

New and Renewable Energy Policy in Republic of Korea

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OUTLINE

I . Energy Situation and NRE Status in Korea

II . NRE Programs

III . NRE Policy Future

I . Energy Situation and NRE Status in Korea

Energy Situation in Korea

Energy Consumption

11th biggest energy consumer in the world (240 Mtoe)

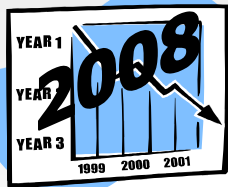
Crude Oil Import

5th biggest importer, **97% of Energy imported**

- 141.5 billion USD for all energy import

CO2 Emission

9th Largest Emitter in the world, 489 million tons in 2006



110.9 billion USD

(Car + Semi-conductor + Shipbuilding)

\$141.5 billion USD

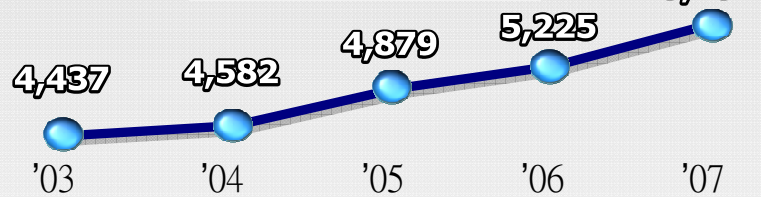
(Energy)

Definition of New and Renewable Energy in Korea

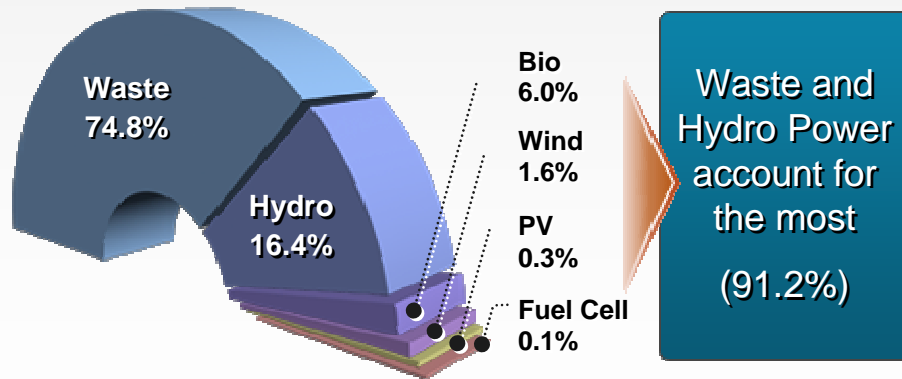
	IEA	EU	US	Japan	Korea
	Renewed energy	Renewed energy	Renewed energy	Renewable energy	NRE
Solar	0	0	0	0	0
Wind	0	0	0	0	0
Water	0	0	0	0	0
Geothermal	0	0	0	0	0
Marine	0	0		0	0
Landfill gas	0	0	0		0
Biomass	0	0	0	0	0
Waste	0	0	0		0
Hydrogen					0
Fuel cells				Innovative energy	0
IGCC, CTL					0
Unutilied enerav				0 (river water, snow ice)	

New and Renewable Energy Status in Korea

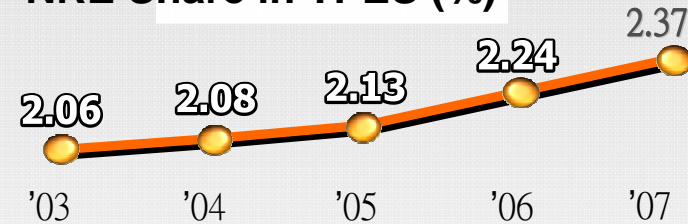
■ NRE Deployments (thou. toe)



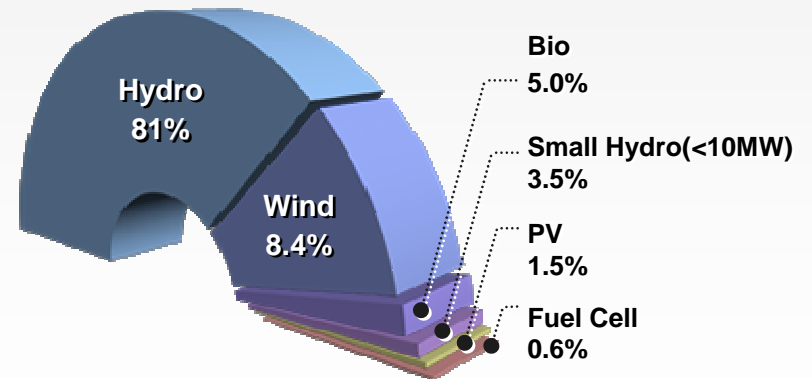
< Supplied Energy from NRE (2007) >



■ NRE Share in TPES (%)



