



New and Renewable Energy Technology Strategy of Korea

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Ministry of Knowledge and Economy(MKE)



Table of Contents

- **Overview : Energy R&D Policy of Korea**
- **Implementation : Action Plans for Technology
Innovation of Korea**
- **Achievements : Good Practices of Korea**



Overview :

Energy R&D Policy of Korea



Steps of Energy Innovation Policy in Korea

2009

Green Energy
Industry
development strategy

2010

Renewable energy
development strategy

Smart grid roadmap

Nuclear power plant
export strategy

2011

**2nd Green
Energy
Strategy
Roadmap**

**2nd National
Energy Tech.
Devel. Plan**

2012

Emission Trading
System

Green Energy Strategic Roadmap

Vision

**To become a leading country
in green energy market through technological innovations**

Strategies

1
Development
of core
components/
materials

2
Promotion of
SMEs

3
Increasing
synergy
effects among
technologies

4
Strengthening
the role of
public sector

5
Core
technology
development

**15
technologies**

**Energy
Production**
(9 technologies)

PV, Wind, Fuel Cell, Biofuel, Clean fuel, IGCC, CCS,
Clean Thermal Power Generation, Nuclear power

Energy Delivery
(2 technologies)

Smart grid, Energy Storage

**Energy
Application**
(4 technologies)

Green car, Highly efficient new light source,
Highly efficient buildings, Heat pump

