2017.10

# Belt & Road Initiative and China- Korea-Japan Power Grid Interconnection

Global Energy Interconnection
Development and Cooperation Organization

# Outline

Global Energy Interconnection
Development and Cooperation Organization
全球能源互联网发展合作组织

- Belt and Road Initiative
- Interconnection Overview
- Prefeasibility Study Outcomes
- Way forward

# 1. Belt and Road Initiative

Global Energy Interconnection Development and Cooperation Organization
全球能源互联网发展合作组织

## Silk Road Economic Belt

Integrates historical symbolism of the ancient Silk Road with the new requirements of today

**Sep. 7, 2013**

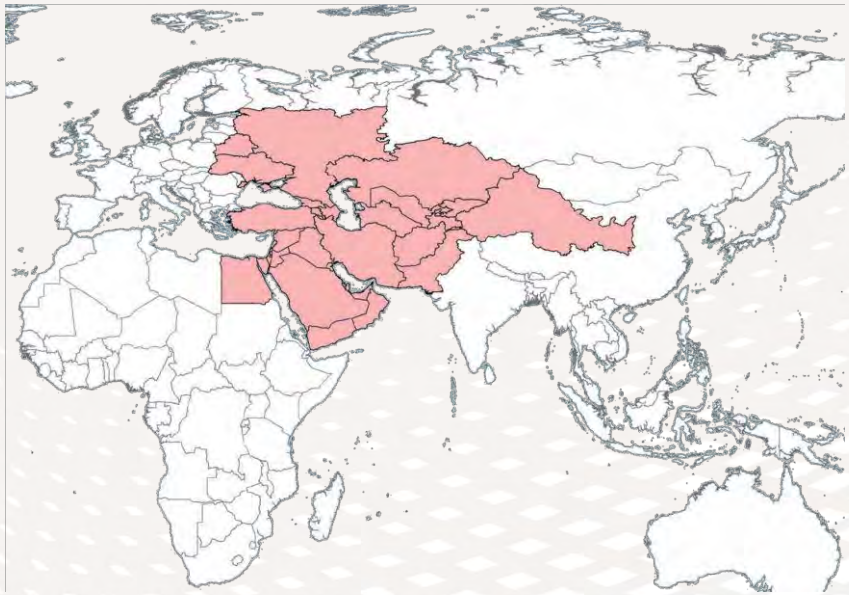
at Nazarbayev University of Kazakhstan

## 21st Century Maritime Silk Road

Boost maritime cooperation, forge closer ties in a community with a shared future