< Power Generation from NRE (2007) >



One Aspect of New and Renewable Energy in Korea

Korea's NRE Market('08) : 3.1 billion USD (when,\$1=1,000 Won)

• 157% increase in '08(1.2 billion USD in '07). (22 times more increase than '04)

* Market Share by source

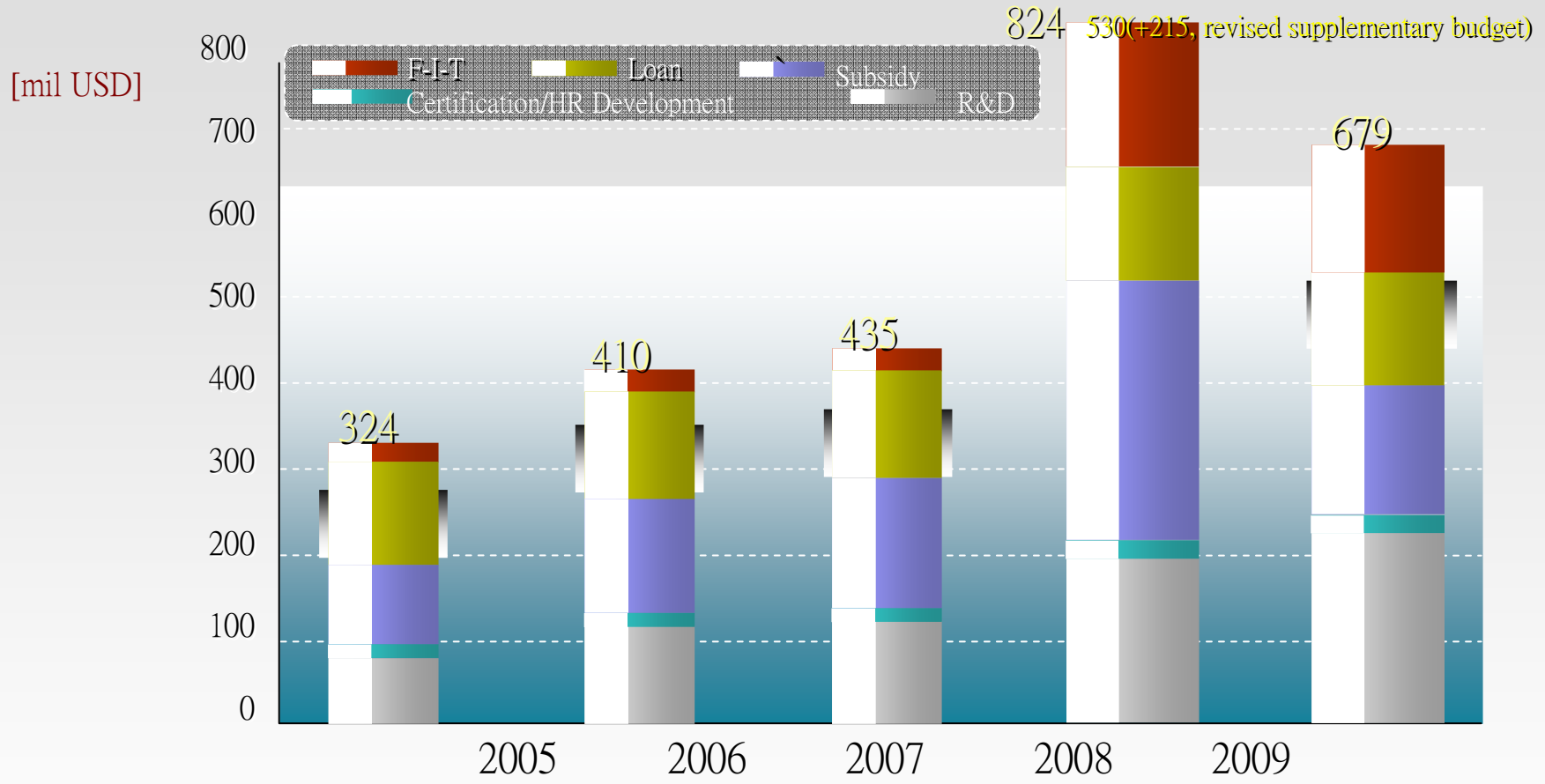


Korea's installed NRE power capacity('09) : 2.54GW

* Installed capacity (accumulated) :