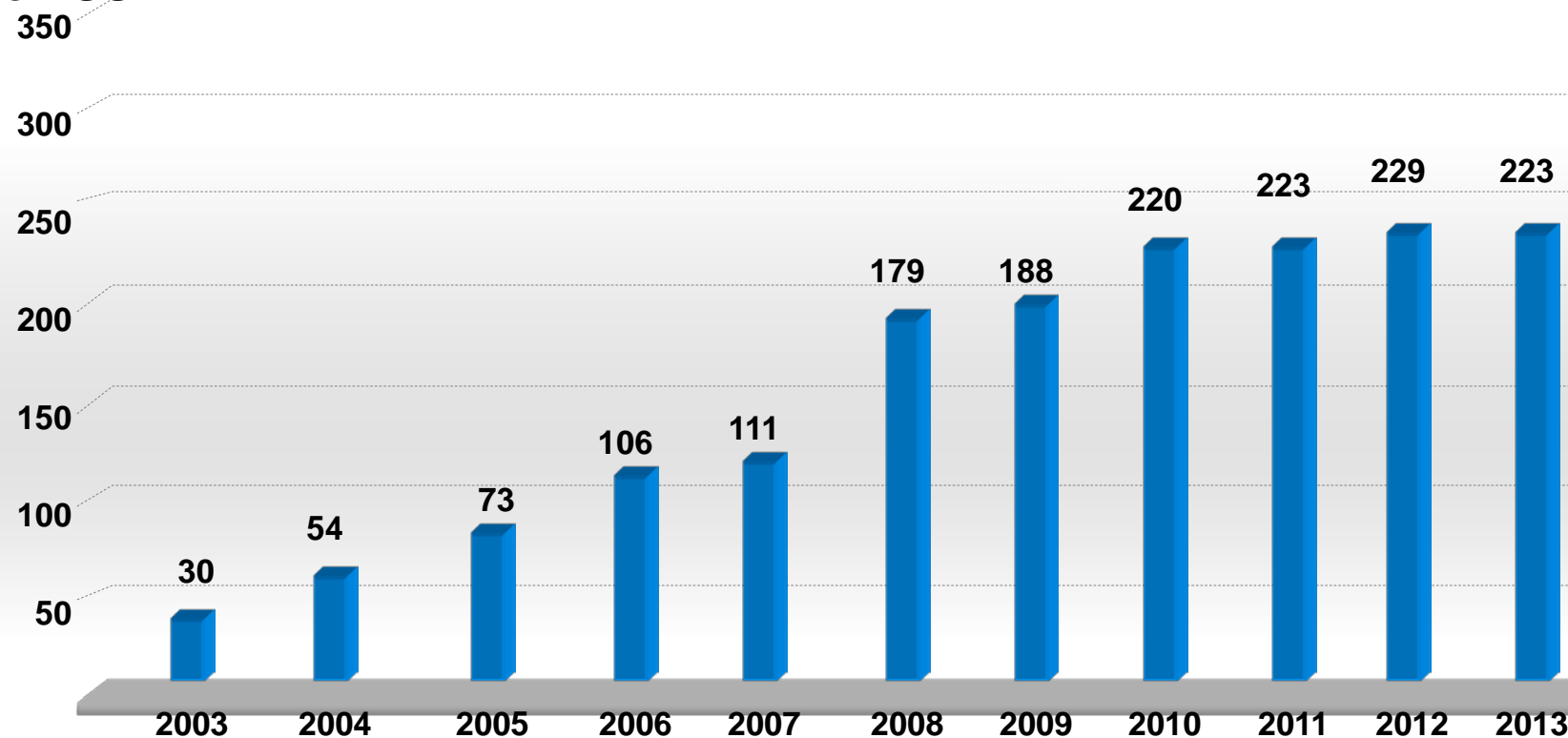
Energy R&D Budget in Korea

- R&D budget has increased more than 7 fold.

(2003) US\$ 30 million

2013 : US\$ 223 million

Million USD





II Implementation : Action Plans for Technology Innovation of Korea



R&D Strategy

Innovation

R&D

Demonstration

Deployment

Commercialization

1

Development of breakthrough innovative technologies with high potential for leading global market

→ *Strengthen public-private partnerships and encourage the participation of SMEs in government funded R&D projects*

2

Localization of key components, materials and equipments to enhance price competitiveness

→ *Increase government R&D budget for SMEs' components, materials and equipment development*

3

Development of Test-bed sites for renewables

→ *Support for testing and analysis by renewable sources, performance testing, reliability test of R&D outcomes*



Demonstration Programs

Innovation

R&D

Demonstration

Deployment

Commercialization

- *Various demonstration programs are being carried out.*
- *Large-scale demonstration programs and sites:*

Onshore wind power performance demonstration



Jeju Island Smart Grid Test Bed



Deployment Strategy

Innovation

R&D

Demonstration

Deployment

Commercialization

**1 million
Green home
Program**

Supply residential energy sector with new and renewable energy including photovoltaics, concentrated solar power, thermal power and fuel cells

**10 Green
Projects**

Maximize the utilization of renewables through 10 green projects including Green power, Green post, Green factory, Green island, Green school, Green highway, Green port, Green logistics, Green army and Green Industrial complex

RPS

*Korea recently changed the renewables policy from FIT to RPS
Targeting 10% of electricity from renewables by 2022*

**GHG Target
Management**

*Heavy-emitting industries(377 entities in 2013) are subject to
mandatory emission reduction target*

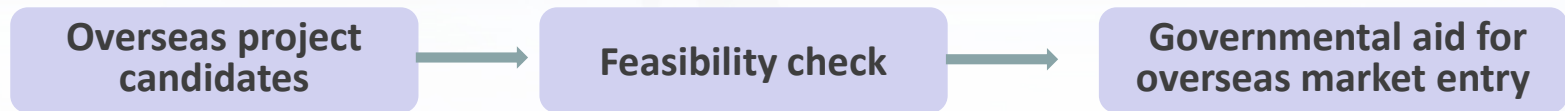


Commercialization Strategy



1

Support for overseas market expansion



2

Establishment of general support system for overseas market expansion



3

Increase the public acceptance of new and renewable energy products

- ➡ *Find innovative energy products that can be used in daily lives, and expand from industrial market to consumer market*

