Energy Consumption by Sectors

(Unit: Thou. TOE)

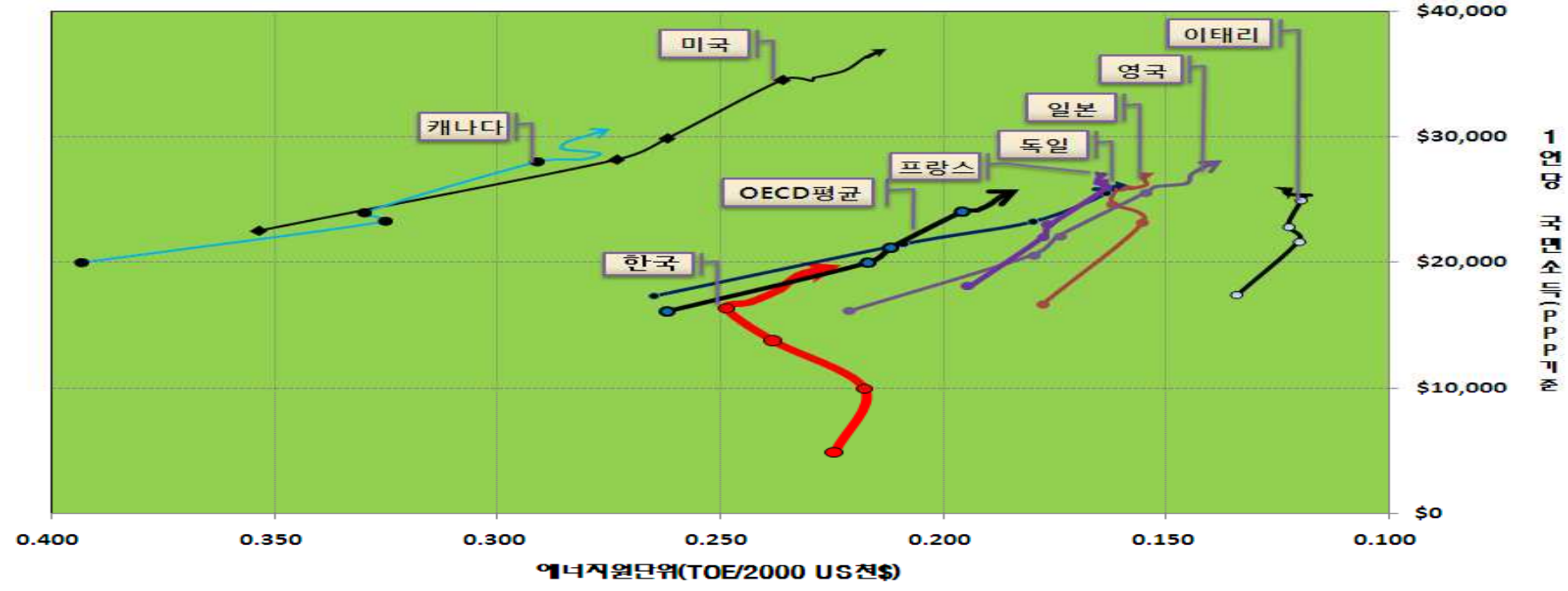
	1991	1996	2001	2006	Growth Rate/year (%)		
					91-96	96-01	01-06
Industrial Sector	42,914 (51.2)	67,868 (51.4)	85,158 (55.7)	97,235 (56.0)	9.6	4.6	2.7
Transportation	16,156 (19.3)	29,792 (22.6)	31,909 (20.9)	36,527 (21.0)	13.0	1.4	2.7
Household, Buildings	21,919 (26.2)	31,713 (24.0)	32,893 (21.5)	35,986 (20.7)	7.7	0.7	1.8
Public Sector	2,813 (3.4)	2,659 (2.0)	2,989 (2.0)	3,836 (2.2)	-1.1	2.4	5.1
Total	83,803 (100.0)	132,033 (100.0)	152,950 (100.0)	173,584 (100.0)	9.5	3.0	2.6