Budget History and plan for NRE



2010	2012	2014	2016	2018	2020	2010~2020
1,217	1,478	1,634	1,799	1,739	2,020	18,332

(when, \$1=1,000 Won)

Core Areas of RE Industry in Korea - PV

• The Participation of **Semiconductor - Display conglomerates**

Poly silicon ➔ Ingot - Wafer ➔ Cell ➔ Module ➔ System : Value chain formation

- * **The Government's Support for PV industry → Industrial Development**
- * **Appropriate Si solar cell price and efficiency improvement,
Investment in next solar cell & technology development**
- * **Steady Increase in Material, Cell and Module Export: OCI(p-Si),
Hyundai (Cell), S-Energy(module) etc.**

Core Areas of RE Industry in Korea - Wind

● Increasing market penetration in component and system areas, Investment of shipping and heavy industries and Development of large capacity generators

* **Major shipbuilding Co.'s participation('09)** : Acquisition activities (STX, DSME, Samsung etc.)

* **Export-oriented industrialization in Wind industry** : Ontario Canada (2.5GW, KEPCO/Samsung), Pakistan (50MW, Hyundai Motor), Eastern Europe (220MW) and Holland (50MW, STX Wind power) etc.

Core Areas of RE Industry in Korea – Fuel Cell

- **Facilitating Initial Industrialization with technological development and demonstration**

*** Building : Complete in Monitoring program(210), Deployment promotion by 1 million Green homes plan**

*** Plant : Localization of technical know-how & Promotion of core technology development (POSCO power, Doosan Heavy Industries)**

*** Transport : 2nd phase pilot project(Application into 200 vehicles) to 2012**

→ Pilot Deployment (Hyundai Motor)

II. NRE Programs and Policy Direction

Deployment Support Programs

General Subsidy Programs – (1994~)

- Government subsidizes part of the installation costs of the NRE facilities to enhance NRE deployment and to relieve the end user's cost burden (factories, individual Buildings)

-Subsidy ratio : Electricity Production Facilities : 50%, Heat production facilities : 50%

1 Million Green Homes Program – (2009~)

- In order to help build investment favorable environment in residential area, Government has been expanding existing 100,000 solar roof program to diversify and optimize RE use in residential area. This aims to disseminate 1 million green homes by 2020

Deployment Support Programs

● Local NRE Deployment Program - (1996~)

- Local governments carry out local-fit eco-friendly NRE deployment program for public buildings and social service facilities, Remote Area's residents etc
Central(60%) + Local(20%) + Individual(20%)

Loan & Tax Deduction – (1980~)

- Low interest Loan is available with a 5 years of grace & 10 years of allotment payment
- Tax deduction for 20% of total investment and tariff (customs duties) cut by 50% in 7 areas (Solar thermal, PV, Wind, Hydrogen fuel cells, Bio, Marine) for 81 products

Deployment Support Programs

Mandatory Use for Public Buildings (2004~)

- The new construction, expansion and remodeling for public buildings having floor area which exceeds 3,000 square meters or larger, more than 5% of their total construction expenses to be invested in installation of NRE systems

- '04~'08, 208 Million US Dollars has been invested (Geo thermal : 49%, PV : 36%, Solar thermal : 4%)



Revision of Obligation Program for Public Buildings (2011~)

- Mandatory Use and Design with NRE of more than 5% of total energy load for new, renovated and expanded public buildings larger than 1,000 square meters

Deployment Support Programs

FIT (Feed in Tariff, 2005 ~)

- In case of power generated from NRE, the government set standard price for each renewable energy source and supports difference between the standard price and SMP(system marginal price) to help secure NRE's economic feasibility
- Standard price will be adjusted annually reflecting the change of the NRE market and economic feasibility of NRE

