
**JOINT STUDY “GOBITEC AND ASIAN SUPER GRID FOR RENEWABLE
ENERGIES IN NORTHEAST ASIA”**

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International Symposium on Roadmap to Asia Super Grid

Joint regional study Gobitec and Asian Super Grid for renewable energies in Northeast Asia

Energy Charter Secretariat

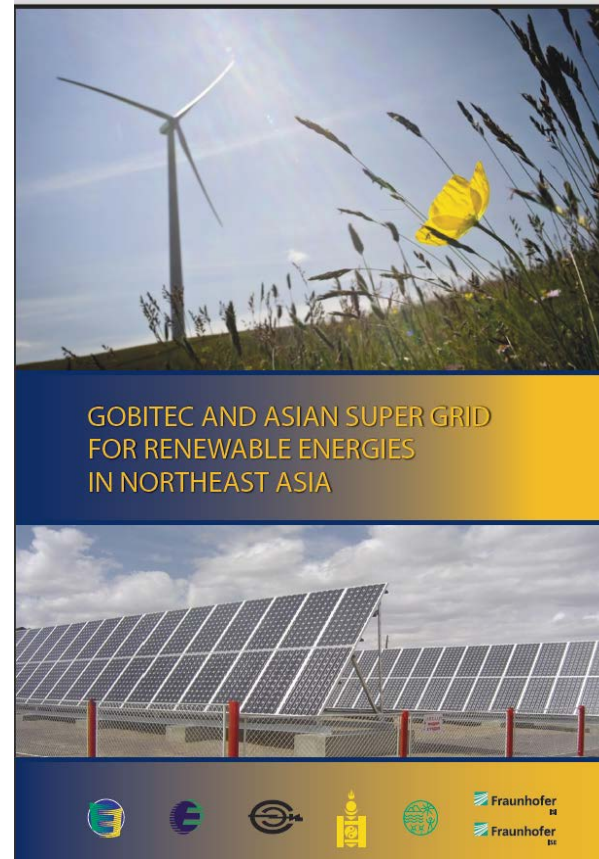
Korean Energy Economics Institute

Energy Systems Institute of the Russian Federation

Ministry of Energy of Mongolia

