

# **KEPCO's Progress & Future of NEA Supergrid**

2017. 10. 30.

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A female ice skater in a blue and silver sequined costume is captured in a dynamic pose on an ice rink. She is leaning forward with her arms extended, one hand near her chest and the other reaching out. Her expression is focused, and her mouth is slightly open. The background is a soft, out-of-focus white, suggesting an ice rink environment.

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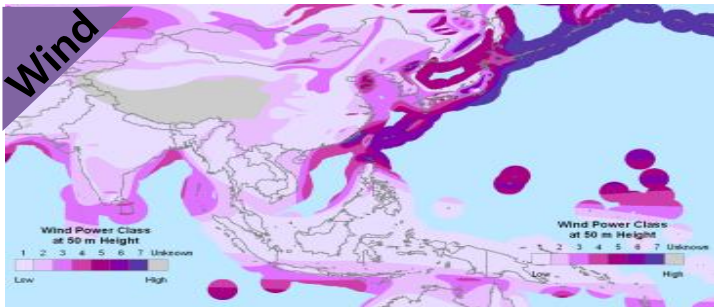
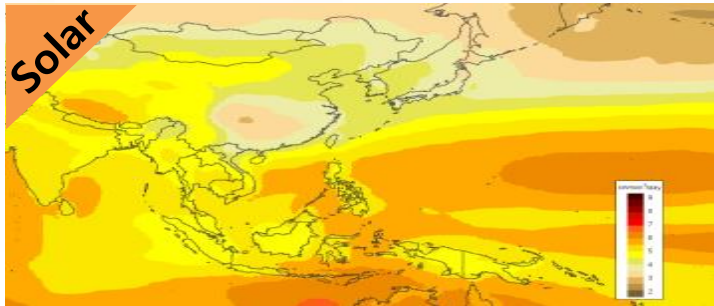
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# Background & Purpose



# 1-1 Paradox: Renewable Energy Resources

## Renewable Energy Resources vs Demand



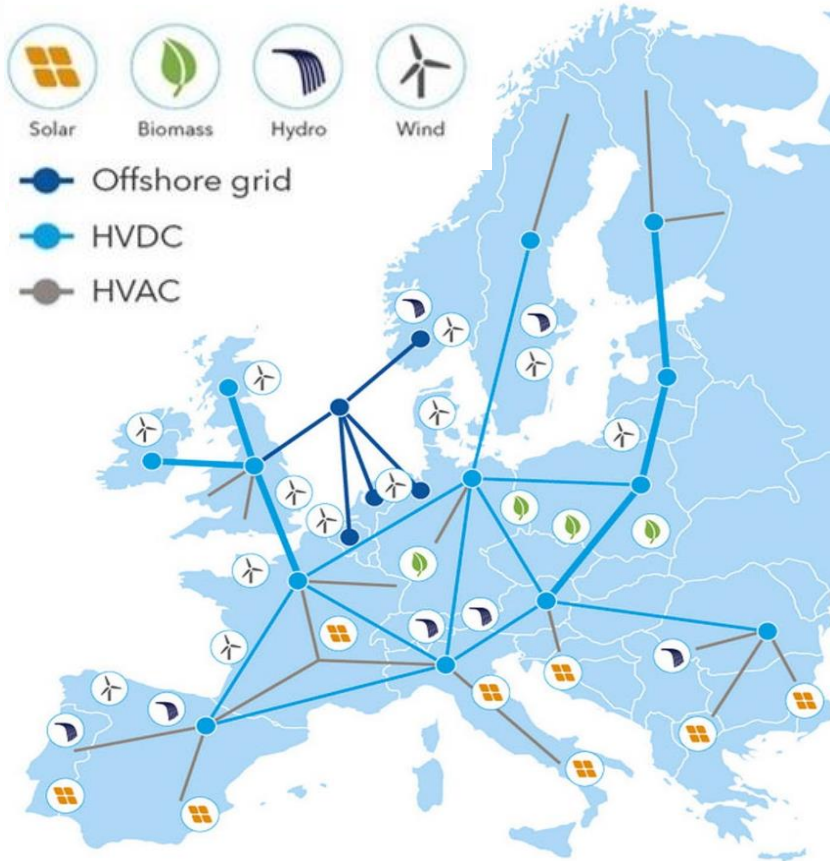
- **Unevenly distributed renewable energy resources**
    - > The area rich in renewable energy resources is remote from demand areas
- "MORE renewable energy resources, LESS demand"***



