POLICY UPDATE

KOREA'S ENERGY EFFICIENCY STRATEGIES

IN THE CONTEXT OF GREEN GROWTH POLICY

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MINISTRY OF KNOWLEDGE ECONOMY

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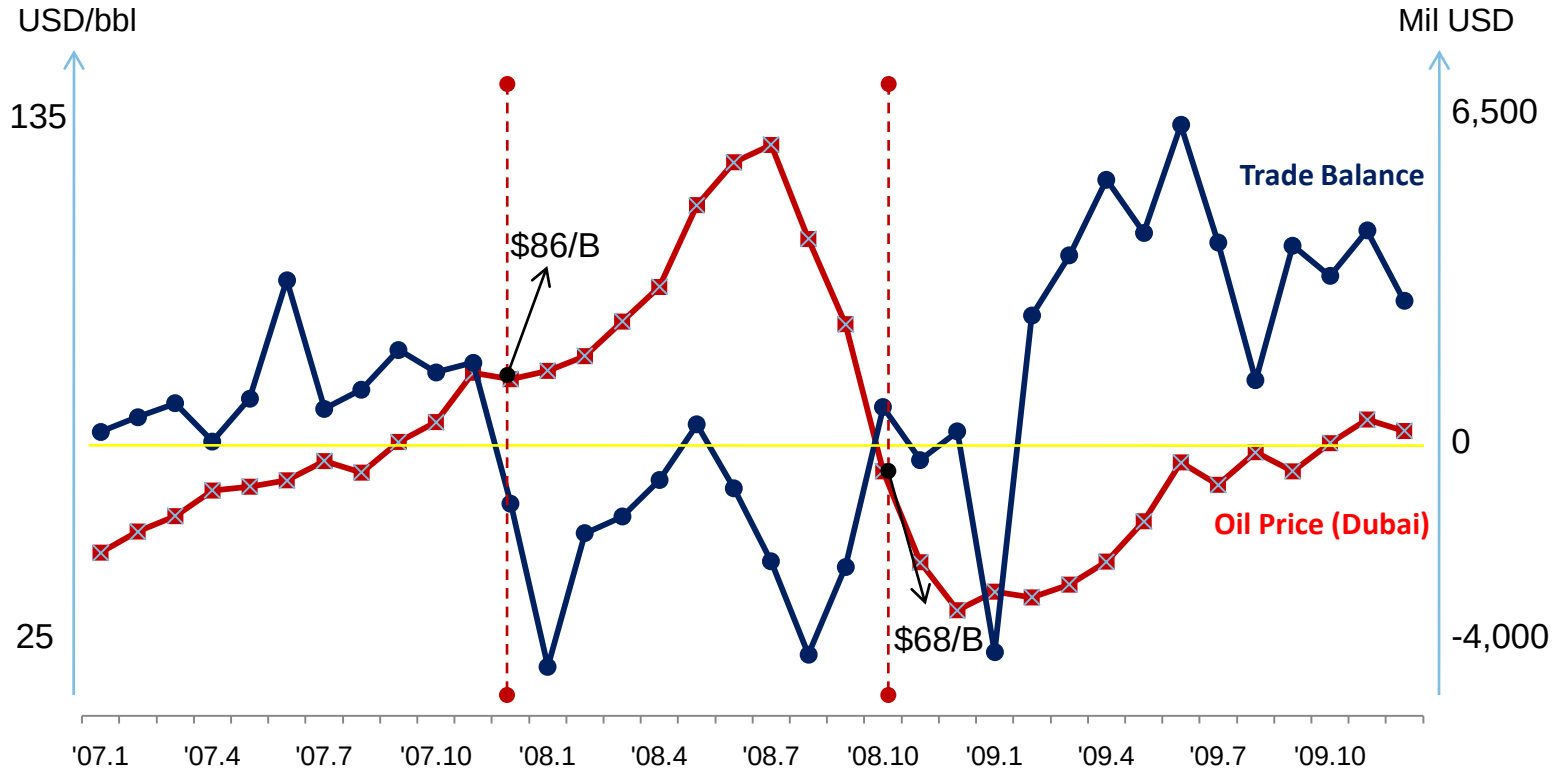
I. BACKGROUND (1)

Higher oil prices can adversely affect Korea's trade balance.



