Asia ESCO
Conference 2010

# ESCO system in Korea

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**Huh, Su-Young**

**KEMCO**


KOREA ENERGY
MANAGEMENT CORPORATION

# Contents

# 1 What is KEMCO

# KEMCO's Objective & History

KOREA ENERGY
MANAGEMENT CORPORATION

## Objective

- Korea Energy Management Corporation seeks to implement projects efficiently for the rationalization of energy use, thereby reducing carbon dioxide emission and contributing to the sound development of the national economy.

## History

- **1980.07** : Korea Energy Management Corporation established
- **1987.12** : Alternative energy development promotion act promulgated
- **1992.01** : ESCO system established
- **2003.02** : New & Renewable Energy Center established
- **2005.11** : DOE (Designated Operational Entity) accreditation by UN for CDM projects

# KEMCO's Major Functions & Businesses

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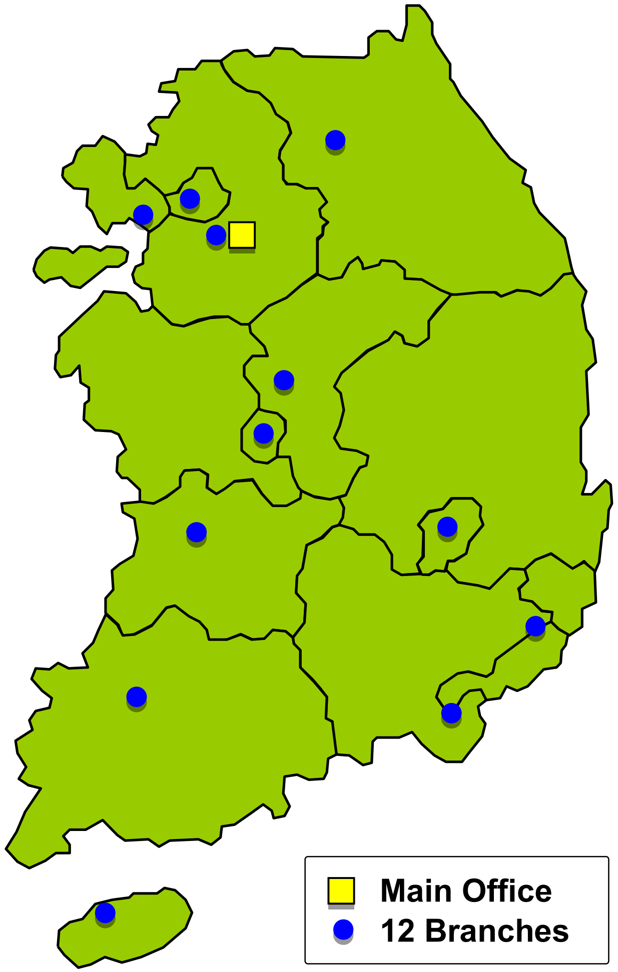


## Functions

### Supply support project

- Energy-saving education
- Energy service company (ESCO)
- Helps with funds and taxation

### Technology development

- New & Renewable energy development
- Energy support, technology development
- Group energy supply/ small combined heat and power

### Foundation forming project

- Energy saving in building/transportation
- Countermeasures against the convention on climate change
- Discussion on energy use plans
- Korea Energy Show
- Energy Saving through Partnership (ESP)
- Voluntary Agreement (VA)

### Consulting business

- CDM project
- Inspection of heat-using machinery
- Energy diagnosis system

# 2 Energy Conservation Fund

# Korea's Financial Support System

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## Overview

- **Loan**

  : long term, low rate of interest loans for investing in energy efficiency & conservation facilities

- **Energy Conservation Fund established in 1980**

- **Tax incentives**

  : 20% tax deduction (income tax or corporation tax) for investments of energy efficiency & conservation facilities

