Interconnection as a means of Energy Transition in East Asia

Hiroshi Takahashi, Ph.D.
Professor, Tsuru University
Direction of Energy Transition

Centralized Sources
- Nuclear/Coal

Distributed Sources
- Renewables

Monopoly

Competition

USA

GERMANY

Pre-3.11 JAPAN
Growing Electricity Trade in Europe

- Volume of Electricity Import of OECD Europe -

Electricity Trade by Countries

- Import and Export Ratios of Major Countries/Regions in 2014 -

- Export Ratio:
  - Denmark
  - Austria
  - Sweden
  - Norway
  - France
  - Germany
  - Poland
  - UK
  - Canada
  - Russia
  - Brazil
  - South Africa
  - USA

- Import Ratio:
  - Belgium
  - Italy
  - Holland

* Export Ratio = Export/Generation
* Import Ratio = Import/Generation

Conditions for Interconnection in East Asia

● Market Liberalization
  - Japan: wholesale and retail
  - Korea: wholesale

● Grid Unbundling
  - China, Russia: ownership-unbundling
  - Japan, Korea: legal unbundling

● Deployment of Renewables
  - China: world’s No.1 in wind and solar PV
  - Japan: world’s No.2 in solar PV
  - Russia: huge hydro capacity
  - Mongolia: huge potential of wind and solar PV