# Global Smart Grid Initiative: The Korea Case

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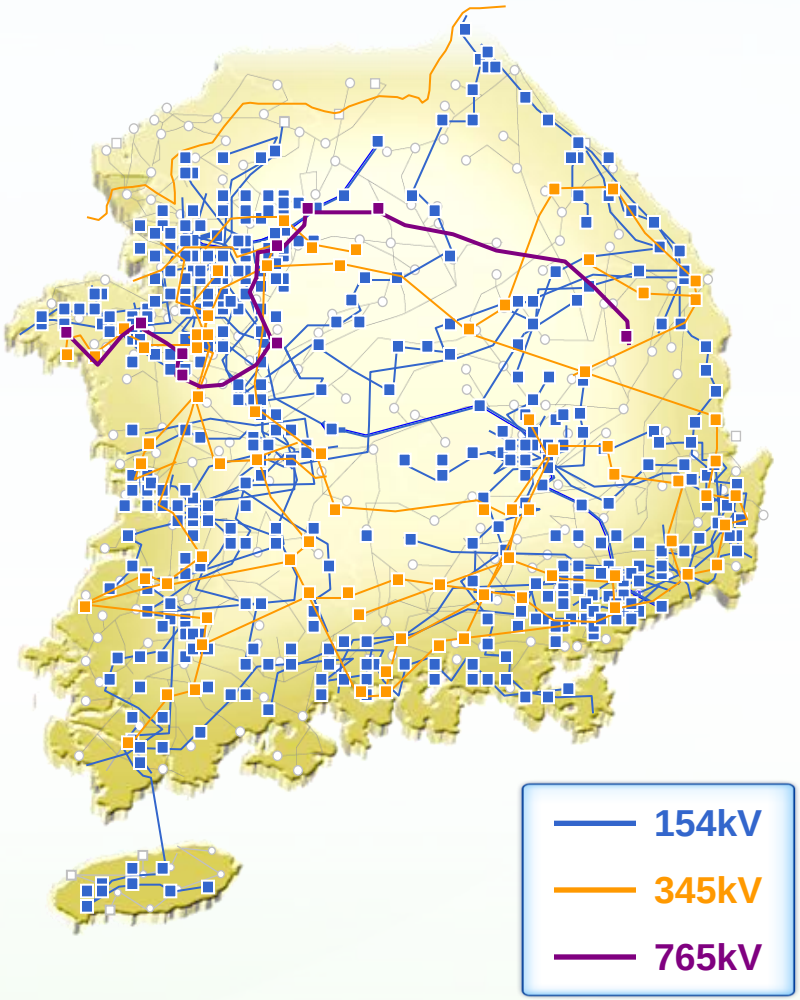
# Contents



# Korea’s Electricity Industry Overview

# Korea's Electricity Industry Overview

## Power System in 2008




- **Installed capacity : 72,491MW (12th in the world)**
  - Output : 422,355GWh
  - Peak demand : 62,794MW
  - Trading volume : U$ 24.3 billion
- **Electricity Consumption per Capita : 7,607kWh**
- **Transmission Lines : 29,929 c-Km**
- **Industry Structure**
  - Generation : KEPCO affiliates (88%), IPPs(12%)
  - T&D, Retail : KEPCO
  - RTO : Korea Power Exchange
- **Power Quality**
  - Blackout Hours :17/m/home/year
  - T&D Loss : 4%

# Why Smart Grid in Korea?

**Vision** — Low Carbon, Green Growth Korea

## Goals for 2030

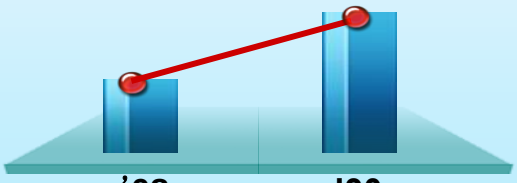
### Energy Effciency

46.7%

Compared with 2006

### Renewables

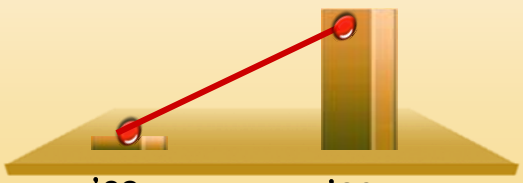
2.4% → 11%




Percent share

### PHEV and EVs Deployment

0 → 2.4mil

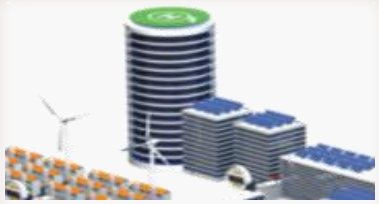



Numbers

# Korea Smart Grid Roadmap

# Korean Roadmap : 5 domains

## Smart Grid Platform



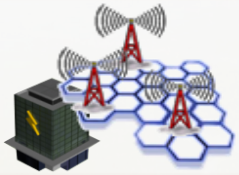
Smart Place

Smart Renewables

Smart Transportation

Smart Electricity Market

Smart Power Grid



# Roadmap


Key Objectives
Construction of a smart green city
1st phase (2009~2012)
Expansion of smart city (Enabling consumer)
2nd phase (2013~2020)
Completion of nationwide Smart Grid
3rd phase (2021~2030)
Milestones
2010. 1
Jeju Test-bed Project commencement
2012. 12
Smart Green city declaration
2020
100%AMI penetration
2030
Nationwide Smart Grid completed