- OPEC's reduction of oil production and the confidence on economic recovery allow oil prices to increase over $ 70/B in August 2009.
- In the long-term, oil prices are likely to stay high because of developing countries' growing demand.

(Samsung Economy Research Institute expects the price will reach $200/B in 2030.)

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I. BACKGROUND (2)

Strong energy saving policies are necessary to relieve higher oil prices' adverse impact on Korean Economy and to overcome the vulnerability due to Korea's high dependence on energy import.

Dependence of Energy on Overseas

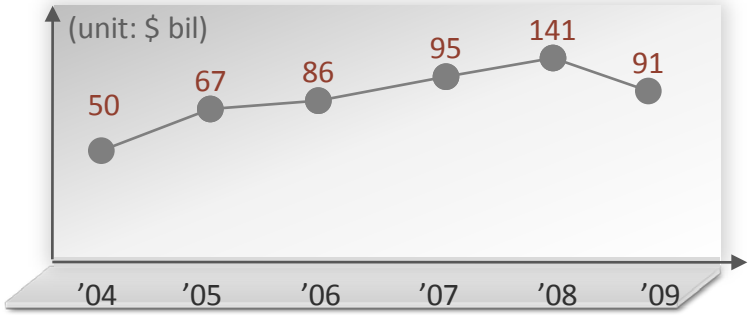
- Korea imported $ 142 bil of energy in 2008 and $ 91 bil in 2009, meaning that it depended 97% of energy on foreign countries.
- Korea spent one third of its export earnings on imported energy

* Korea's total exports: $ 422 bil in 2008, $ 323 bil in 2009

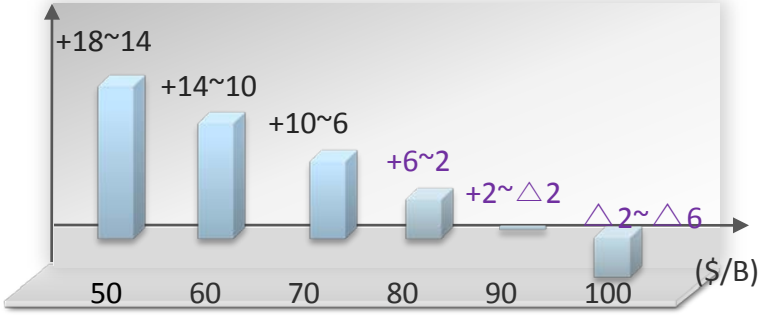
Current Balance & Oil Price

- Korea Development Institute (KDI) expects 10% increase in oil prices will decrease;
  - trade balance by $ 2 bil
  - consumption by 0.1 ~ 0.2%
  - GDP by 0.2%

<Energy Imports>



<Current Balance>



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II. Energy Consumption Trend in Korea (1)

Korea's energy intensity (Energy Consumption/GDP) is improving at a fast pace, but it is higher than that of the other OECD countries because of the large portion of energy consuming industries.