**Oct. 3, 2013**

in speech to the Indonesian parliament



**Active Response：over 100 countries and organizations**

**Bilateral Agreement：more than 70 countries and organizations with China**

**Goal : An open world economic system**

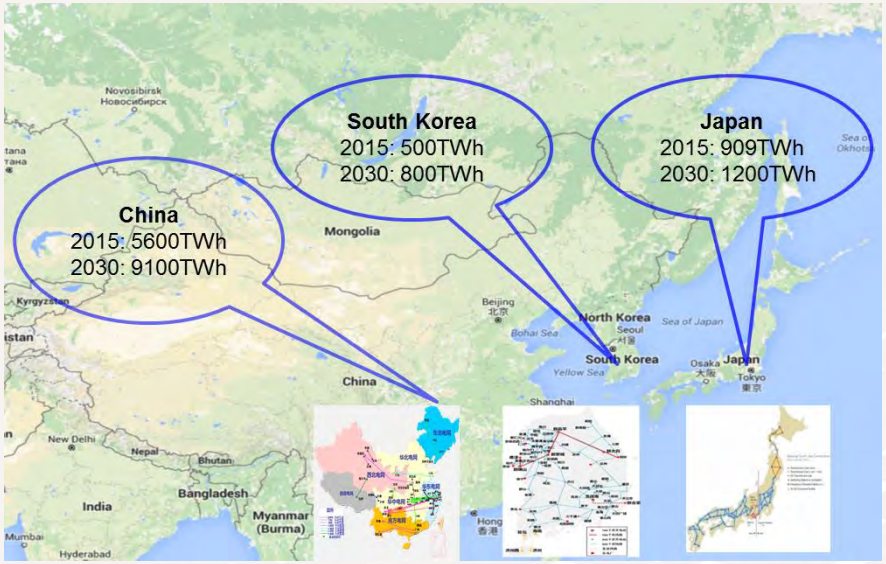
# 5 Priorities

# Top Priority： Facilities connectivity

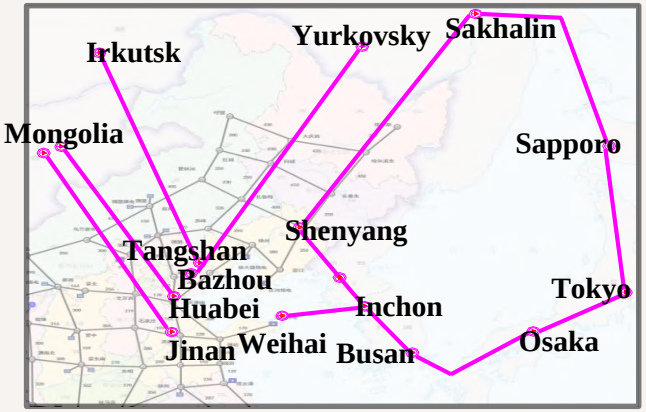
# 2. Interconnection Overview



- The majority electricity demand of Northeast Asia is in China, Japan and South Korea. By 2030, the total electricity demand of the three countries will reach 11100 TWh, which accounts for more than 60% of the demand in Asia.
- The direction of electricity flow in Northeast Asia is from West to East and from North to South.



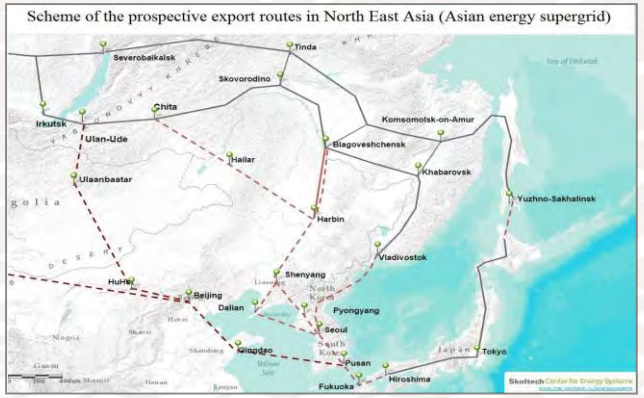

- Several utilities and research institutes have conducted studies on the Northeast Asia grid interconnection in order to meet demand growth, maintain energy supply security, promote renewable energy and achieve a fair electricity price.