Trend of Energy Intensity Indication



- Energy Intensity Indicator (TOE/M won): steady decreases since 1998.
  - Annual improvement rate of 1.4% for the last 5 yrs(2001~06)
  - High Share of Manufacturing Industry(29% in 2005 cf. Japan(22.5%)) and Energy Intensive Industries(28.3%, Japan(20.9%))

Int'l Comparison of Energy Intensity w/ per capita GDP



Data: Energy balances of OECD country 2003-2004, 2006.
KEY WORLD ENERGY STATISTICS from the IEA in 2005, 2007

- Energy Indicator Improvement w/ Increase in per Capita Income.
- Showing Above Average Energy Intensity, but Following Other Countries' Path

Recent Changes in Energy Consumption Sectors

Sector	'02	'03	'04	'05	'06(p)	AAGR(%)	
						'02~'06	'05~'06
Industrial Sec.	89.2	90.8	93.0	94.4	96.0	1.9	1.7
Transportation	33.8	34.6	34.6	35.6	36.6	2.0	2.8
Household/Commercial/Public Sec.	37.5	38.6	38.4	41.0	40.8	2.1	△0.3
Total	160.5	164.0	166.0	171.0	173.4	2.0	1.5

- Stabilization of Energy Consumption in Industrial Sector
  - Decrease in Share of Energy Intensive Industry from 31.1%('02) to 26.4%('06)
  - Higher Growth of High Value Added Industries s/ IT Industry
- Transportation & Household/Commercial/Public Sector: still showing high growth

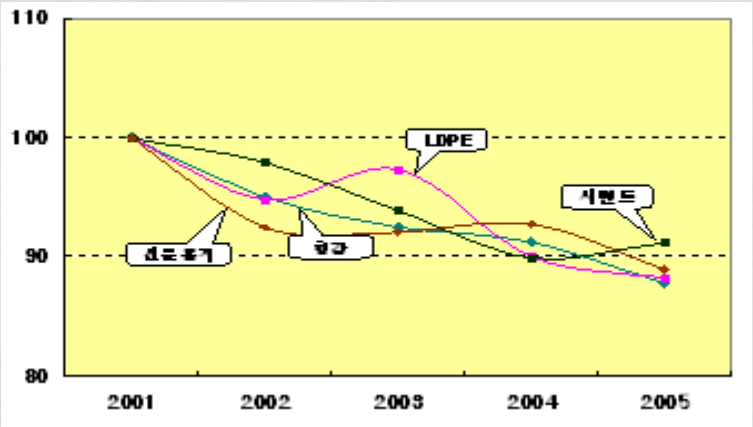
Forecast of Energy Consumption by Sectors

Sector	2006	2012	2017	AAGR		
				06-'12	12-17	06-17
Industrial Sector	97.2 (56.0)	111.9 (54.7)	125.3 (54.5)	2.4	2.3	2.3
Transportation	36.5 (21.0)	42.4 (20.8)	47.5 (20.7)	2.5	2.3	2.4
Household, Commercial, Public Sector	39.8 (22.9)	50.1 (24.5)	57.0 (24.8)	3.9	2.6	3.3
Total	173.6	204.4	229.8	2.8	2.4	2.6

- Share of Industrial Sector Decreasing from 56% to 54.5%.
- Industrial Sector Showing AAGR of 2.3% Lower than That(4.5%) of GDP
  - Efficiency Improvement and Larger Share of Service and High Value Added Industry

Policies to Improve Energy Efficiency(I)

- Voluntary Agreement
  - Firm/Plant(> 2 TMTOE): Voluntarily Preparing Energy Efficiency Improvement Plan and Committing itself to Achieve Target
  - Government: Providing Fund at Preferential Interest Rate and Tax Credit
  - Voluntary Agreements made : 1,353 Plants(1.64MMTCO2/yr)as of Dec. 2006
    - 532('02)→686('03)→1,021('04)→1,288('05)→1,353('06)
  - Introduction of Negotiated Agreement : Involvement of Government in Planning and Setting Target Stage



Improvement of Energy Intensity (MMTE/Ton)

-Paper : 11.1%, Cement : 8.9%, Section Steel : 12.2%, Low Density Poly Ethylene: : 11.8%