Energy Intensity

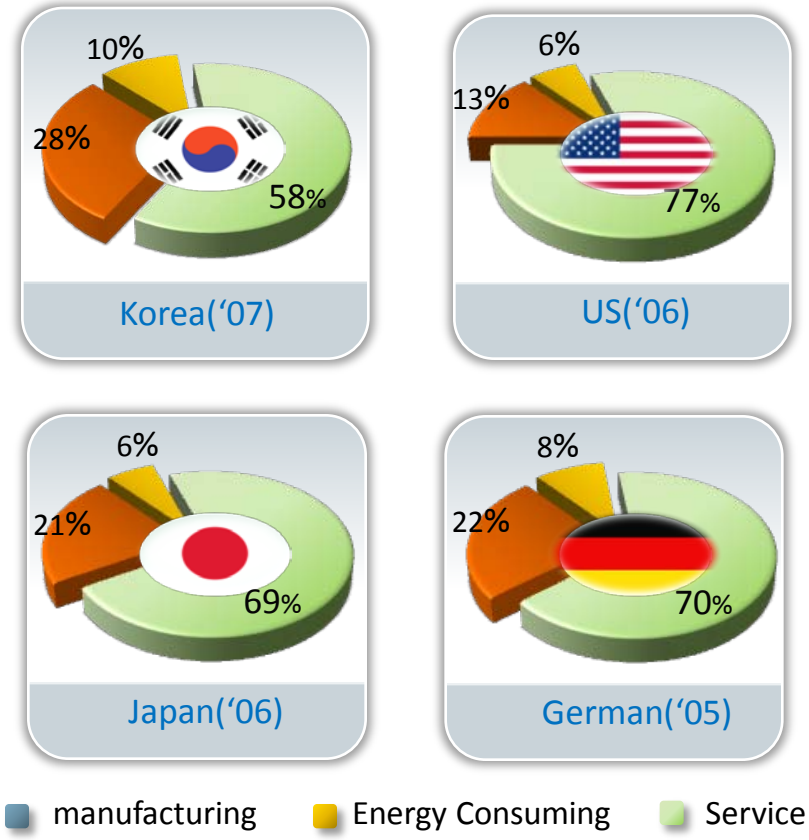
Country	Energy Intensity*	Change**
Korea	0.252	-2.40
US	0.198	-2.27
Japan	0.095	-1.56
UK	0.117	-2.74
German	0.160	-0.69
France	0.176	-0.69
Canada	0.306	-1.37
OECD	0.179	-1.50

* source: IEA 2009

*Energy Intensity = TOE / thd USD (2008)

** Change = annual percentage change rate from 2000 to 2007

Industry Structure



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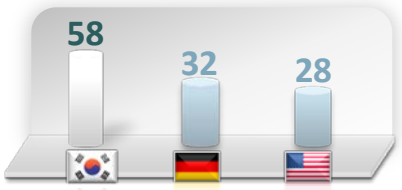
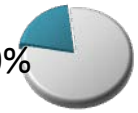
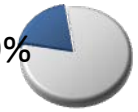
II. Energy Consumption Trend in Korea (2)

Industry Sector consumes energy the most among major sectors (industry, home, and transportation), but the net consumption except naphtha has been decreasing for the recent years.

Sectoral Energy Use

	Portion (09)	Annual Growth (00-09)	Compared with Others	Reason
Industry	59% 	2.7% (△0.06%, excluding naphtha)	<Sector's Portion> 	•persistent investment for energy efficiency
Home	20% 	1.2%	<Consumption/Capita>  Annual Growth (00-09)	•lower consumption level •lower energy prices
Transportation	19% 	1.5%	<Consumption/Capita>  Annual Growth (00-09)	•lower consumption level •increasing # of cars & distance/car

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III. Evaluation on Past Energy Policies (1)

Since Korea adopted various energy policies, The energy efficiency has been improved, however, the energy consumption has increased at higher rate than OECD countries'.

Energy Intensity

- The energy intensity (= TOE/thd USD) has decreased from 0.391 in 1997 to 0.252 in 2008.
- The growth of the GDP has been higher than that of the energy consumption since 2000.
- Annual Growth Rate ('97~'08):
  GDP (5.9%), Energy Consumption (2.6%)

<Energy Intensity>

Reason

- Annual Growth Rate of Energy Consumption: 2.73%

<Energy Consumption Growth, '97~'07>

- "Low energy price" policy prevents Korean people and companies from saving energy actively.
- Although home and transportation sectors ' energy consumption has increased rapidly, energy saving measures usually focus on industry sector.
- Policy priority for energy saving much depended on oil prices.

