

Korea's Energy Cooperation Policy and Green Growth

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I

Introduction

1. The Energy Situation in Korea

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1. The Energy Situation in Korea

Energy Import

4th biggest importer in the world

171 billion USD, accounting for 32.6% of all imports('11)

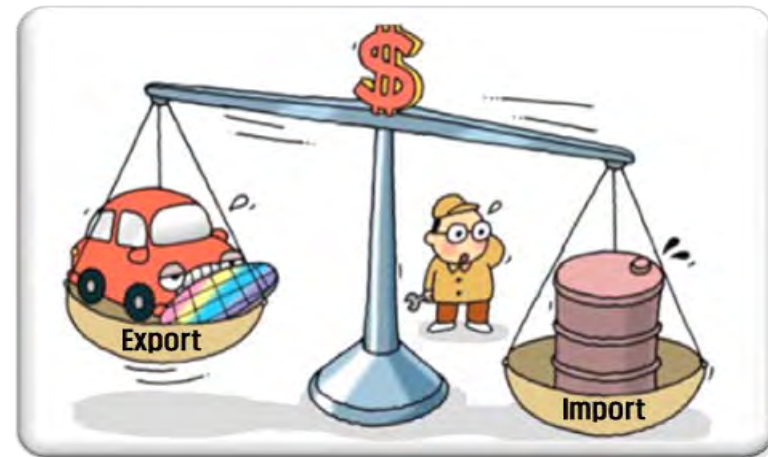
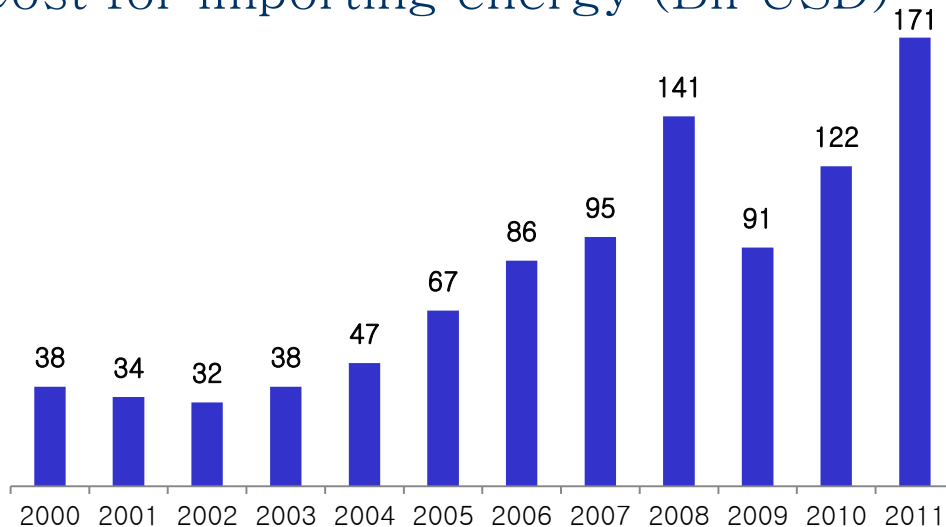
- Energy dependency on import reaching 96.5%

CO2 Emission

7th biggest Emitter in the world, 610 million tones('11)

- Automobile, shipbuilding, steel as main industry

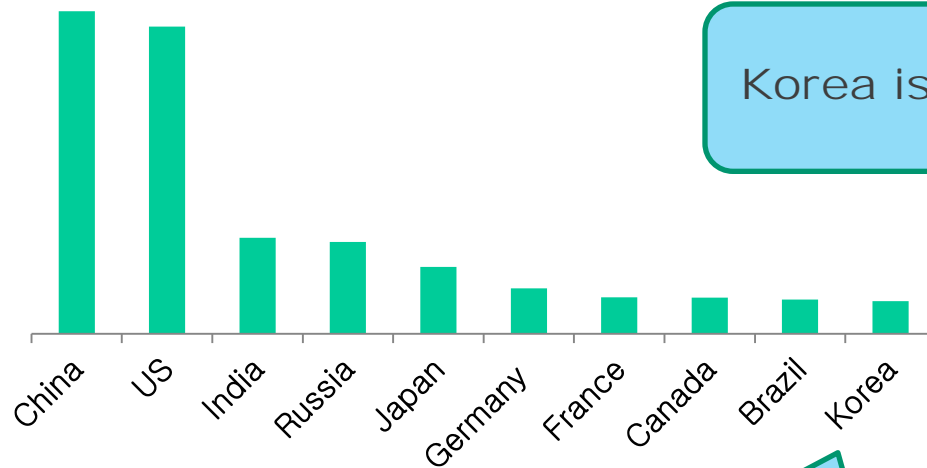
Cost for importing energy (Bil USD)