RPA (Renewable Portfolio Agreement, 2006 ~)

- Large Public Utilities agreed with the Korean government to invest \$737 M in NRE between '06-'08, and plan to transform to RPS in 2012 after 2nd agreement period('09-'11)



RPS (Renewable Portfolio Standards, 2012)

- Introduce RPS in 2012 that is to obligate utility companies to produce electricity from renewable energy to certain rate in their total power production
 - Review to expand NRE by 2% of total power production in 2012 and 10% by 2022

Deployment Support Programs

RFS (Renewable Fuel Standards) (2012)

- Obligate mix ratio of Bio-diesel to transportation fuels from 3% by 2012 and 7% by 2020 (Under consideration to identify its concrete action plan)
 - Mix ratio of Bio ethanol will be determined after feasibility study and supply projections

Green Building Certification (2010)

- Grants and other incentives for NRE facilities in buildings of a certain size or larger

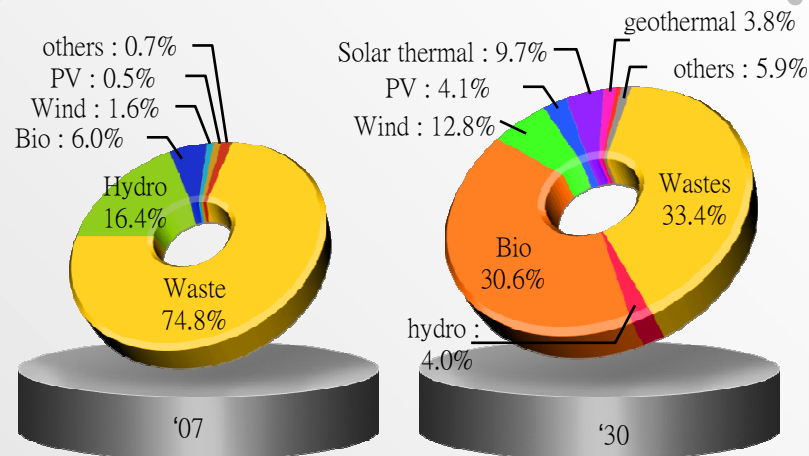
III. NRE Policy Future

Long-term Targets for NRE

Transforming Korea as a NRE-strong Country by 2030

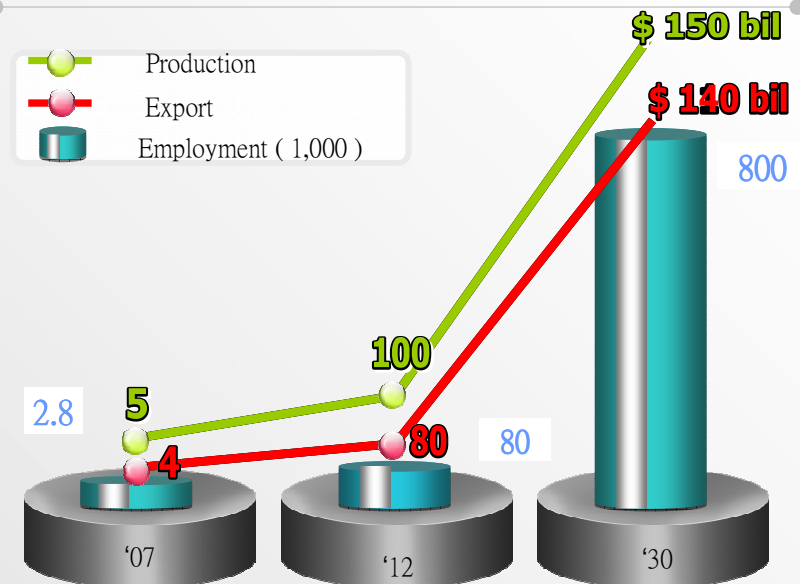
Achieving 11% of NRE Deployment Rate

- Increase the nation's NRE deployment rate to that of USA, Japan by 2030
- Enhancing NRE deployment obligation and exploring new NRE resources



Fostering NRE as a National Growth Engine

- Focus on four strategic areas
- PV, wind, hydrogen & fuel cells, IGCC



3rd NRE National Plan

Establish NRE-based Sustainable Energy System

- Goal 1. Achieve NRE Energy Deployment of 11% by 2030
- Goal 2. Industrialize NRE, Green Growth Engine