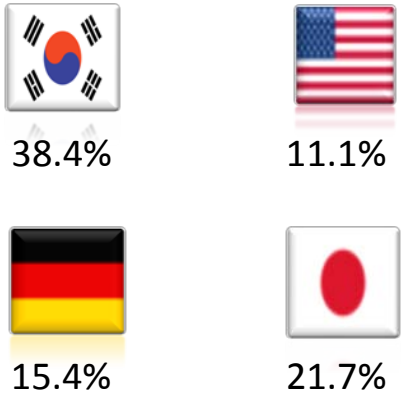
III. Evaluation on Past Energy Policies (2)

Even if Korea successfully implements the current measures for enhancing energy efficiency, it would be unlikely to reach OECD countries' energy intensity level in a short period due to industrial structure.

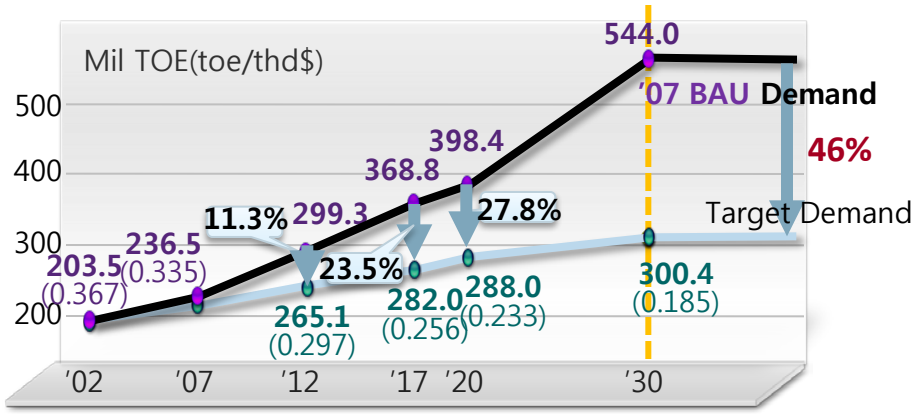
Industry Structure

- Korea's potential to reduce energy consumption would be small as energy consuming industries such as petro-chemistry and steel account for 38% of Korea's industrial energy consumption.

<Petro-chemistry & Steel / Total Industry ('08)>



Target Energy Intensity [1)]



- Korea aims to enhance the energy intensity 46% by 2030 (2.6% annually), the figure being higher than that of German, which has shown the highest improvement (1.8% annually).

- Nontherless, the target energy intensity is higher than the current energy intensities of Japan (0.104), and German (0.173).

1) National Energy Plan, 2008, National Energy Committee, Korea

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IV. Paradigm Shift in Energy Policy

Korean Government is systemizing the energy demand management with Energy Efficiency Policy.

	Past Energy Policy	New Paradigm for Green Growth Era
Policy Focus	•Stable & safe energy supply	•Active management of Energy Demand
System	•Irregular measures for energy saving	•Quarterly checking energy imports and consumption •Setting up energy saving targets by sector
Risk Management	•Untimely •Not enough measures	•To be timely, preparing regulations which can be enforced when necessary
Energy Price	•Maintaining low energy prices for commoners	•Properly reflecting on energy costs
Motivation	•Campaign, education, event, etc.	•Preparing policy mix of regulations & incentives for saving energy in daily life

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V – 1. Establishment of National Energy Demand and Supply Management System

Besides the stable energy supply, Korean Government will manage the energy demand as close as the current balance and also strengthen administrative supports.

