



***The Brief Introduction of  
Jeju Island Smart Grid Project,  
Korea***

**Bruce Lee, ISGAN Secretariat**

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# ISGAN in Context



**A mechanism for bringing high-level government attention and action to accelerate the development and deployment of smarter electricity grids around the world.**



- ▷ Sponsors activities that build a **global understanding** of smart grids, address gaps in knowledge and tools, and **accelerate Smart Grid deployment**
- ▷ Builds on the momentum of and knowledge created by the substantial global investments being made in smart grids
- ▷ Is organized as a task-shared **IEA Implementing Agreement (2011)**
- ▷ Was launched as an initiative of **the Clean Energy Ministerial (2010)**
- ▷ Fulfills a key recommendation in the **Smart Grids Technology Action Plan**(released by Major Economies Forum Global Partnership, 2009)



## ISGAN in Context

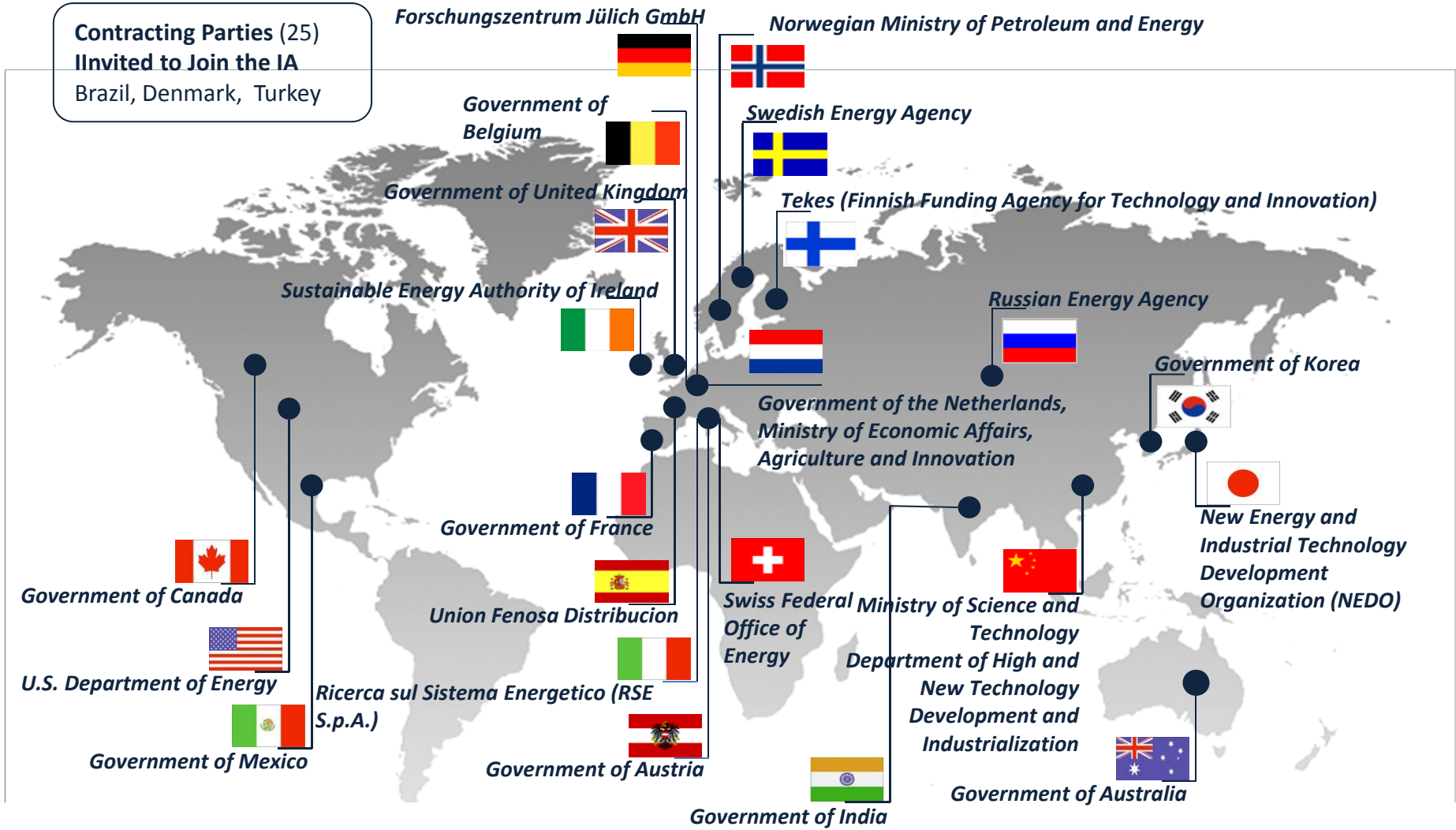


- ▷ **ISGAN is formally organized as the IEA Implementing Agreement for a Co-operative Programme on Smart Grids (ISGAN)**
- ▷ **ISGAN is managed by its Executive Committee (ExCo)**  
*Consists of representatives from all Participants*  
*Meets semi-annually. Next meeting: Shanghai, China, March 31, 2014*
- ▷ **ISGAN is supported by a Secretariat at the Korea Smart Grid Institute**  
*Email address: [isgan@smartgrid.or.kr](mailto:isgan@smartgrid.or.kr), ISGAN Website: <http://iea-isgan.org>*
- ▷ **The ISGAN community includes representatives of governments, transmission and distribution system operators, national laboratories and research institutions, power generators, and more.**



# ISGAN Participants - 25 Members

**Contracting Parties (25)**  
**Invited to Join the IA**  
Brazil, Denmark, Turkey





# Project Overview

## Jeju Smart Grid Project

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### Target