# 1-2 Paradigm Shift on Supergrid

## New paradigm

Conceptual European supergrid structure connecting renewable power sources



## Past


- To overcome power shortage
- To enhance the stability of power system securing power reserve

## Present

- To integrate diverse energy sources
- To make effective use of electric power through power trading

# 1-3 Mutual Benefit in Northeast Asia

- Rich Resources (Mongolia, China, Russia)
- High Demand (China, Korea, Japan)
- Different power peak demand
- Air Pollution Issue due to Coal-fired Power Plants



<b>Economy</b>	<b>Effective use of electric power</b>
<b>Environment</b>	<b>Utilization of eco-friendly resources</b>
<b>Reliability</b>	<b>Mutual power management</b>
<b>International Cooperation</b>	<b>Expanding economic exchanges</b>

# 1-4 Status of Northeast Asia

European  
Supergrid

Turkey-  
Saudi

Europe-  
Africa  
connection

Israel-  
Jordan

ASEAN  
Power  
Grid

South  
African  
Power  
Pool

NO  
Interconnection

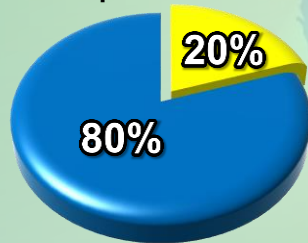
USA-  
Canada

SIEPAC  
Project

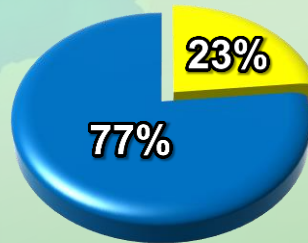
Brazil-  
Paraguay

## Status of NEA

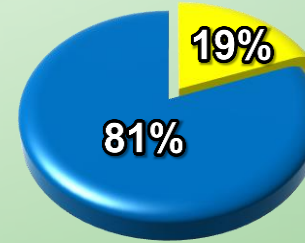
Population



GDP



Trade



Source : CIA the World Fact Book, IMF



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## Current Status & Progress





# 2-1 KEPCO's Vision of NEA Supergrid

## Vision

- Joint development and utilization of renewable energy in NEA  
⇒ Joint strategy for global climate change & environmental pollution

## KEPCO's NEA Supergrid Concept



## 2-2 KEPCO's Progress

### Major Progress / China-Korea-Japan

'16.03

**MOU on Joint Promotion of Power Grid Interconnection  
between SGCC(China)-KEPCO-SoftBank(Japan)-Rosseti(Russia)**

'16.06

**Joint Pre-F/S on Mongolia-China-Korea-Japan Power Grid**

~

'17.03

**Interconnection between SGCC-KEPCO-SoftBank**





## 2-3 KEPCO's Progress

### Major Progress / Russia-Korea

#### '12.10 ~ 14.09 Feasibility Study for Korea-Russia Power Grid Interconnection

▶ KEPCO, KEEI, Korea University, Yulchon LLC

#### '17.09 President of Korea proposed NEA Supergrid Establishment

▶ Eastern Economic Forum in Vladivostok, Russia





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## Challenges for the Future





# 3-1 Potential Risks in Supergrid Project

## Risk Factors

Source : Dr. McKinstry, the European Supergrid – Messiah or Pariah, 2013

Factors	Rank	Risk Index(%)
▪ Policy	1	87.8
▪ Financial	2	85.6
▪ Planning & Consenting	3	83.1
▪ Political	4	76.3
▪ Infrastructure	5	66.0
▪ Operational	6	64.3
▪ Technical	7	50.0

⇒ **Policy, Financial, Planning & Consenting, Political Risks**  
are much bigger than Technical and Operational Issues

# 3-2 Governance Establishment

## Public: Inter-Governmental Agreement(IGA)

- Joint declaration of NEA Supergrid Promotion
  - Mitigate Policy/Political Risks
  - Less uncertainty & More comfort to the shareholders
- Principles & Foundation for mutual cooperation



*Interaction*



## Private: Joint Development Agreement(JDA)

- How to develop and implement NEA Supergrid
  - Mitigate Financial/Planning & Consenting Risks
- Define: Business model, Roles of each Party, Project development schedule, Financing plan, etc.

*Addressing  
Inter-  
Governmental  
Agenda*





# 3-3 Challenges in the Future

## Cooperation Field



# 3-4 Towards One Asia





# Thank you