- **Managed by MKE(government) and operated by KEMCO**

# Loan Scale in 2010

KOREA ENERGY MANAGEMENT CORPORATION

## ● Loan Scale in 2010

| Category | Projects | Budget (million USD) |
|---|---|---|
| Energy Conservation Fund | Installation of Energy-saving Facilities | 172.3 |
| | Voluntary Agreement(VA) | 116.7 |
| | ESCO | 112.5 |
| | Integrated Energy Supply | 25 |
| **Total** | | **426.5** |

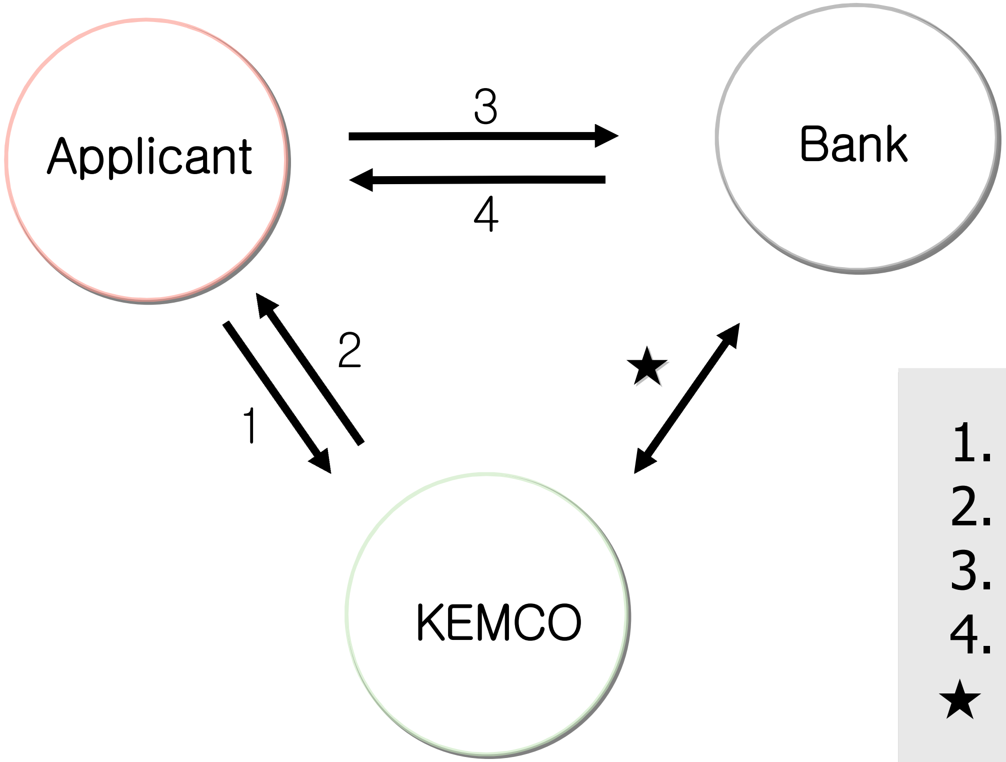
(1 USD≒1,200 WON)

✓ **Rate of interest : about 3% (variable)**

✓ **Repayment period : 4~10years (according to facilities or projects)**

# Loan Procedure






1. to apply
2. to recommend
3. to apply for the loan
4. to give the loan

★ lend agreement

✓ Applicants apply for recommendation to KEMCO.
✓ KEMCO decides whether applicants can get a recommendation or not.
✓ Applicants can use the recommended loan though the bank.
✓ There is a lend agreement between KEMCO and banks

# Tax Incentives



## Tax Incentives

- **Tax Incentives for energy efficiency investments.**
  - ✓ The replacement or installation of the facilities and equipment was qualified for 10 percent of income tax credit from 2005 to 2008.
  - ✓ **20% tax deduction in 2009, 2010 (planning)**
- **The tax credit is available for next facilities**
  - ✓ Replacement of old industrial kilns
  - ✓ Installation of energy-saving facilities
  - ✓ Alternative fuel-using facilities
  - ✓ Other facilities