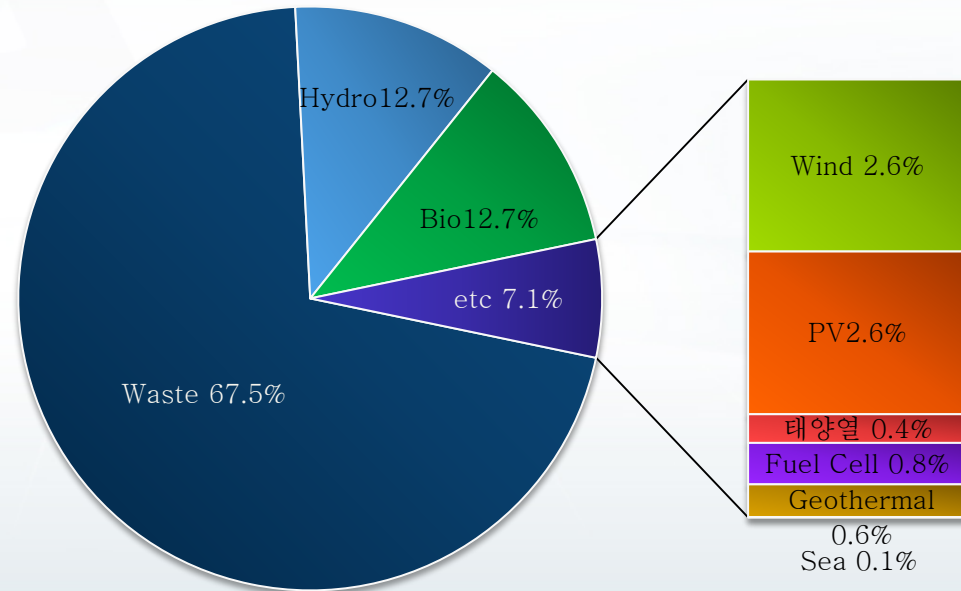
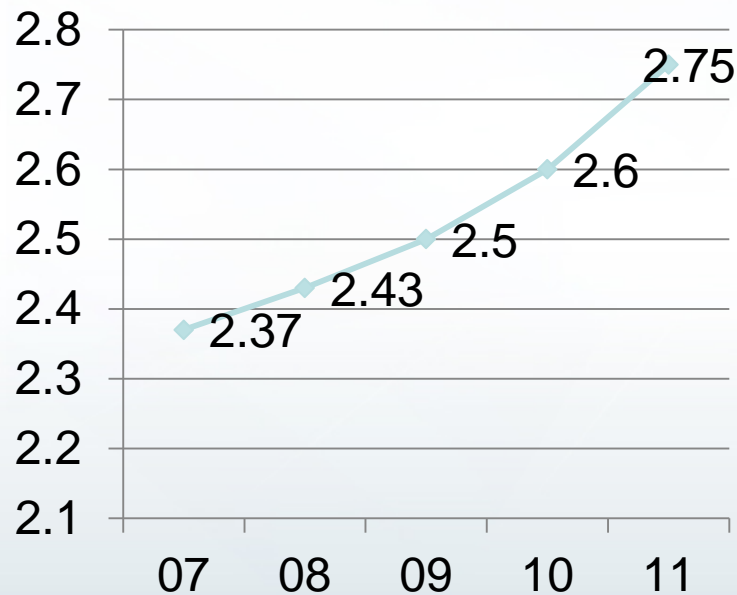


Achievements : Good Practices of Korea

Achievements(Deployment)