Japan Renewable Energy Foundation

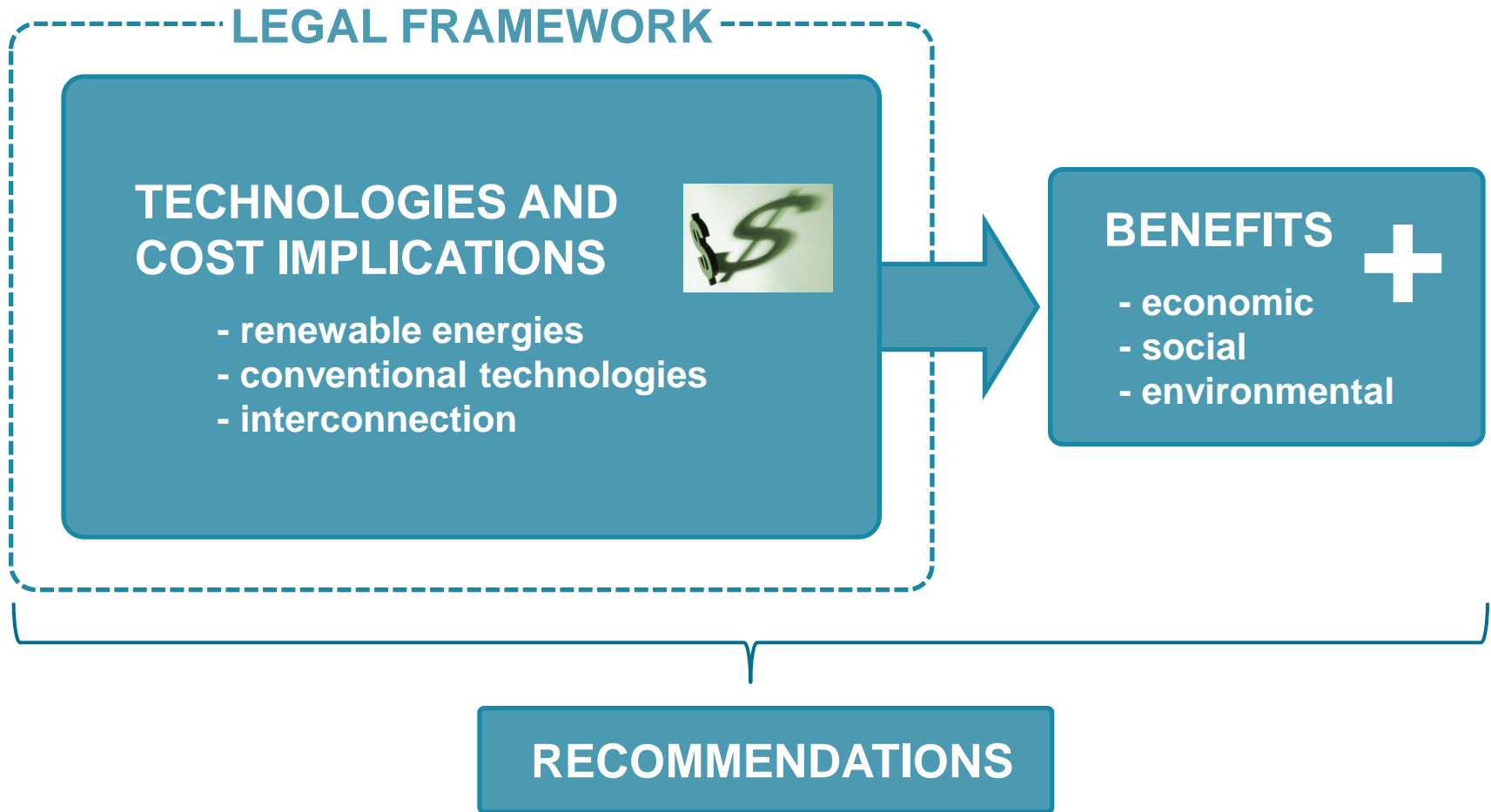
Fraunhofer ISI and Fraunhofer ISE



Outline

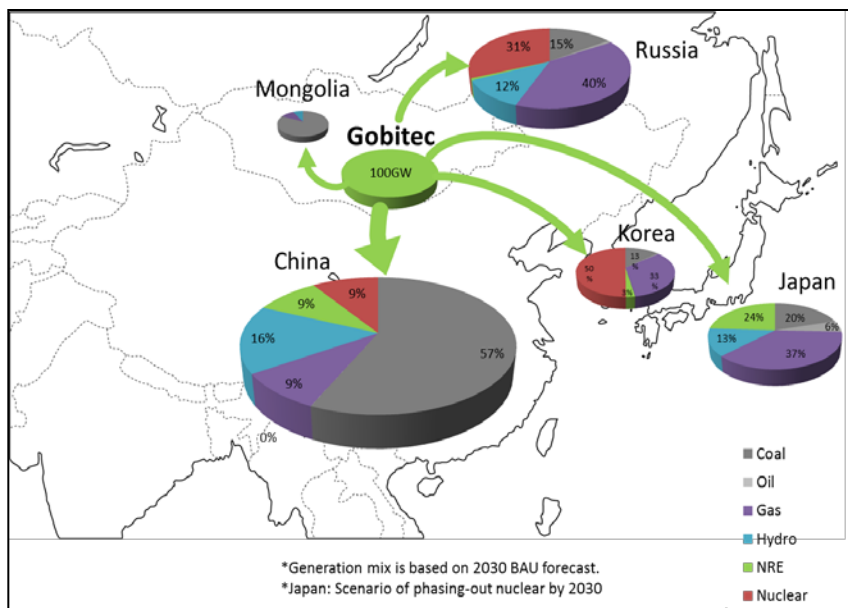
- **Introduction & key messages** – regional study Gobitec and Asian Super Grid
- **Legal framework** – Energy Charter Treaty
- **Actions, Objectives & Recommendations** – Next steps to promote Gobitec and Asian Super Grid initiatives

Scope of the regional study Gobitec and Asian Super Grid (ASG)