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Development and Verification of Smart Grid Technologies and Business Models

### Period

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1<sup>st</sup> Phase (Dec., '09 ~ May, '11) Installation of facilities

2<sup>nd</sup> Phase (Jun., '11 ~ May, '13) Operations

### Budget

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Total US\$230 mio (Government: US\$70 mio, Private Sector: US\$160 mio)



# What we have done? Technology Verification

AMI

- Smart Metering
- Measured Data Management

EMS

- Energy Monitoring & Control
- Energy Usage Optimization

EVCI

- Normal Charging & Quick Charging
- Communications

Interconnection

- Renewables (Wind Power, PV etc.)
- Microgrids

ESS

- Renewable Power Output Smoothing
- Peak Shaving & Load Leveling

Intelligent Device

- Electronic Sensors and IED
- Intelligent T&D Devices

DR

- Reliability Based DR
- Market Based DR



## *What we have done?*

# *Business Model Verification*

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- ⦿ Electricity Retail Service
- ⦿ Demand Response
- ⦿ Retail Market Service
- ⦿ Virtual Power Plant Service



- ⦿ EV Charging Service
- ⦿ Mobile Charging Service
- ⦿ EV Rental Service



- ⦿ Energy Usage Consulting Service
- ⦿ Load Leveling & Quality Improvement



# Interim Evaluation Technology

(Technology) 153 technologies have been developed and verified  
(132 Papers, 111 IPs)

(What we Need) ①Architecture, ②Interoperability Standards

Item	Before (~2009)	Surveyed (2013.01)	Anticipated (2013.05)
Smart Power Grid	1.4	2.6	4.2
Smart Consumer	1.0	3.3	4.0
Smart Transportation	0.5	2.5	3.0
Smart Renewables	1.2	3.0	3.7
Smart Electricity Service	0.2	2.3	3.5
<b>Total</b>	<b>0.8</b>	<b>2.8</b>	<b>3.5</b>

\* Evaluated using SGMM(Smart Grid Maturity Model) which is developed by Software Engineering Institute

\* 0: Default, 1: Initiating, 2: Enabling, 3: Integrating, 4: Optimizing, 5: Pioneering