Source: GEIDCO


Source: Renewable Energy Institue


Source: Korea Electric Power Corporation

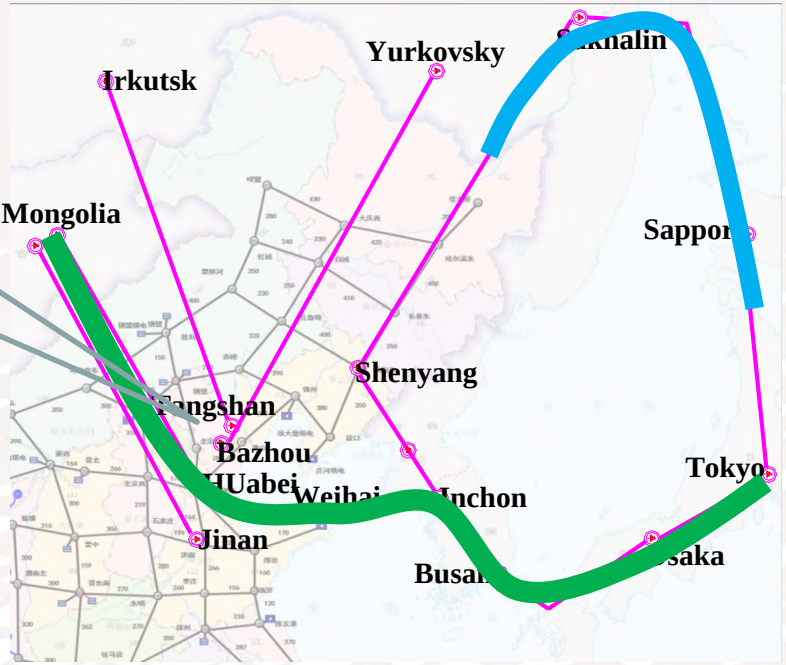



Source: Skolteck

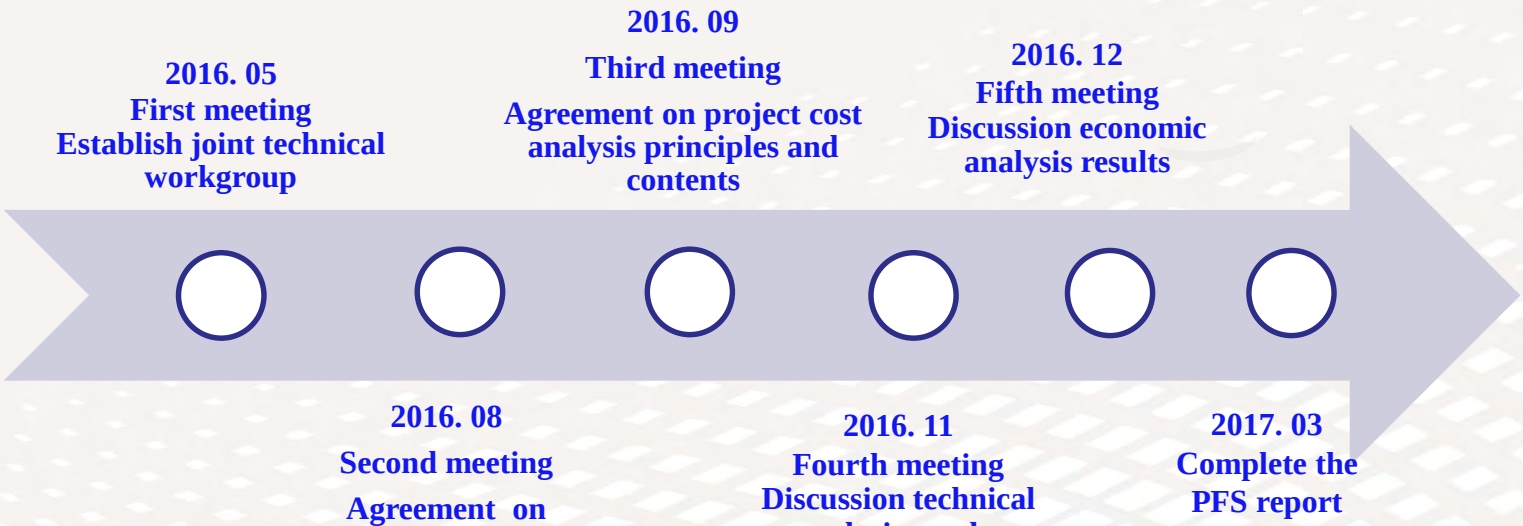
To promote Northeast Asia energy interconnection, State Grid Corporation of China, Korea Electric Power Corporation, SoftBank Group Corp. and the Russian Public Joint Stock Company Rosseti signed a MOU, in March 2016, which is organized by *Global Energy Interconnection Development and Cooperation Organization (GEIDCO).*

# The Mongolia-China-Korea-Japan power grid interconnection is selected as the first implemented multi-national grid interconnection project in Northeast Asia.

The implementation of the south channel is better than the north channel for the Northeast Asia power grid interconnection.



A joint working group and a joint technical workgroup were established by SGCC, KEPCO and SBG in May 2016 to conduct the pre-feasibility study of the CKJ project. The report was completed in March this year.