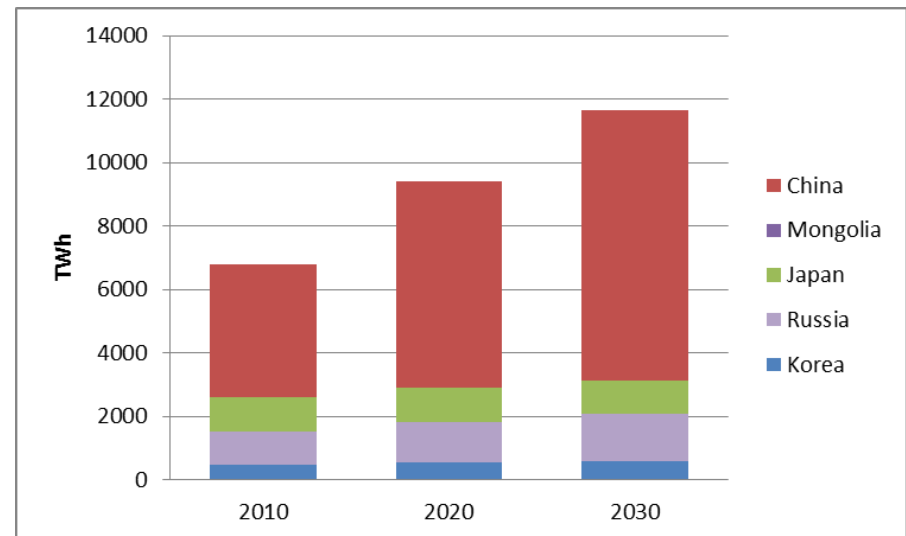


Gobitec potential versus electricity demand in NEA

Generation Mix of 2030 and importing RE from Gobitec



Electricity demand of NEA (BAU scenario).






Electricity exports of Gobitec and transmission via ASG

100 GW RE capacity

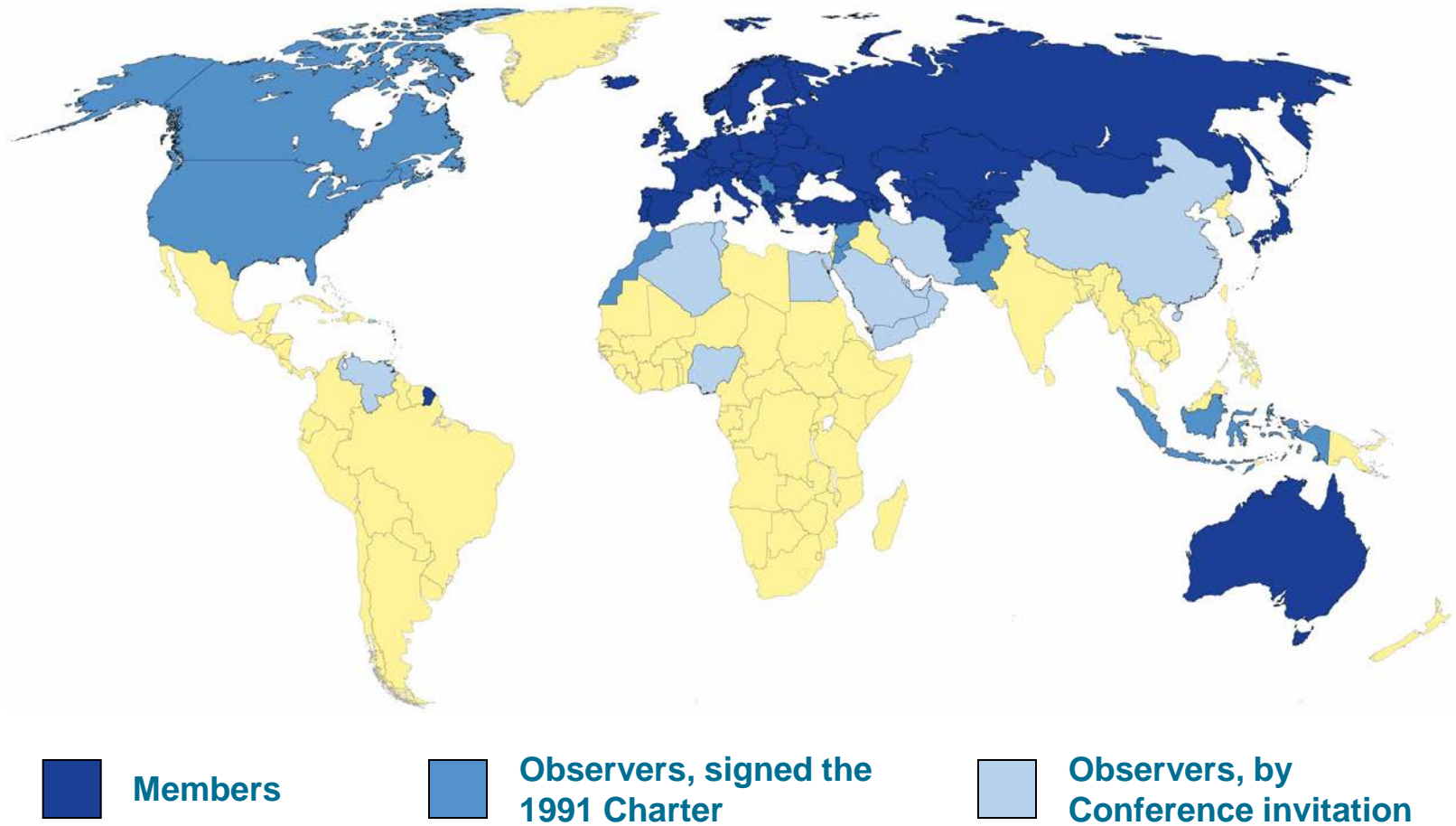
Import: maximum 10% of electricity demand