- Steel : Korea: Japan: USA: EU = 105:100:120:110
- Cement : Korea: Japan: USA: EU = 131:100:177:130

Policies to Improve Energy Efficiency(II)

- Energy Audit and Management of Energy Use
  - Evaluation of Energy Efficiency, Technical and Economical Analyses of Energy Facilities, Recommendations of Energy Conservation Opportunities
  - Mandatory Audit for Energy Intensive Use Plants : > 2 TMTOE, Every 5 years
  - Free Audit for the Mid- and Small- Size Firms

<Potential Fuel and Cost Savings through Energy Audit and Inspection in 2004>

Type	Company	Energy Consumption		Saving Rate(%)		Fuel Savings		Cost Savings (million Won/yr)	Investment Cost (million won)	Payback Period (yr)
		Heat (TOE/yr)	Electricity (MWh/yr)	Heat	Electricity	Heat (TOE/yr)	Electricity (MWh/yr)			
In-depth Audit	113	3,033,033	2,258,300	10.4	6.2	315,717	140,326	129,542	241,869	1.9
Free Audit	350	175,694	471,174	8.7	6.5	15,346	30,406	7,992	14,059	1.8

Source: www.kemco.or.kr

Policies to Improve Energy Efficiency(III)

- Demand-side Management by Energy Suppliers
  - Rebates, Cash-Back (5% decrease in Electricity Use in Household)
  - Considering Mandatory Efficiency Improvement Target to the Suppliers.
- Promotion of ESCO Firms and Projects in Industrial Sector
  - Initially for CHP, but extended to include process control, waste heat recovery facilities and cooling and heating systems, as well as process improvement.
  - Financial Incentives to ESCO Firms and Projects
    - Budget :('04)83.1Billion Won→('06)133.3Billion Won→('07)147.4Billion Won
    - Interest Rate for Loan: ('04)5.25% →('05) 3.0% → ('06) 3.0%
    - Working Capital Loan for Mid-Small ESCO firms
  - Introduction of Performance Guarantee and Developing Human Resources/Expertise

Policies to Improve Energy Efficiency(IV)

- Financial Incentives for Investment on Energy Conservation Projects
  - Increase in Size of Fund for the Investment on Energy Conservation Projects
    - ('01)386.9Billion Won → ('03)477.3Billion Won → ('06)644.6Billion Won→ ('07)640.2Billion Won
  - Promotion of Loan from Commercial Banks to Mid-Small Size Firms
    - 30% of the fund (137.4 billion Won) for rational use of energy allocated to the mid-small size firms in 2005
    - Preferential treatment of the mid-small size firms : 90% of the budget of the projects and 70% of ESCO fund
  - Increase in Tax Credit for Investment to 10% from 7% as of January 2005.

Policies to Improve Energy Efficiency(V)

- Standards and Certification
  - Increase in Number of Certified Energy Instruments(34 to 37 products)
    - Turbo blower, Condensing Burner, Motor, Boiler etc.
  - Minimum Standard for Electric Motor (Consuming 40% of Electricity)
  - The 7-Runners Program : R& D of Technology
    - Efficiency Improvement Target(to 2012): Boiler(89%→95%), Electric Motor(85%→90%), Furnace(40%→60%), Dryer(50%→75%) etc.
  - E-top Program (Planned)
    - Energy Intensity Standards at the World Top Established for 30 Heavy Energy Using Instruments at the
    - Contracts with businesses on their goals and deadlines for efficiency improvement and provide financial supports at the favourable interest from 3 percent to 2 percent.

Further E.E. Improvement in Kyoto Mechanism

- CDM Projects
  - Bi-lateral and Uni-lateral CDM Projects
  - 12 Projects, CERs(13MMTCO2/yr, 10% of Global CERs, 2007.4)
  - Active Identification of CDM Projects
- Launching 1st Carbon Fund
  - Investment on CDM Projects, CERs and AAUs
  - Initial Size : 200 Billion Won
- Voluntary Emission Trading within a Firm
- Credit as Early Action and Government Purchasing of KCERs in National Registry

Thank You for Your Attention!

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