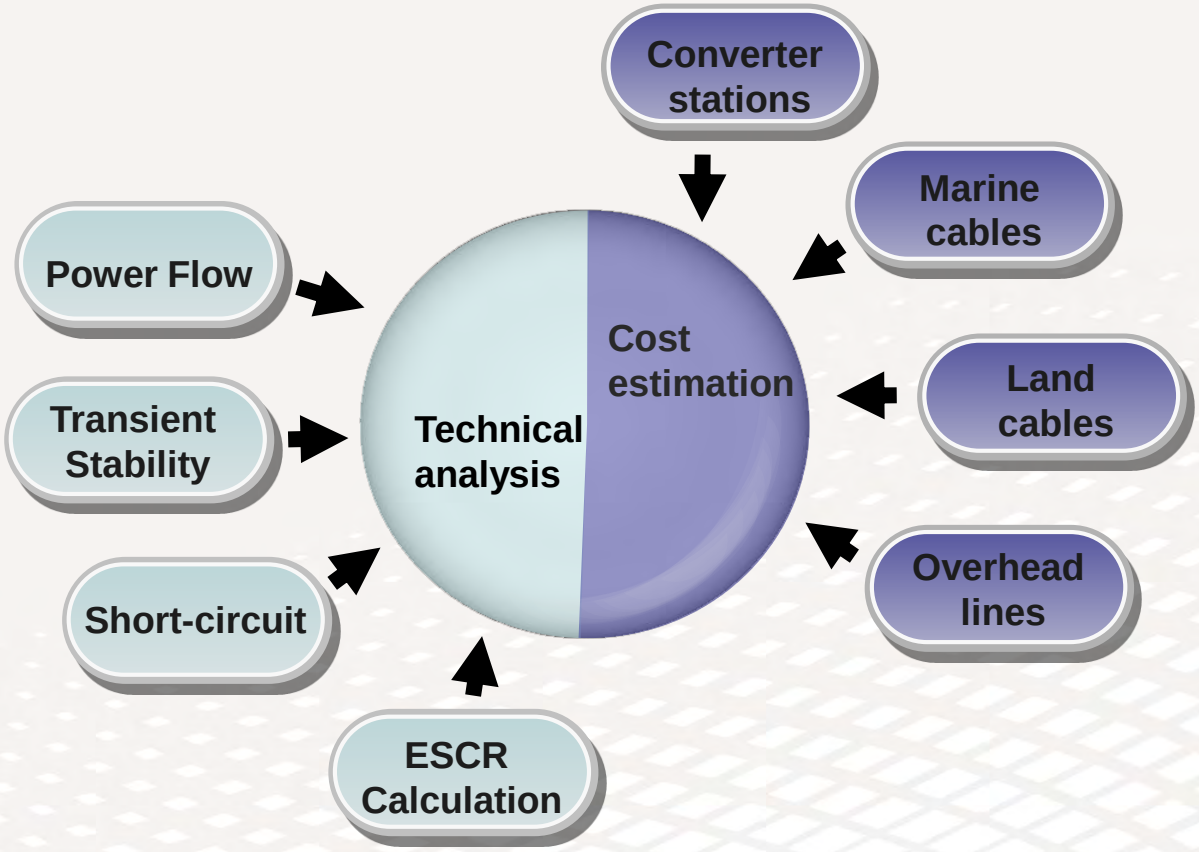


# 3. Prefeasibility Study Outcomes



- **Transmission Mode:** LCC (Bi-pole with metallic return, symmetric monopole) or VSC (symmetric monopole).
- **Transmission Capacity:** 2GW
- **Voltage Level:** ±500kV
- **Route Distance:** China-Korea segment as 366km; Korea-Japan segment as 460km or 770km.

- The system plans are technically feasible.
- Different transmission modes have great effects on the total cost.



# 4. Way forward



- C-K-J project F/S will include seabed survey, business model analysis, regulatory framework study, technical plan optimization, economic study, risk assessment, etc.. The recommended plan shall be proposed, regarding submarine cable type and DC transmission mode choice.

- All parties shall actively report the project progress to the respective governments and demonstrate its feasibility and positive significance, to seek their solid support in order to commission the project as early as possible.

- Making Northeast Asia interconnection a successful pilot interconnection project under Belt and Road Initiative.

# *Thank you!*