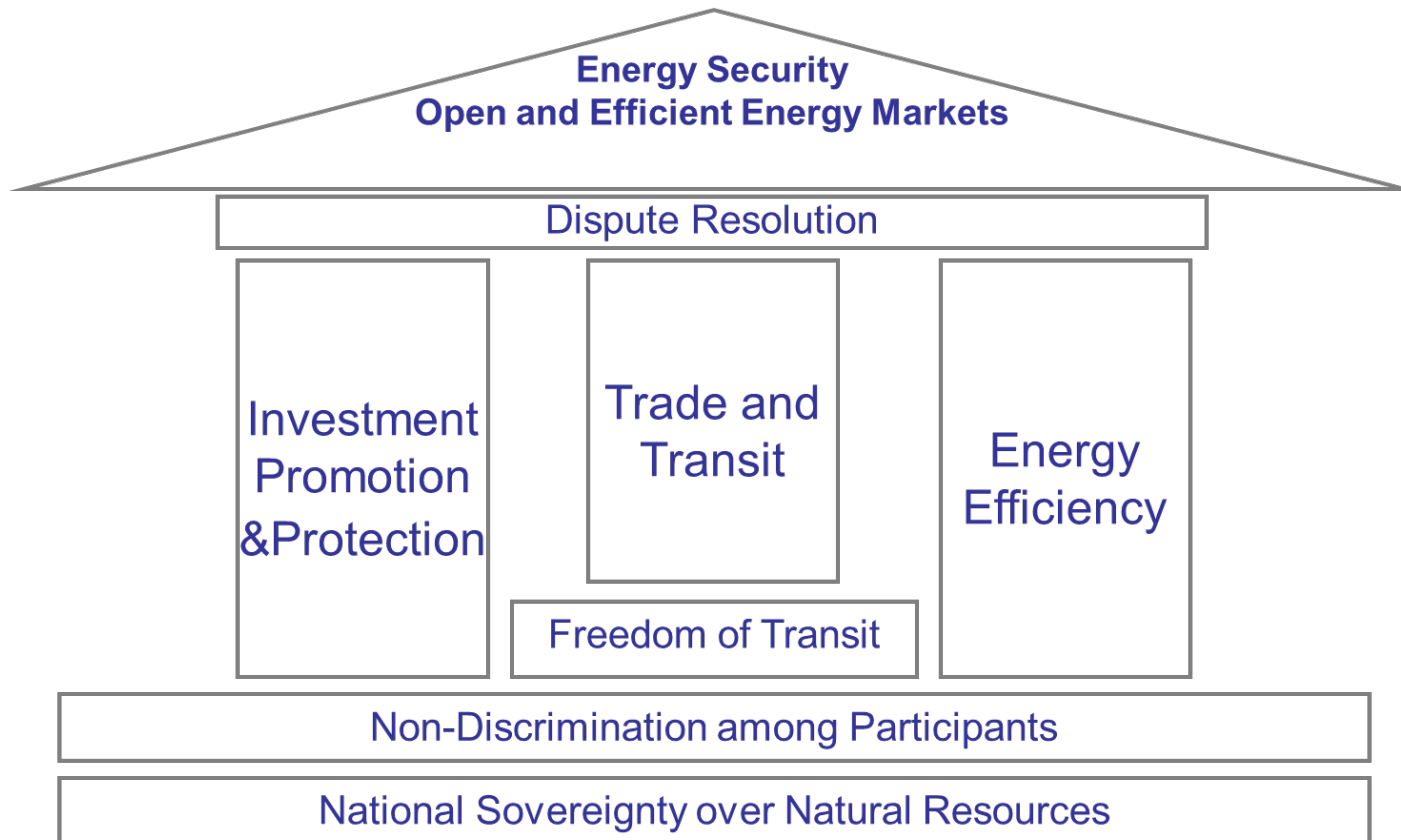
Gobitec and ASG - SWOT Analysis

Strengths <ul style="list-style-type: none">- Huge theoretical potential in the desert Gobi but also in South Korea and Japan- Reduction of emissions- Provide energy in an integrated system- Increase renewable energy rates- Increase energy security and safety due to a to a larger energy system- Facilitate energy and political cooperation cooperation	Weaknesses <ul style="list-style-type: none">- Huge capital costs- Difficult geopolitical constellation- Technical issues on High Voltage Direct Current transmission and solar energy system (CSP/cooling system)- Land availability especially for transmission transmission lines and partly for the plant plant deployment- No legal framework existent 
Opportunities <ul style="list-style-type: none">- Activate further policy cooperation- Larger economic and political integration- Attract foreign and private investors toward toward Northeast Asia- Economic benefits through local manufacturing- Reduce air pollution- Ameliorate the effects of Asian Dust- Cut down CO₂ emissions (187 Gt CO₂)- Stepwise build-up securing local demand first first- Participation of the local population	Threats <ul style="list-style-type: none">-  High capital risks-  Necessity of political cooperation and rivalry rivalry between the countries (already several several failed initiatives)- Induce water shortage through some RE technologies (solar thermal)- Threaten the lifestyle of nomadic tribes in in Mongolia

Legal Framework – Members of the Energy Charter



Legal Framework – Energy Charter Treaty



Note: The text of the Energy Charter Treaty can be downloaded at <http://www.encharter.org/publications>

Legal Framework – Potential of the Energy Charter

Legal Certainty and Transparency

A supra-national legal framework of binding character enhances transparent procedures and legal certainty