Accelerate Industrialization

- TRM/PRM
- Build Demo/Pilot Complex
- Certification Scheme

Expand Deployment

- 1 million Green Homes
- NRE Application to buildings and new towns
- Expanding Roles of Local Authorities

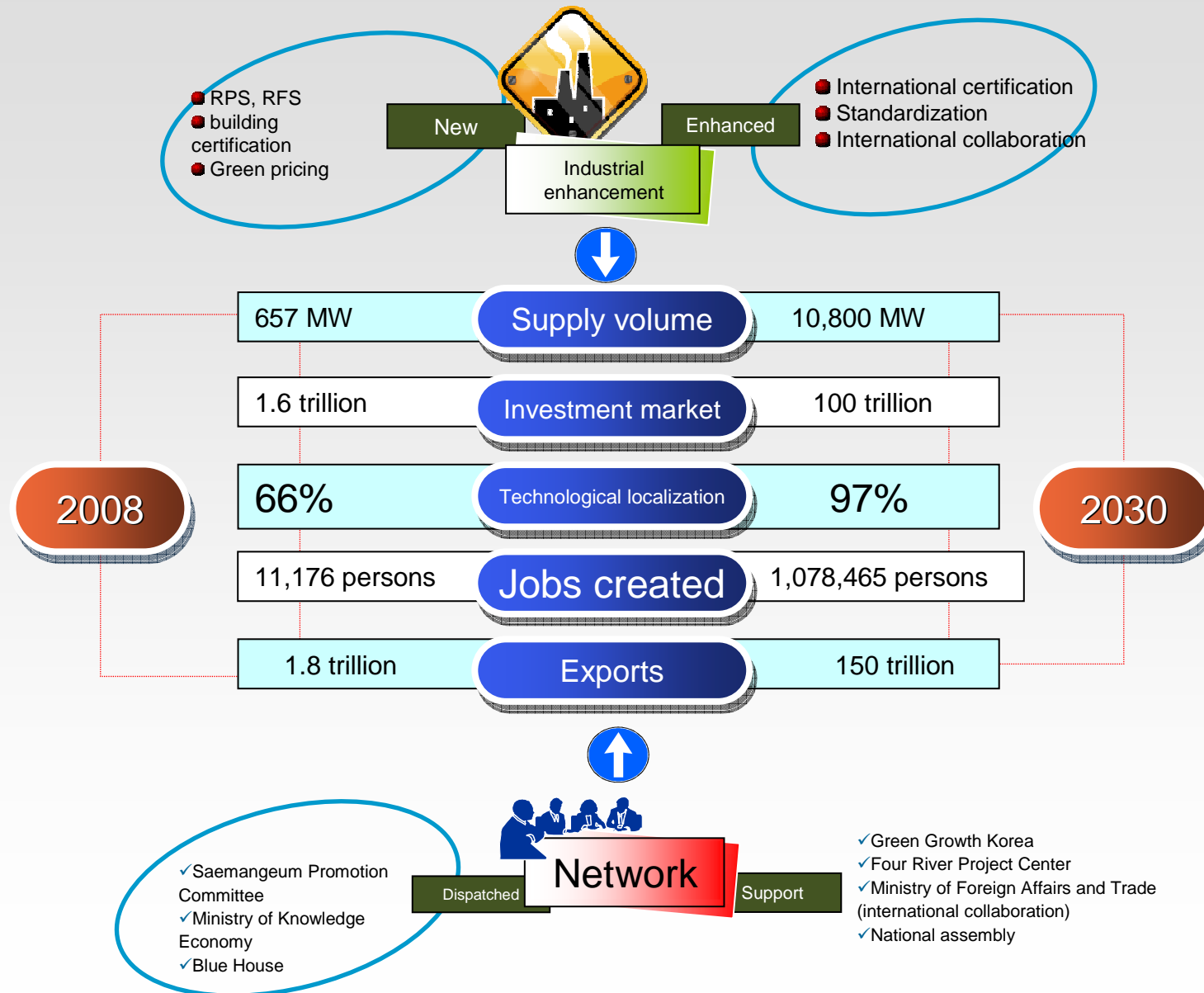
Expand Infrastructure

- Industrial Code
- NRE Fund
- Reform regulatory barriers
- Improve Statistical Systems