# 3 ESCO system

# ESCO system in Korea



## Overview

- **Korea ESCO System has been operated since 1992**
- **ESCO must be registered before applying for a recommendation**
  - ✓ by Article 25 of the Energy Use Rationalization Act (Support for ESCO)
- **126 ESCOs have registered as of 2009.11**
- **But, The number of active ESCOs is about 30~40**
- **Almost all of Energy Performance Contracting model is the Shared Savings model** (about 98%)

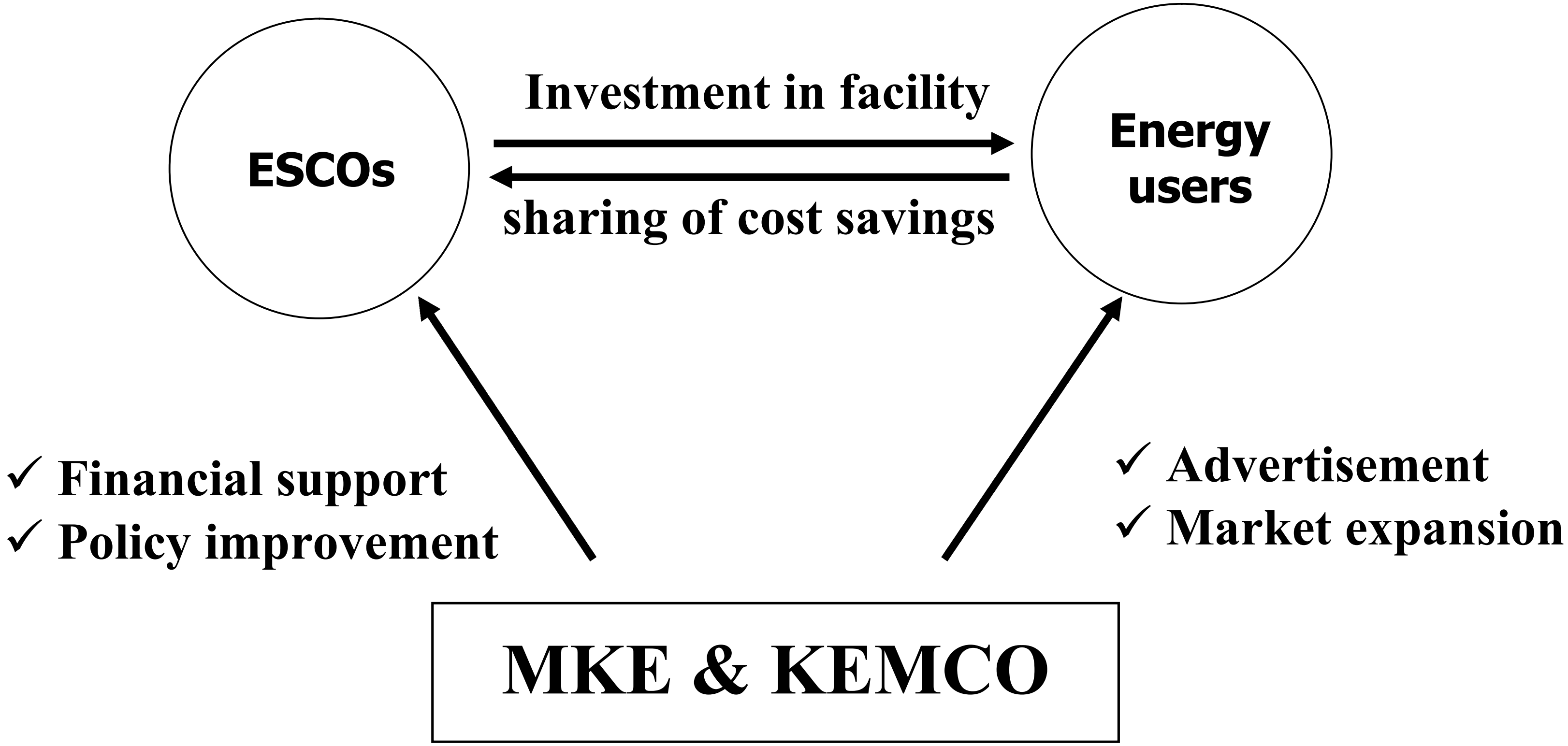
# Policies for Supporting ESCOs



| | |
|---|---|
| 1992 | • Start with 4 Energy Service Companies |