Foreign Investment Protection

Energy Charter Treaty provides security for investments

Transmission

Common rules must coordinate interconnected systems

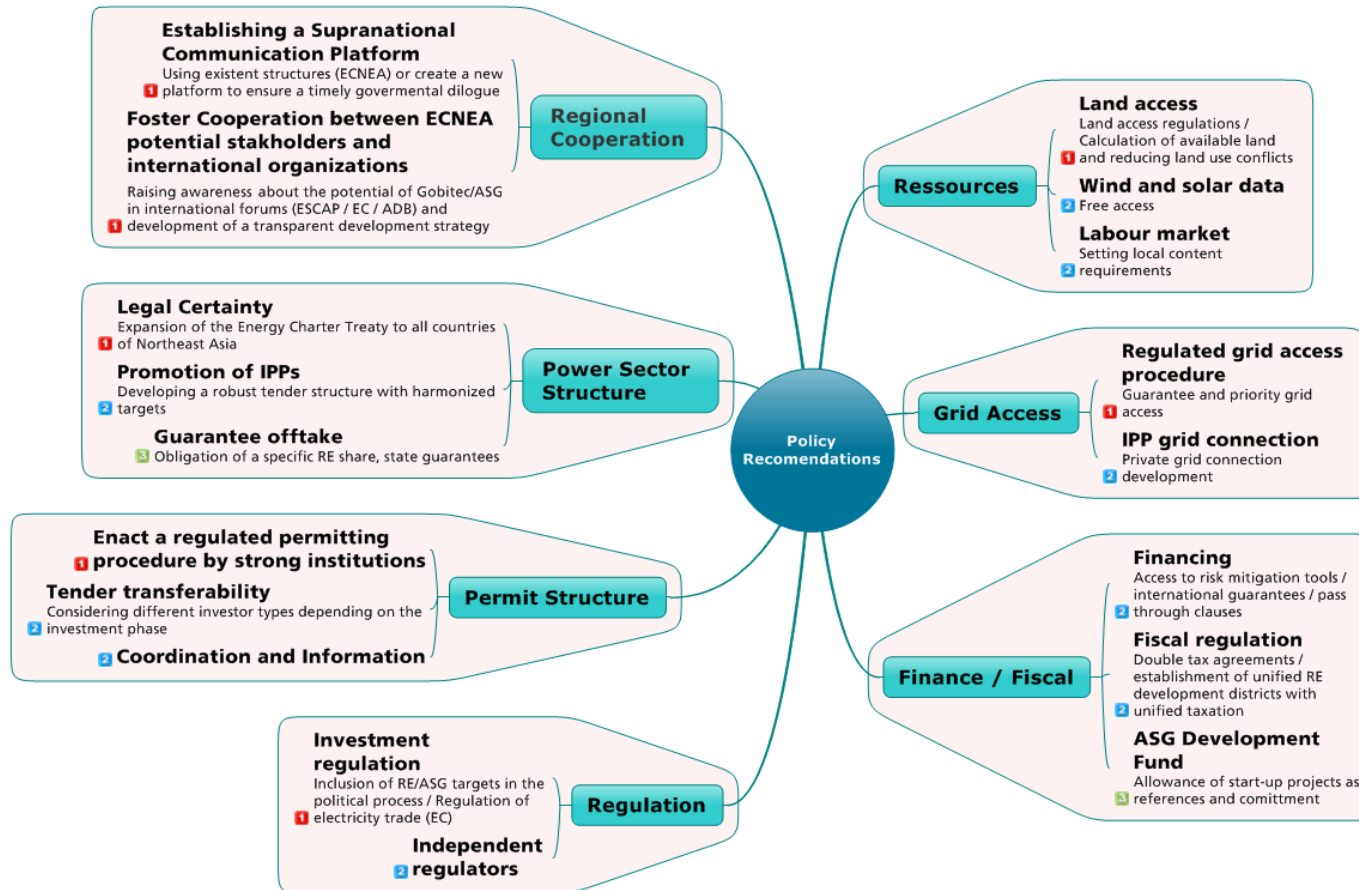
Cross border power trade

Cross border trade is a must in an integrated power system

A common regulatory framework, Energy Charter Treaty (ECT), covering key areas including investment protection, trade, transit, dispute resolution, environmental aspects can significantly encourage the development of Gobitec and Asian Super Grid initiatives.

The ECT can be seen as a political guarantee and a legal insurance for the development of large scale infrastructure.

Actions to support Gobitec and ASG



Recommendations – Main Objectives

Legal framework

(Expansion of the Energy Charter Treaty to regulate investment, trade, transit, dispute settlement, environmental aspects)

Development and Harmonization of Economic development strategies

(local manufacturing, economic development, joint economic strategies/districts)

International Cooperation

(partnership of Energy Charter, IRENA, ADB and other stakeholders)

Convergence targets

(Convergence targets to built-up Gobitec out of many projects)

National/bilateral cooperation

(preparation of national RE projects/targets following a unified Gobitec vision)