146 bil USD (cars + Semi-conductor + shipbuilding) \$ 171 bil USD (Energy)
4

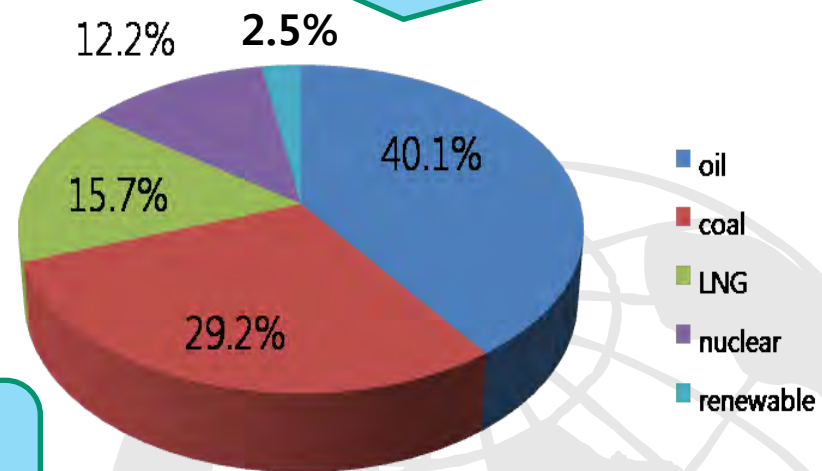


2. Korea's Energy Consumption



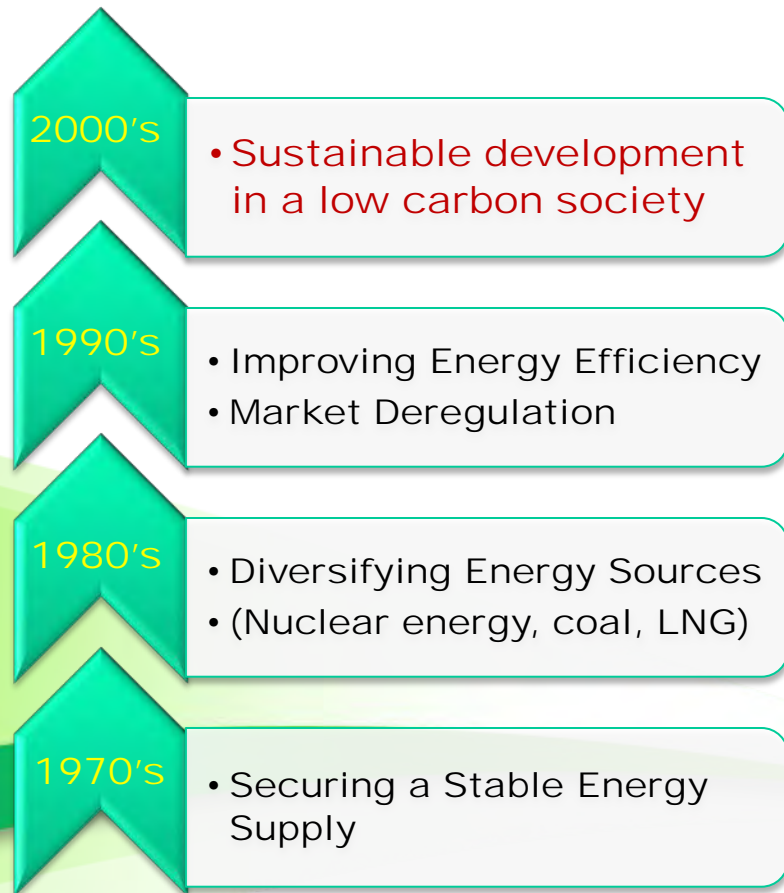
Korea is heavily dependent on fossil fuel

Korea is the 10th biggest energy consumer in the world.