Regular Reporting System

- Annually establishing "National Energy Demand Forecast and Supply Plan" and reporting it to Cabinet Meeting
  - Including the consumptions and saving plans by sector and energy source

Close Check of Import & Consumption

- Report energy consumption and import on a quarterly basis
- Preparing for super-high oil prices with phased contingency plan

Competition by Ministries

- Setting up the energy saving target led by each Ministry
  - The performance of each ministry will be reported to the President

Enhanced Administrative Supports

- launched a new organization, Energy Efficiency Bureau in the competent Ministry (MKE)
- Initiated a new division specializing in energy efficiency in each Ministry

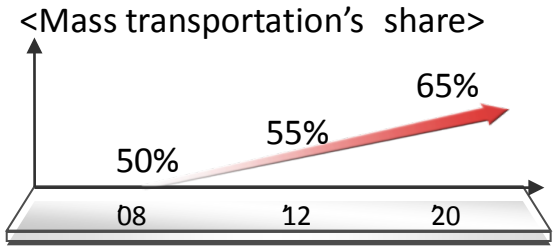
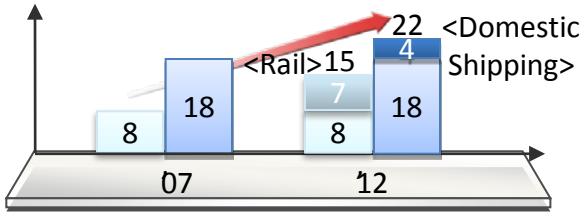
V – 2. Improvement of Fuel Efficiency

Intensified regulations and incentives will be provided to enhance the average fuel efficiency of cars to the developed countries' level.

	As-is	To-be
Fuel Efficiency Standard	•Current Standard (*km/l*): - 12.4 (below-1,600cc) / 9.6 (over-1,600cc) •Other Countries' Standard: - the US: 11.7 (16.6 since 2016) - Japan: 6.4~21.2 (7.4~22.5 since 2015)	•New standard since model year 2012: 17 *km/l* - phase-in: 30%('12) → 60%('13) → 80%('14) → 100%('15)
R&D Smart Green Car	•R&D focusing on hybrid car	•Aiming to improve fuel efficiency by 5% annually (tire, light material, eco-driving) •Promoting collaboration among car manufacturers and part suppliers
Spreading Clean Diesel Car	•Temp. & partial tax cut (environment tax) - EURO 4: 50% for 3 years - EURO 5: 100% for 5 years	•Pursuing the full exemption for EURO 5 permanently
Eco-driving Package	•Package composition - Tire Pressure Monitoring System (TPMS) - Idle Stop & Go / - Eco-driving Guidance	•Strongly recommending the package to be equipped •Expecting 8% improvement

V – 3. SHIFT TO HIGH-EFFICIENCY TRANSPORTATION

Expanding voluntary agreements, Korean Government is promoting mass transportation and domestic shipping, which have higher energy efficiency.

	From -> To	Policy	To-be
Passengers	Car ↓ Mass Transportation	•Voluntary Agreement between Central and Local government - Central Government will decide the amount of subsidies depending on the savings	
Freight	Truck & Road ↓ Rail way & Domestic Shipping	•Voluntary Agreement between shippers, logistics companies, and government •Legislated Act for Logistics for Sustainable Growth in 2009 (Ministry of Transportation and Marine Affairs)	

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V – 4. Normalization of Energy Saving in Home & Building Sector (1)

Korean Government is adopting more active policies of tax and incentive system for more energy-efficient life at home.

Promotion of Energy-efficient Goods

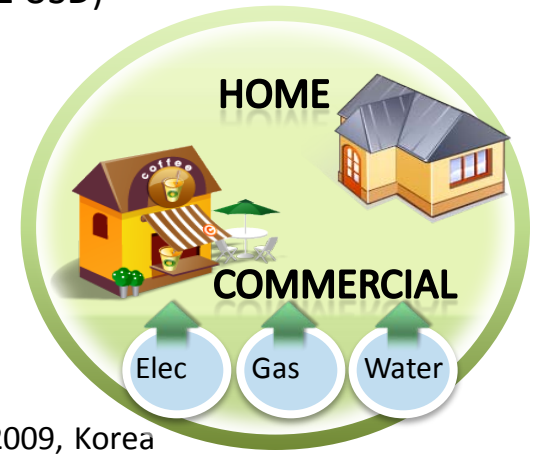
- Tax: increasing tax on energy consuming home appliances
- Promotion: using increase in tax revenues for subsidizing low-income people to purchase goods with high energy efficiency