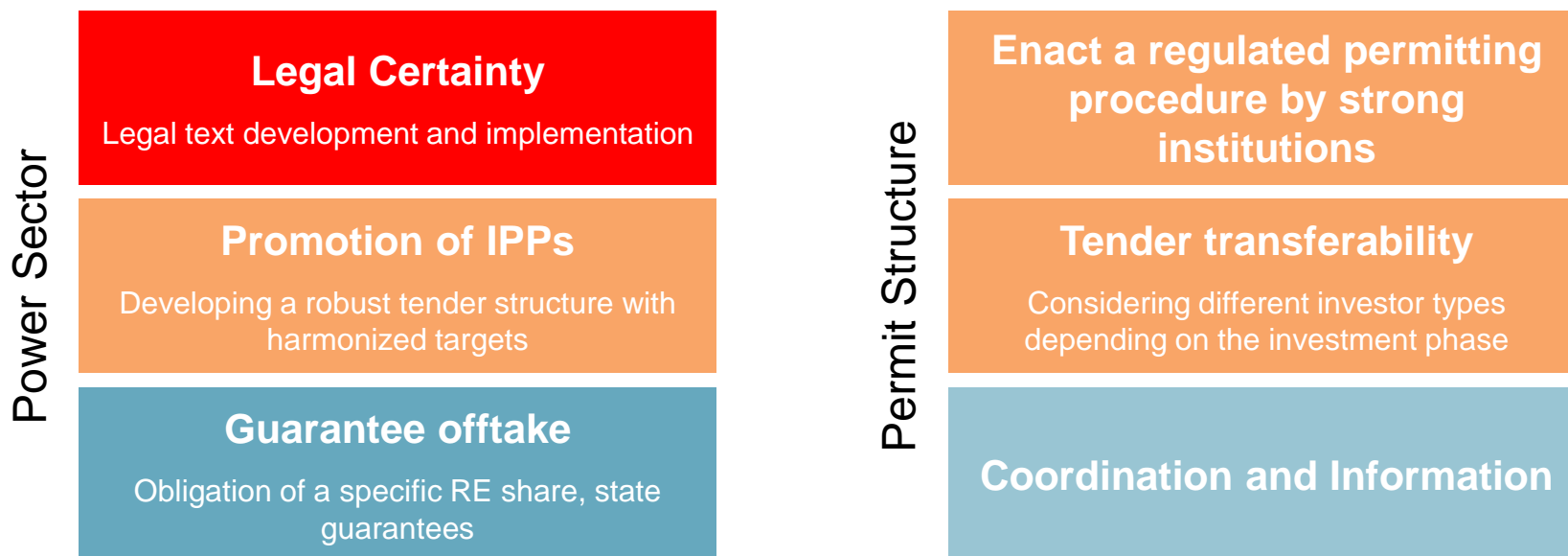
Transmission network

(Deployment targets, intergovernmental agreements, power exchange and market mechanisms)

Source (see also): Dii (2013): Getting started and new foundations

Recommendations Short(/Mid) Term – Time perspective 2020