3. Korea's Energy Policy

• Paradigm Change in Energy Policy



• Energy Vision 2030

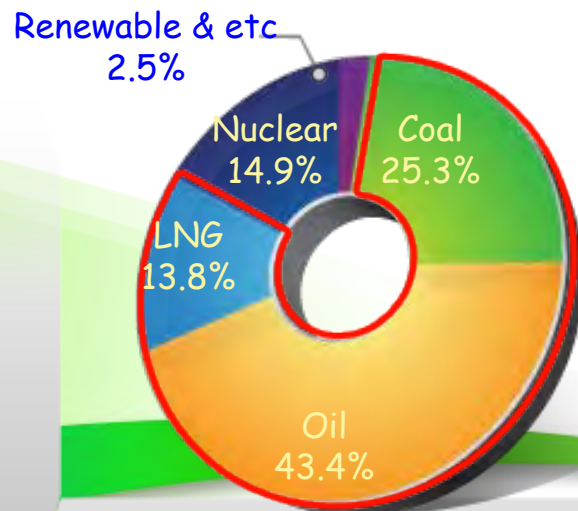
1. Energy Security
2. Energy Efficiency
3. Environmental Protection

<Master Plan>
National Basic Energy Plan ('08~'30)
(Every 5 years in 20 years)

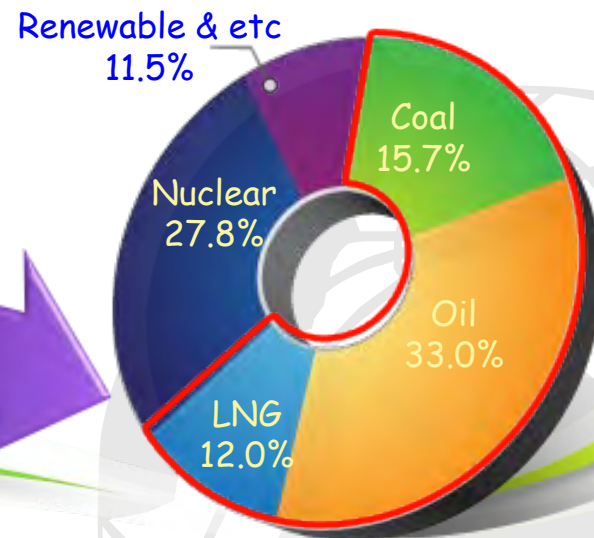
3. Korea's Energy Policy

Korea's Mid and Long Term Energy Policy

- Korea has established the National Basic Energy Plan (2008-2030) in 2008 to set the direction of mid and long term energy policy.
- The goal of Korea's energy policy is to reduce dependency on fossil fuels and to increase the share of nuclear and renewable energy in energy mix.



2007 : 241millionTOE



2030 : 300millionTOE



3. Korea's Energy Policy

Steps to achieve long-term energy goals

1. Improving energy efficiency and reducing energy consumption
2. Increasing the supply of clean energy and reducing the use of fossil fuels
3. Boosting the green energy industry
4. Ensuring that Korean citizens have access to affordable energy

Major Energy Target

Index	2006	2010	2030
Self-sufficiency rate	3.2%	10.8%	40%
Share of Renewable Energy	2.2%	2.5%	11%
Energy Intensity	0.347	0.251	0.185
Oil Dependency	43.6%	40.1%	33%
Level of Green Energy Technology*	60%	70%	100%