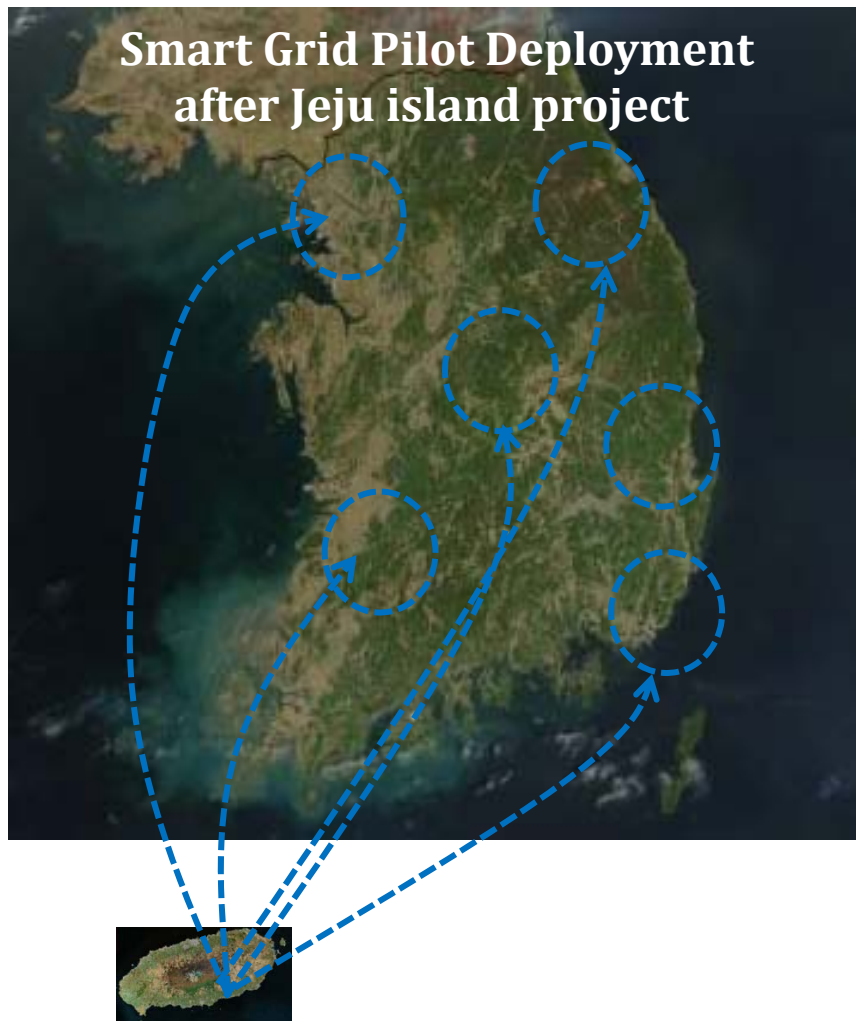


(Business Model) 9 BMs have been developed and verified

## Business Model

Item	Business Model
Smart Consumer Domain	<ul style="list-style-type: none"> <li>① Electricity Resale Service</li> <li>② Demand Response Service</li> <li>③ Retail Market Service</li> <li>④ Virtual Power Plant Service</li> </ul>
Smart Transportation domain	<ul style="list-style-type: none"> <li>① EV Charging Service</li> <li>② Mobile Charging Service</li> <li>③ EV Rental Service</li> </ul>
Other Domains	<ul style="list-style-type: none"> <li>① Energy Usage Consulting Service</li> <li>② Load Leveling &amp; Power Quality Improvement</li> </ul>

## What's Next? Korea Smart City



Project noticed  
& Application  
submission

- 2013. 8 ~ 2013. 12.

Feasibility  
Study

- 2014. 2 ~ 2014. 8~9

Current Status

- 7 Cities are involved
- 8 Consortia applied

Project Start  
(PMO: KSGI)

- From early 2015
- Expected Duration: 3 years

Note: Above schedules are subject to change



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**ISGAN Website (New!):** <http://iea-iscan.org>

*Three new white papers, released in April 2012, available.*

**ISGAN Secretariat Email:** [iscan@smartgrid.or.kr](mailto:iscan@smartgrid.or.kr)

**ISGAN Smart Grid Glossary “Beta”:**

[http://en.openei.org/wiki/ISGAN Smart Grid Glossary](http://en.openei.org/wiki/ISGAN_Smart_Grid_Glossary)

*Needs addition of content from around the world.*

*Wiki platform – easy to edit and augment.*

**CEM Website:** <http://cleaneenergyministerial.org>

**IEA page on Implementing Agreements:**

<http://www.iea.org/techno/index.asp>

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