# Jeju Test-bed

# Why Test-bed in Jeju Island?


**It has potentials to be a carbon free Island.**

- **Renewable Energy Research Complex (Korea Institute Energy Research)**
- **Abundant Renewable Energy Resources (Wind power, Solar power etc.)**
- **Excellent Reliability Separate Power System from Land**
- **Green & Clean Global Image**


Jeju : Future of Green Growth

# Jeju Test-bed Overview

## Introduction: 5 Domains

Smart Place

Smart Transportation

Smart Renewable

Smart Power Grid

Smart Electricity Market

## Key Features

- Most advanced and biggest Test-bed in the world
- Business model oriented
- Up and running by 2013
- US $ 200 million project

**Technologies, business models, and standards proven in Jeju will contribute to international development of Smart Grid**

# International Cooperation and MEF

# Needs for International cooperation

Smart Grid
as the key driver
for climate change

Climate Change
as a global issue


Smart Grid
as a global issue itself

Interoperability
and
Standards

Failure

Success

# Major Economies Forum on Energy and Climate (MEF) and Low-Carbon Technologies

## Objectives of TAP
(Technology Action Plan)

1. Dramatic increase and coordination of public sector investments in R &D of transformational technologies

2. Drive to aggressively accelerate deployment and transfer of the technologies

**"Just no one nation is responsible for climate change, No one nation can Address it alone." – President Obama-**

## Transformational Low-Carbon Technology

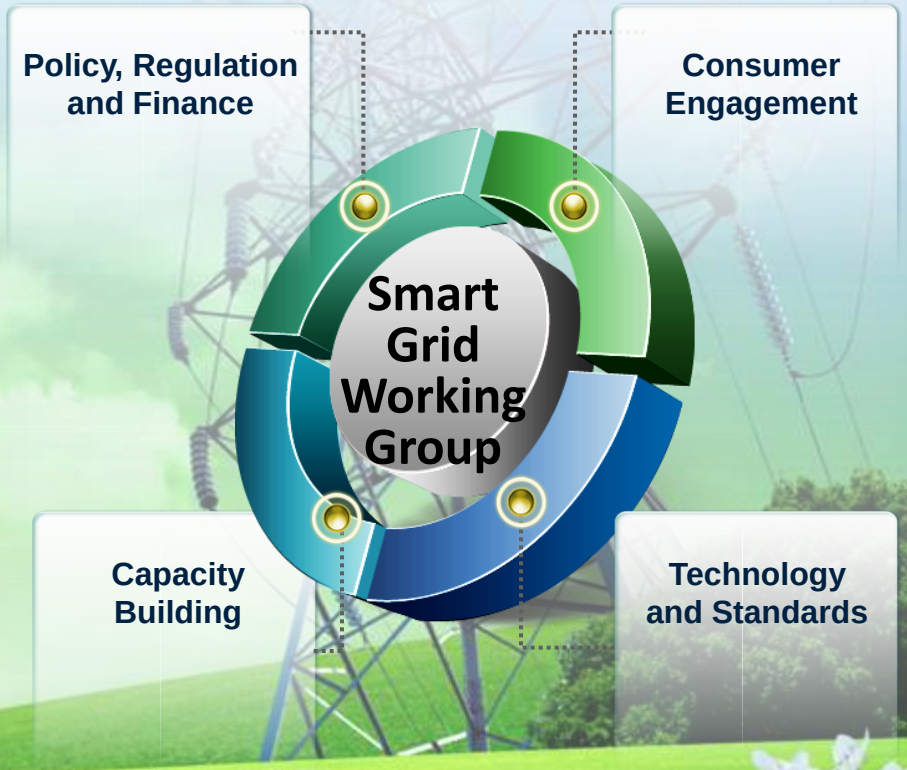
- Smart Grids 
- Buildings Sector Energy efficiency 
- Industrial Sector Energy efficiency 
- Advanced Vehicles 
- Carbon Capture, Use, and Storage 
- High-Efficiency and Lower-Emissions Coal 
- Wind Energy 
- Solar Energy 
- Bio-Energy 
- Marine Energy 

# Smart Grid Technology Action Plan – Coordinated or Cooperative Actions

## Key Recommendations

- Promote horizontal cross-country/ cross-regional partnerships
- Promote technology and knowledge
- Transfer technology and Knowledge between developing and developed countries

## Proposed Smart Grid Working Group and Workstream




Thank you!