- Short Term



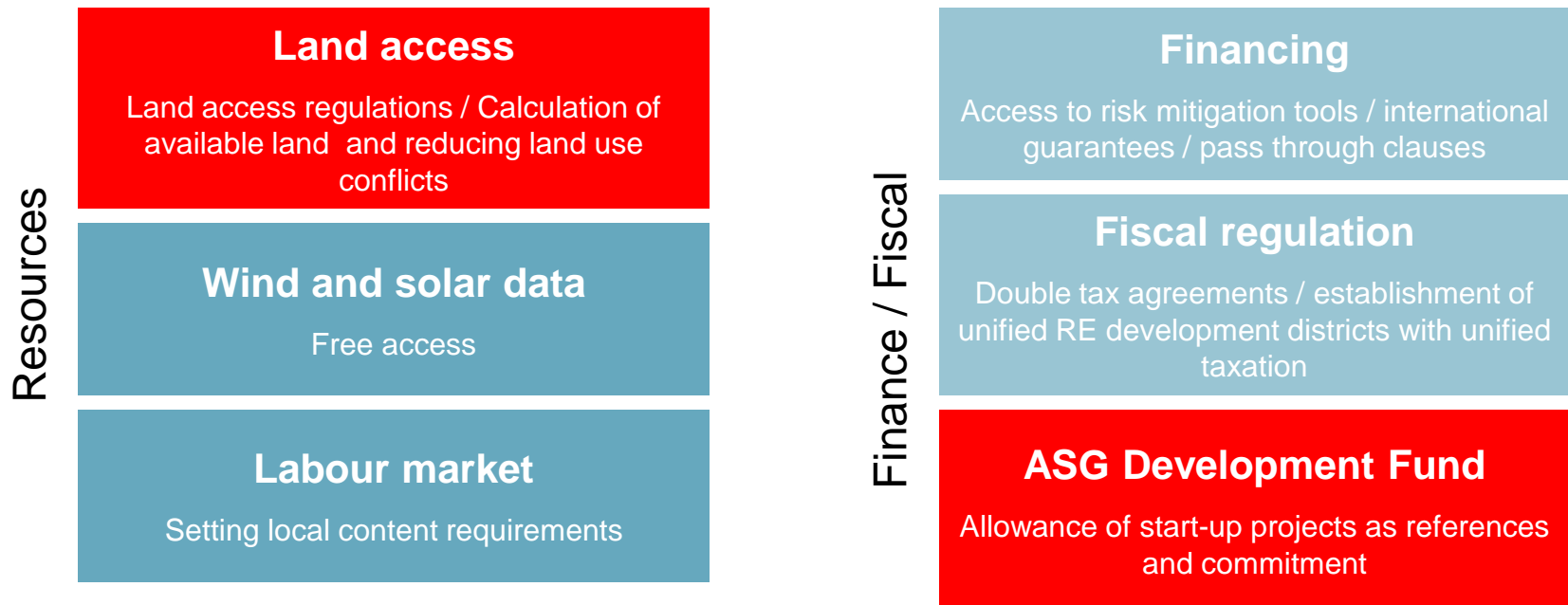
Recommendations Short(/Mid) Term – Time perspective 2020

- Short Term



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- Short Term



Thank you very much for your attention



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