| 1998 | • Operating Fund (Fund for small & medium sized ESCOs) |
| 1999 | • Factoring system Introduction |
| 2004 | • Guaranteed savings contract model started |
| 2006 | • Excellent ESCO : accreditation program to superior ESCO |

# System of Supporting ESCO






- ✓ **Korea is trying to advance ESCO systems and expand ESCO markets**
- ✓ **Korea is trying to inform and encourage ESCO systems to energy users**
- ✓ MKE : Ministry of Knowledge Economy, KEMCO : Korea Energy Management Corporation

# The number of registered ESCO

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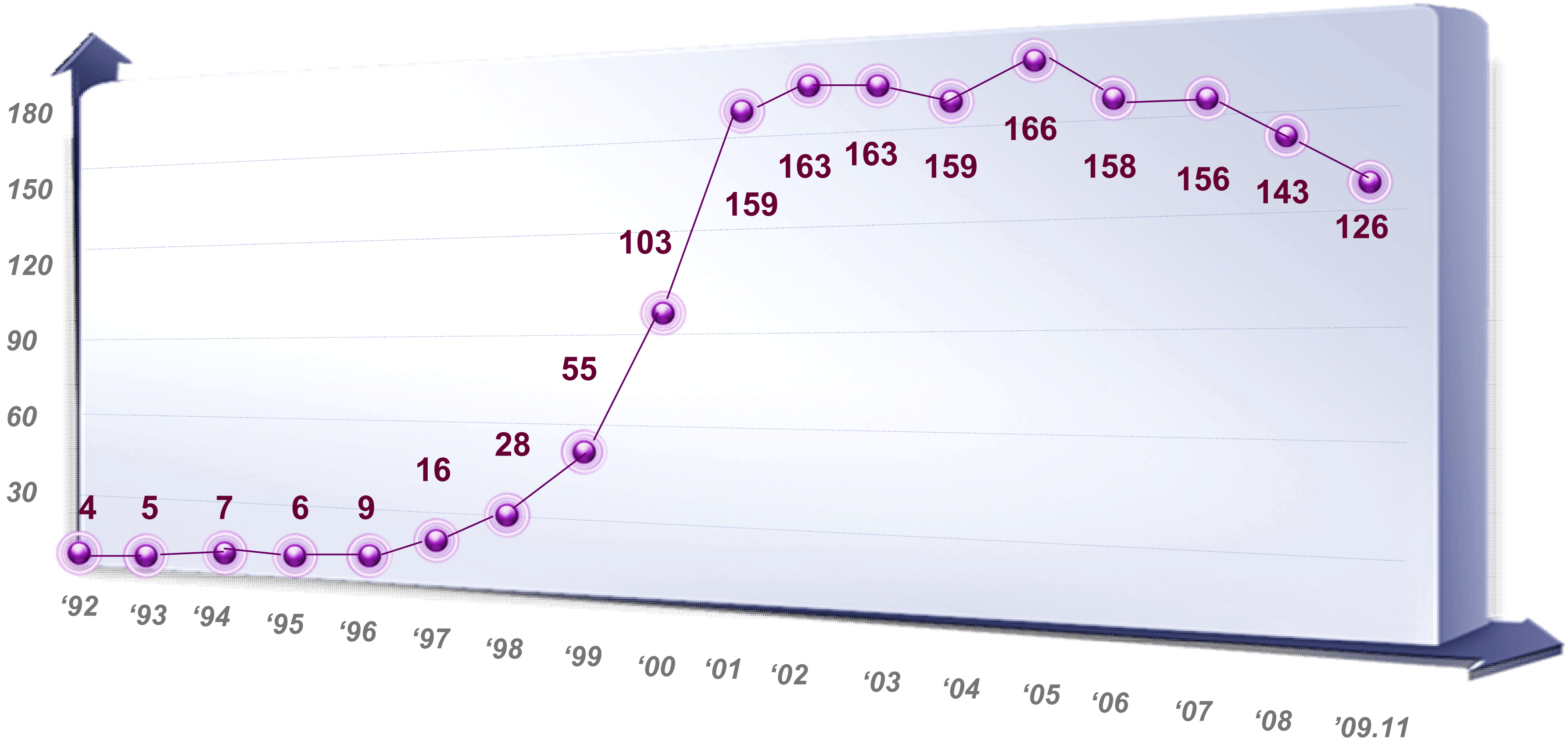