* Advanced Nations – 100 basis



Green Growth

**1. The reason why Korea needs
the Green Growth strategy**

2. Features of Green Growth in Korea

3. Global Green Cooperation



1. Why Green Growth for Korea?

Climate Impact

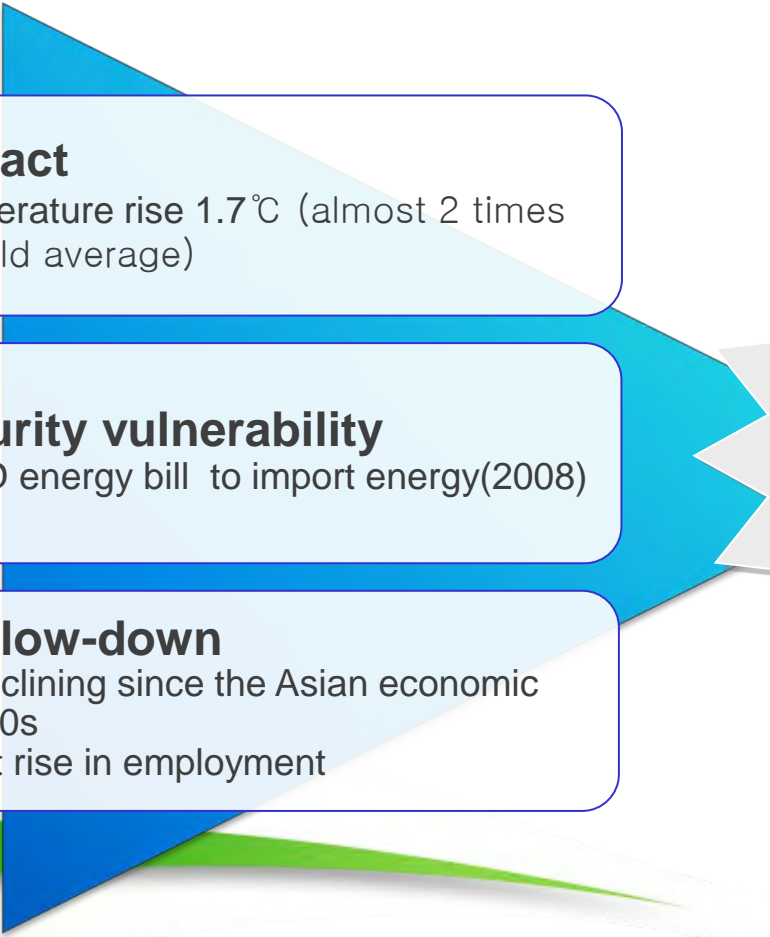
- Average temperature rise 1.7°C (almost 2 times higher than world average)

Energy security vulnerability

- 140 billion USD energy bill to import energy(2008)

Economic slow-down

- Growth rate declining since the Asian economic crisis in late 1990s
- Growth without rise in employment



**“New vision
is needed”**



1. Why Green Growth for Korea?

The Presidential VISION – Low Carbon, **GREEN GROWTH**

*“Today, on the occasion of the 60th anniversary of the founding of the Republic of Korea, I want to put forward ‘Low Carbon, **GREEN GROWTH**’ as the core of the Republic’s new vision.”*