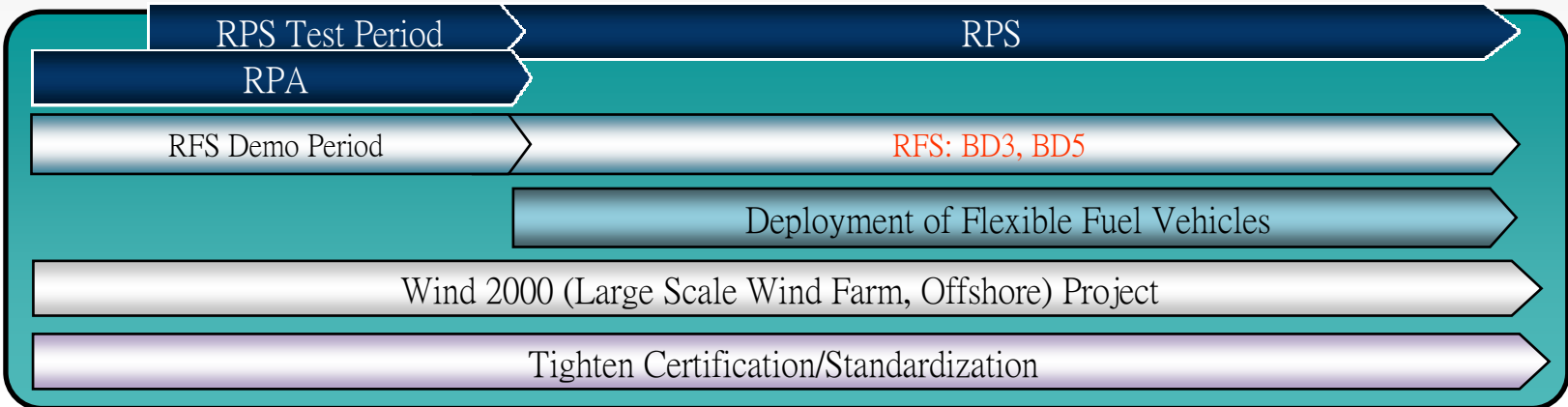
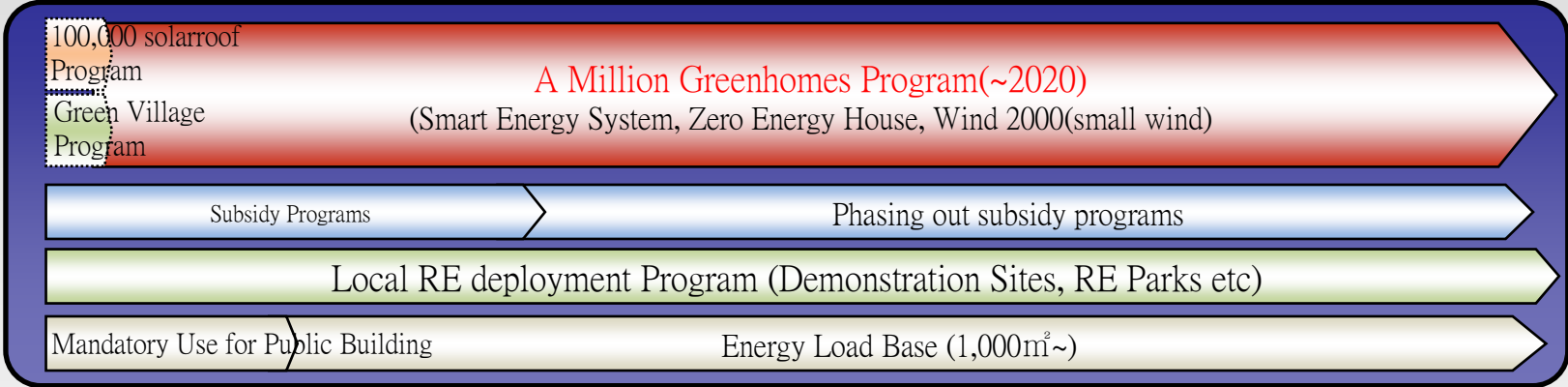
Introduce Market Functions

- RPS/RFS
- Green Pricing
- RECs

Long-term Targets for NRE Policy



NRE Deployment Roadmap



Thanks for your attention.