✓ **from 1997 to 2001, registry of ESCOs is dramatically increased**

✓ **On average, there are 130~160 ESCOs in Korea every year**

- Usually about 30 ESCOs are registered and about 30 ESCOs canceled every year

# Yearly investment performance

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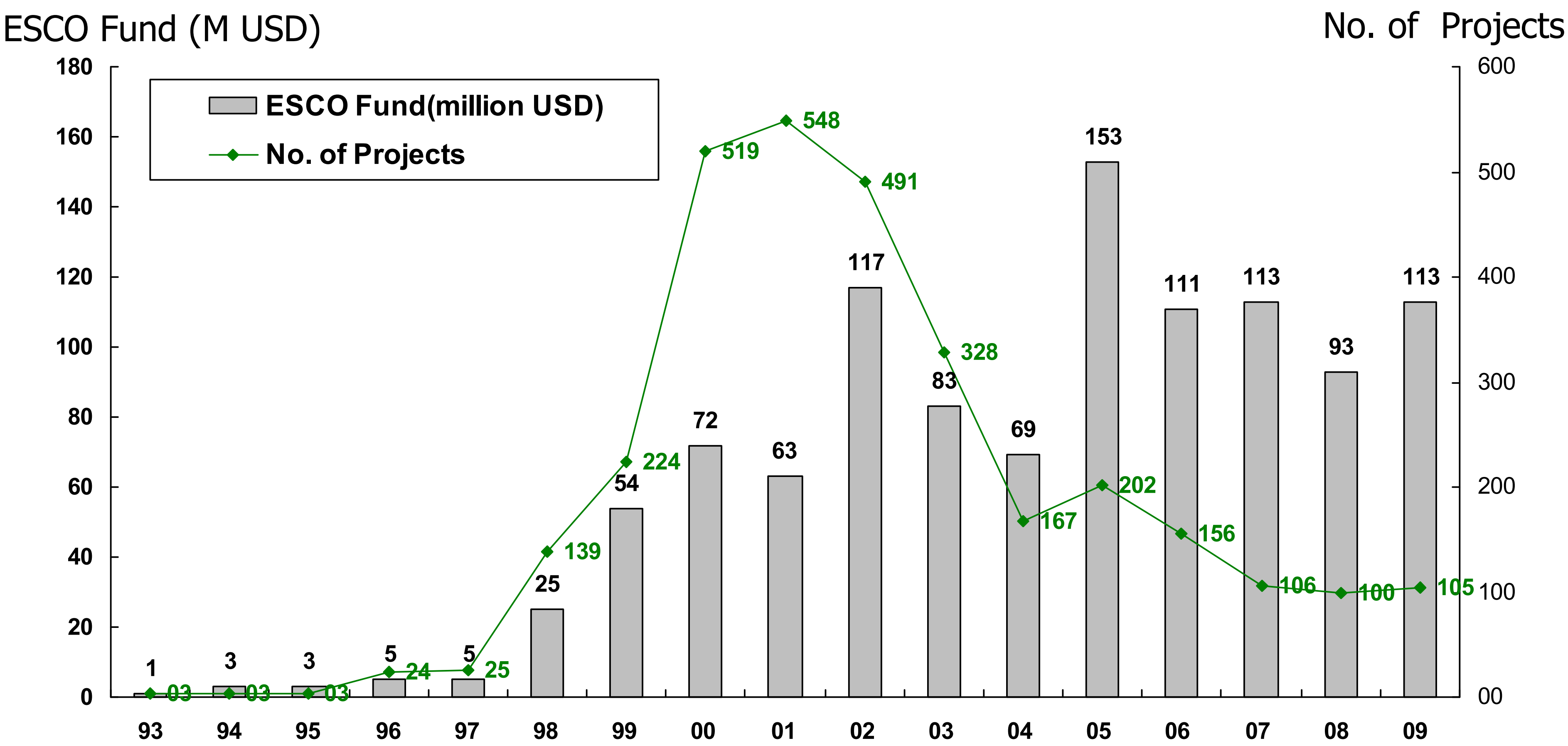