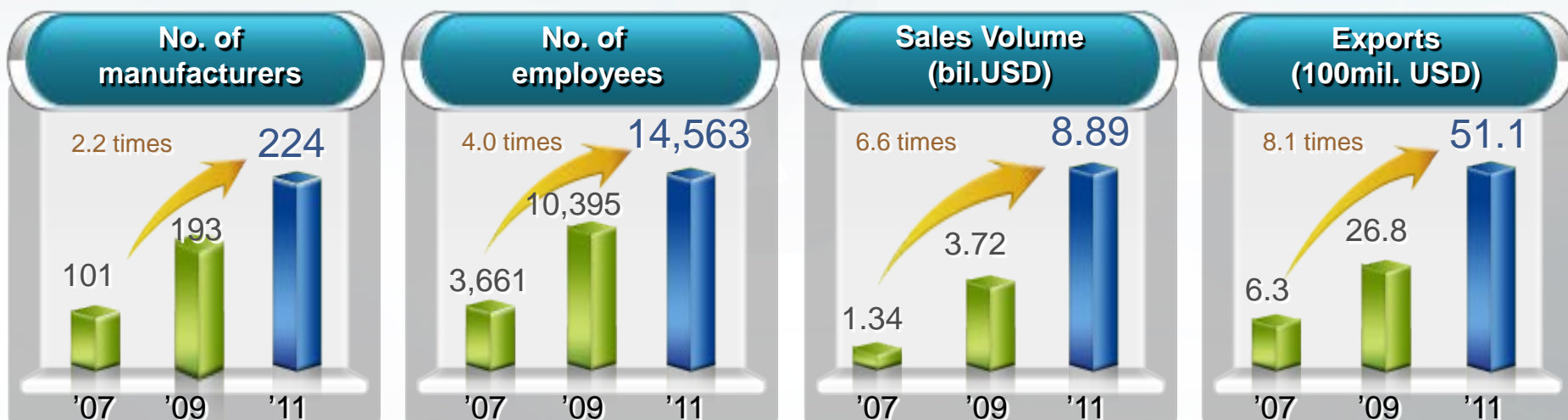
Share of NRE in TPEs in 2030 : 11%

Share of NRE in TPEs



Achievements(Korea's NRE Industry)

- Korea's NRE industry has been growing by leaps and bounds in recent years.



Still small by global standards, but Korea's NRE industry has shown the potential for a new national growth engine

PV Industry

PV

Existing Semiconductor Industry

Establishment of A Complete Value-Chain

Manufacturers



Employees



Production (bil. USD)



Exports (100 mil. USD)



With its complete value-chain, Korea is one of the most competitive players in global PV market

	World's Production Capacity	Korea	
		Production Capacity	Market Share
Poly-silicon	144,100 ton	18,960 ton	13%
Solar Cell	17,800MW	1,381MW	8%
Module	17,690MW	1,939MW	11%

Wind Industry

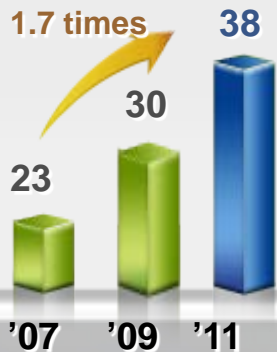
Wind

Existing industrial base:
Heavy industries such as
Electricity, Shipbuilding

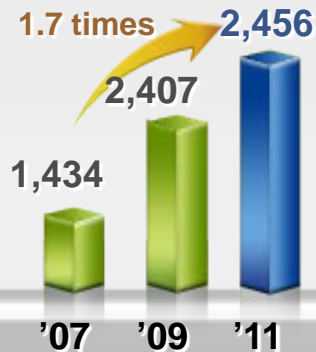


Establishment of
Industrial Structure
with Huge Potential

Manufacturers



Employees



Production (bil. USD)



Exports (100 mil. USD)



Industrial structure has been built with collaboration between SMEs for components & large enterprises for finished goods

Category		Major companies
Parts	Blade	KM, Deck, Doha Industry, Gwangdong FRP, Hwashin FRP
	Tower	Dongkuk S&C, Unison, CS wind, Speco, Win&P
	Component	Taewoong, Pyungsan, Yonghyun BM, Hyunjin Materials, Unison, Mysco
System		Doosan, Hyundai, Hyosung, STX, Samsung heavy industries, DSME



Fuel Cell

- **Supporting Fuel Cell market by RPS (1st in the world)**
 - * 36,450kW generation capacity ('10)
- **Supporting Fuel Cell for house/building through dissemination program ('10~)**
 - Supporting 21kW for building, 209kW for house ('10)
- **POSCO Power Fuel Cell Stack Plant (100MW/yr) – Construction Completed (Mar. 11)**

Tidal

- **Operating Shi-Hwa Tidal Power Plants (254MW)**
 - * Ga-ro-lim Bay, Incheon Bay, Gang-hwa Bay, etc. Several tidal power plants are under consideration.

IGCC

- **Launched 2nd phase of R&D project ('11)**
 - * Construct a 300MW pilot plant until 2015

Cross Sector

- **Korea Micro-energy Grid Project('12)**



Thank you