<Japan Case>

- The government is providing eco-points for buying energy saving products (5~10% of purchasing price)
- METI's Budget: 295 bil yen

Expanding Carbon Point [1)]

- Ministry of Environment (ME) provides Carbon Points according to activities to reduce GHG.
- Pilot project is applied to 20 local governments such as Suwon city
- Carbon Point is expanded national-widely in July 2009.
- 10*Kg* (23.6KWh of electricity) = 1 point = 200 ~ 500 KRW (= 0.2 USD)



1) Ministry of Environment, 2009, Korea

V – 4. Normalization of Energy Saving in Home & Building Sector (2)

To improve energy efficiency of buildings and houses, tax system and subsidies for low-income people are being strengthened.

Incentive & Regulation to Building

Incentives (building with high efficiency)

- Relieving regulations on floor space index, height, and landscape requirements by max 6%
- Exempting local tax

Regulation (new construction)

- Must be equipped with cutoff system of standby electronic power
- Must announce the degree of energy efficiency
- Must limit energy consumption per space

Support for Low-income People

- Supporting for improving boilers, heat insulators, and window & doors
- Increasing Lottery Fund to extend beneficiaries (budget: $ 30 mil/70 thousand household)

V – 5. Normalization of Energy Saving in Industry Sector

Stronger and direct regulations will be required to larger energy consuming companies while supports and incentives provided for small and medium sized enterprises.

	Plan
Negotiated Agreements For Energy & Carbon Reduction	•Government and companies will negotiate the energy saving targets •Depending on whether the companies succeed in achieving the targets, penalties or incentives will be provided •Pilot project:38 companies (2009) applied to energy consuming companies (20,000+ TOE) - Target: reducing 1.7% of the BAU energy consumption in 2010 ((11) 2.7% -> (12) 3.7%) • will be extended to over 500,000 TOE in 2010, over 50,000 TOE in 2010, over 20,000 TOE in 2012
Energy Supporter	•A supporter is designated for 20 small-and-medium sized companies (SMEs). •The supporter with a license regarding to energy saving , helps SMEs establish energy plans and purchase energy saving equipments.
Free Energy Check	•Energy Management Corp. is checking the energy consumption status of SMEs and find solutions for improving efficiency. •Government is supporting the SMEs by providing low interest loan program.

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V – 6. Normalization of Energy Saving in Public Sector

Although the public sector spends only 2% of the total energy, stronger regulations are enforced to the sector to show the leadership of energy saving.