( 1$ = 1,200¥ )

✓ Investment had been limited to lighting systems in buildings until early 2000s, after that, it was diversified to large-scale Process Improvement, Co-Generation

✓ After 2001, the number of projects is decreasing.

# Investment by facility('93~'08)

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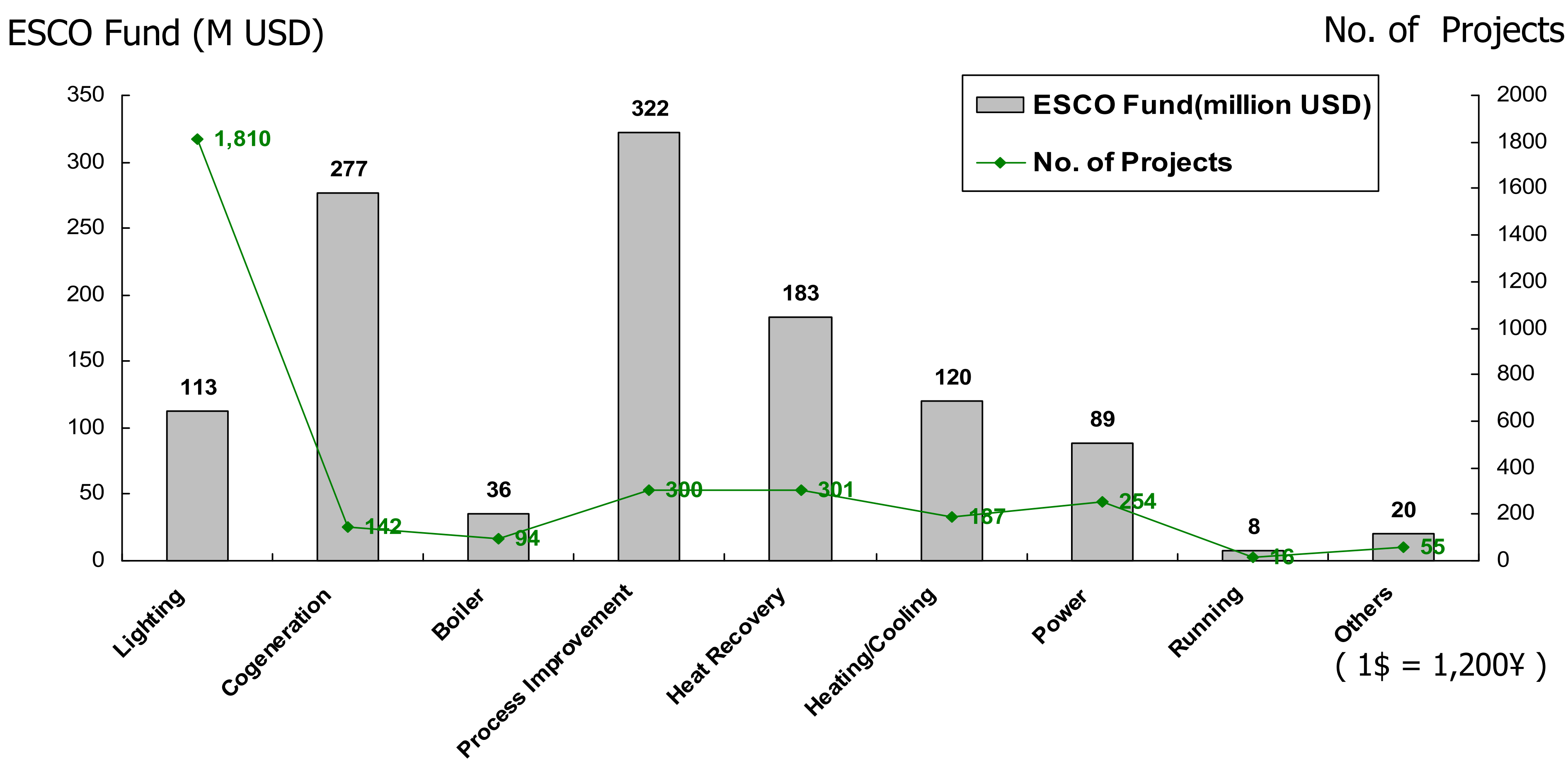