Last 60 years

Economic growth



Next 60 years

Green growth



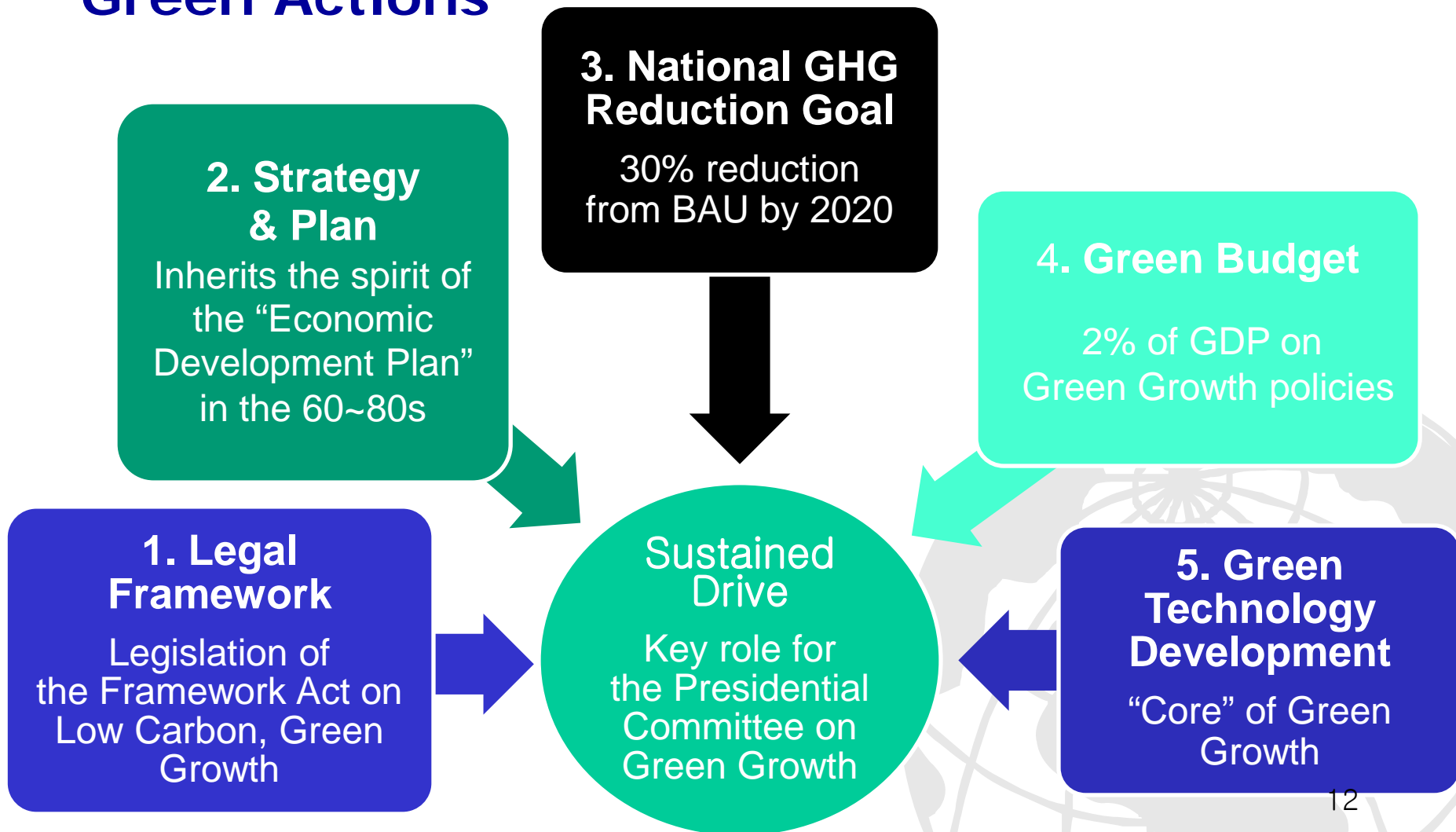
More than just a development strategy

- Changing people's behavior and way of thinking
- Creating a new civilization



2. Features of Green Growth in Korea

Green Actions





3. Global Green Cooperation

Green ODA

- Increase from 14% in 2009 to 30% by 2020
- More effective and efficient operation of ODA

East Asia Climate Partnership

- 2008 – 17 key projects with 7 countries 4 International organizations
- 2009 – 18 new projects

Global Green Growth Institute (GGGI)

- To assist countries in formulating their own green growth plans
- To serve as a global think & Act tank in leading developing countries to a low carbon society

Green Climate Fund(GCF)

- To host the secretariat of GCF

3. Global Green Cooperation

Int'l Cooperation in Renewable Energy

- International Renewable Energy Agency (IRENA)
- UN ESCAP
- Renewable Energy and Energy Efficiency Partnership (REEEP)





Renewable Energy

1. Renewable Energy Status in Korea

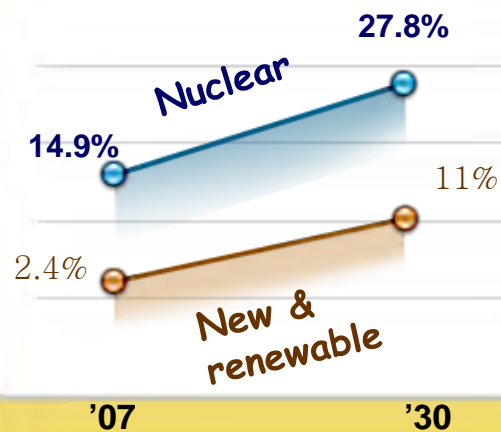
2. Renewable Energy and Government's role



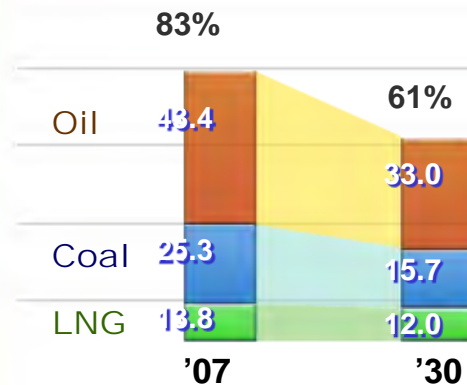
1. Renewable Energy Status in Korea

Energy mix of Korea

Expansion of clean and self sufficient energy



Reduction of fossil fuel





2. Renewable Energy and Government's role

1. To establish clear and long-term Policy
2. To have cost-effective approach to promote technology development
3. To stimulate private sector involvement
4. To strengthen international cooperation



2. Renewable Energy and Government's role

Renewable Energy technology

Government should...