Green Government Complex

Obligation of Purchasing 1st Grade Product

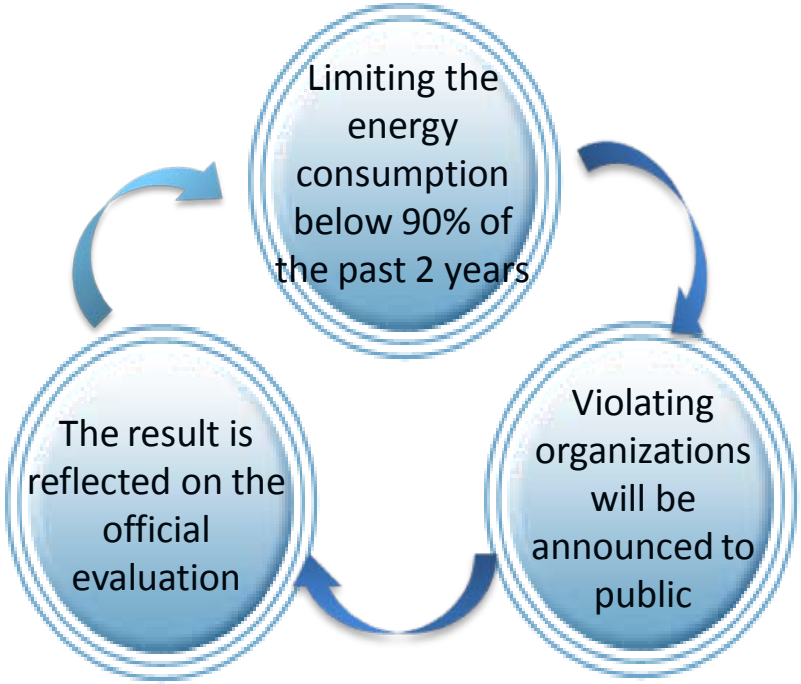
5,694 authorities

16 products

Green Complex

- Replacing LEDs for 30% of lightening system by 2012
- Local government should construct energy saving plan and target.

10% Saving Target



V – 7. Support R & D of Energy Efficient Products and Technologies

In terms of energy efficiency, low efficiency products should be replaced with Energy Frontiers, and the supports for R&D of energy saving technologies would become reinforced.

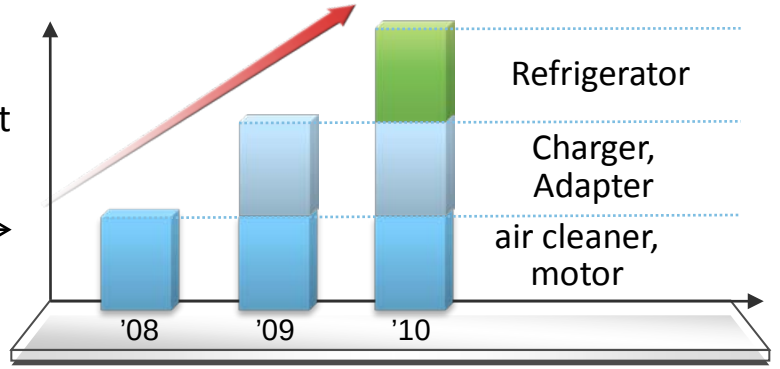
Plan

Energy Frontier of appliances

- concept: promoting appliances to become as energy-efficient as the most efficient products
- 2010: pilot project on air conditioner -> reviewing the feasibility of applying Energy Frontier to others such as refrigerator and washer

Retiring Product with Lowest Efficiency

- Phasing out glow lamps by 2013
- Heightening the energy efficiency requirement
- expanding products which the requirement is applied to →
- Attentive Label on high standby electricity products: computer, set-top box. etc ('09)



R&D Support

- 4 year 50% corporate tax cut for SMEs to develop energy saving technologies
- Selecting 7 energy consuming facilities to focus on R&D resources (boiler, motor, light, home appliance, etc.)
- improving generation efficiency from 38% in 2008 to 40% in 2010

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V – 8. Normalizing Market Function with Energy Prices

To recover the function of the energy market, Korean Government will increase the prices and help people recognize their costs more clearly.

Energy Price

Normalizing Electricity & City Gas Price

- reflecting appropriate production costs
- Electricity: constructing "Price Schedule Improvement Plan"
- City Gas: linking the price with the costs

Changing the Pricing Mechanism

- As-Is: fixed by Government
- To-Be: reflecting the resource prices
- Expectation: when high oil prices, the energy demand would be oppressed such that the current balance would be improved

Price information

Reforming Bill Papers

- Additional Information:

  - price/unit, consumption growth, energy consumption composite, etc

IT Application

- Spreading smart voltameters

  - 8,000 households ('09)
    -> 20,000 households('10)
  - obligation to new constructions