- ✓ Investment in Process Improvement and Co-Generation have big portions of the fund
- ✓ Each of Co-generation investment has a big mount of Fund

# Examples of energy conservation in Industry



**Waste Heat Recovery System**

- Heat Recovery Boiler
- Mechanical (Thermal) Vapor Re-compressor
- Heat exchanger for heating or cooling

**Process Improvement**

- Naphtha Cracking Heater Coil replacement
- Ejector type replacement (Steam ⇒ EG)

**Co-Generation**

- steam + electricity

# Examples of energy conservation in Building

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**In Building**

- Ice thermal storage system
- Lighting System
- Co-generation system
- Heat recovery system (AHU, Steam)
- GHP (Gas engine-driver Heat Pump)
- Inverter
- Individual Heating ⇒ District Heating (Apartment)

# 4 Conclusions and further considerations

# Conclusions

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## Conclusion

- **Korea imports 96% of energy source from other countries**
  - ✓ **Korea spends lots of money to buy oil, gas, coal, etc…**
  - ✓ **One of the best way to reduce the import costs is using energy saving facilities**

- **Korea has a Government Support System, when users (companies and people) want to install Energy Saving Facilities.**
  - ✓ **Long-term and low interest rate loans**
  - ✓ **Tax incentives**

- **There is an ESCO system, when the user can not replace or improve existing facilities due to technical or financial problems**

# Conclusions

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## Conclusion

- **Last five years Fund for the Rational Use of Energy**

| | ‘06 | ‘07 | ‘08 | ’09 | ‘10 |
|---|---|---|---|---|---|
| Total Fund | 537 | 514 | 566 | 486 | 427 |
| ESCO | 111 | 113 | 93 | 113 | 113 |

- **Because of Oil Price & Global recession, the Total amount of fund has been decreasing since 2008**
  - ✓ **But, Korea Government has “ An Activation Plan “**
    - **To advance ESCO systems and expand ESCO markets**
    - **To encourage ESCO systems to energy users**

- **Expect 167 million USD (↑ 50%) ESCO Fund by 2013**

Emblem Name : SeSe

Thank You

# 감사합니다


"Save energy, Save earth"

E_mail : ds1fus@kemco.or.kr

에너지관리공단
KOREA ENERGY MANAGEMENT CORPORATION