Identify the most promising fields of green technology

- financially adaptable and commercially viable technologies



2. Renewable Energy and Government's role

● National Green Growth Development Strategy for 2008-2030

- **determined Green and Renewable energy technology would be a key growth engine for Korea**
- **Selected competitive fields according to marketability, technical standard and urgency**

• 9 core green sector - Technical acquisition Plan

① Self-development

* Solar PV, Energy Storage, Power IT

② Technical cooperation

* Wind power, Hydrogen Fuel cells, Clean fossil fuel, LED

③ Introduction of Technology

* IGCC, CCS



IV

Korea-Saudi Cooperation

1. Renewable Energy Potentials in Saudi

2. Korea-Saudi Renewable Cooperation



1. Renewable Energy Potential in Saudi

Solar Potential

- 🌱 Saudi plans to place more focus on renewable energy generation and aims to be “one of the largest markets globally”, “the Kingdom of sustainable Energy”.
- **Goals to cover 10% of energy demand by renewable energy by 2020**
- **Targets 41GW of Solar by 2032**
- **PV - 16 GW, CSP(concentrated solar power)-25 GW**

Detailed roadmap

- 🌱 In addition to its installation target, the government issued a roadmap to be started “immediately”
- First bidding is scheduled to be in the early 2013, including 1.1 GW of PV and 900MW of CSP



1. Renewable Energy Potential in Saudi

Wind Potential

- 🌿 Saudi's wind map indicates that Saudi has vast windy regions along the Arabian Gulf and the Red Sea coastal areas and high wind Energy potential.
- **Mean annual wind speed : exceeds 9 knots (16.7 kmph), ranges from about 14 to 22 kmph**

**ideal condition for small-scale wind energy system
for power generation and irrigation purpose**

4 promising sites for wind power

- **Yenbo and Al-Wajh on the Red Sea coast**
- **Dhahran on the Arabian Gulf coast**
- **Quaisumah in the north east of the Kingdom**

2. Korea-Saudi Renewable Cooperation

- 🌿 Korea-Saudi agreed to expand cooperation in energy sector focused on nuclear fuel and renewable energy.

🌐 "Summit talks" on Feb. 2012



"Korea's nuclear power and renewable sectors of industry experience and expertise, it will contributed to Saudi's green growth"



"We want to learn economic development know-how from Korea as this country is the world's 10th largest economy,"



- 🌐 "Nuclear Security Summit" on Mar. 2012,
Renewable energy cooperation discussed

2. Korea-Saudi Renewable Cooperation

- ❧ KACST-KEMCO(Korea Energy Management Corporation)
Renewable energy cooperation in progress

→ joint R&D in renewable energy technologies

- **“Green Energy Mission” of KEMCO visited to the Kingdom of Saudi Arabia, on May and November 2012,**



“discussed on the ways of mutual cooperation and shared vision and policies for low-carbon and green growth”

2. Korea-Saudi Renewable Cooperation

Potential Areas of Korea-Saudi Clean Energy Joint Research

- 🌿 Korea has selected 15 'green energy technology' including wind energy, solar energy, CCS(Carbon Capture Storage) and smart-grid and plans to promote as 'new growth engine' for Korea's future economic growth.

<15 Green Energy Technology >

To produce clean energy	Solar PV, Wind power, Hydrogen Fuel cells, IGCC(Integrated Gasification Combined Cycle), Nuclear energy
To clean fossil fuel	Clean Fuel, CCS(Carbon Capture and Storage)
To improve energy efficiency	Power IT, Energy Storage, Small-scale combined Heat and Power, Conductivity, High density battery package, Heat pump, Energy efficient building, LED lighting

- Clean energy technology partnership
- Joint demonstration projects



2. Korea-Saudi Renewable Cooperation

Saudi hopes to be powered 100% by renewable and low-carbon forms of energy, toward a sustainable energy mix.



**Mutual
Interest**



the **Korea seeks to develop the solar and wind industries similarly as the semiconductor and shipbuilding industries** 2015

Thank you!