Changing Energy Efficiency Label

- Including expected energy costs

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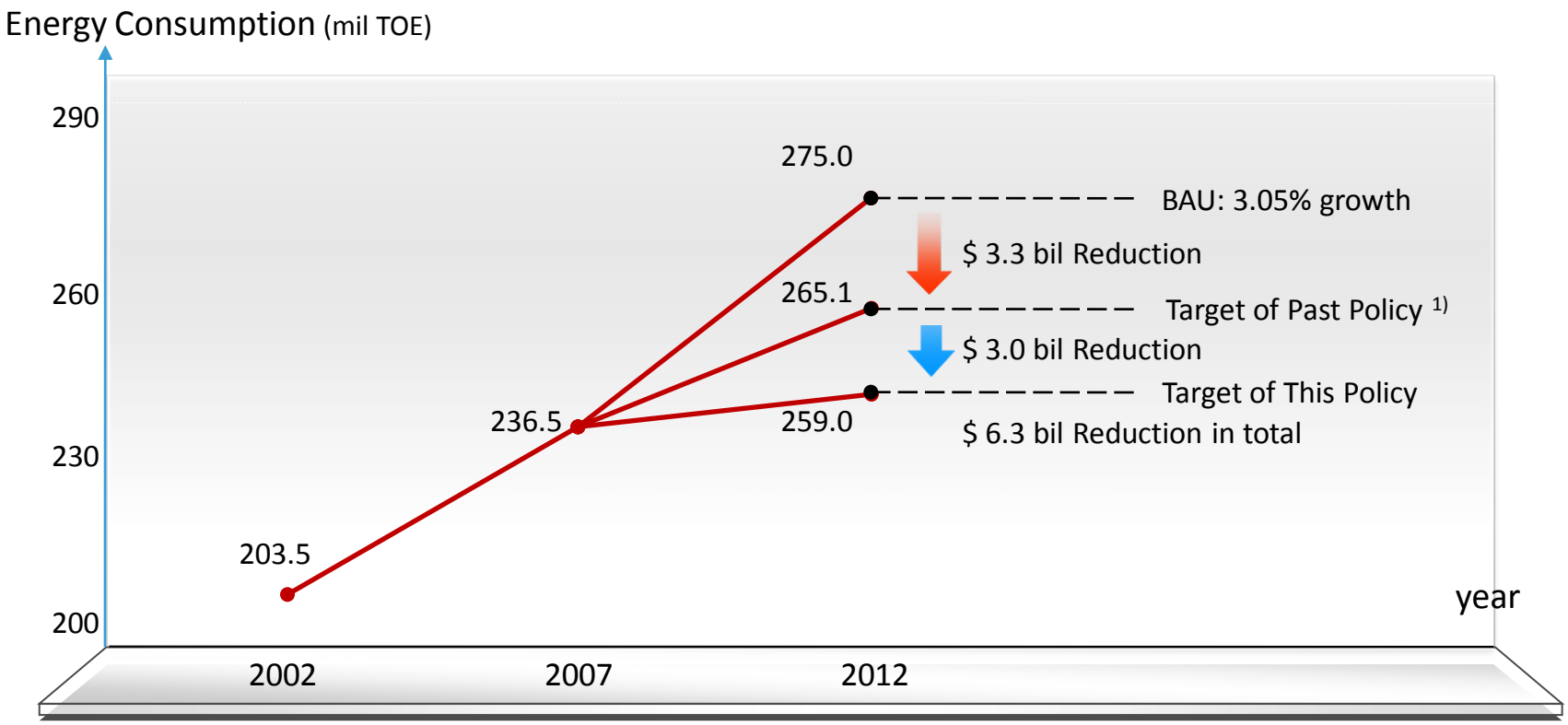
V – 9. Expected Results

The Energy Demand Management Policy is likely to reduce additional 6.1 million TOE of the energy consumption in 2012 (equivalently, increasing $ 3 billion in the trade balance).



1) Energy Use Rationalization Plan, 2008, MKE

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The End

Thank You !

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