

**STRIKING A BALANCE
IN THE MIDST OF CHANGE**
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Possible Correlations between Standards and Regulation in Smart Grid Business

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1 National Targets for SG Business

Energy Efficiency Increase

CO2 Emission Reduction

46.7% Increase/2030
Based on Energy Intensity of
2002

30% Reduction/2020
Based on BAU

**Smart Grid is one of the key solutions
for the National Targets**

- 1 What's special in Smart Grid
- 2 Interoperability Standards
- 3 Smart Grid Promotion Law
- 4 Suggestions and Conclusion

1 Smart Grid – What's special

Interconnected functional structure of SG

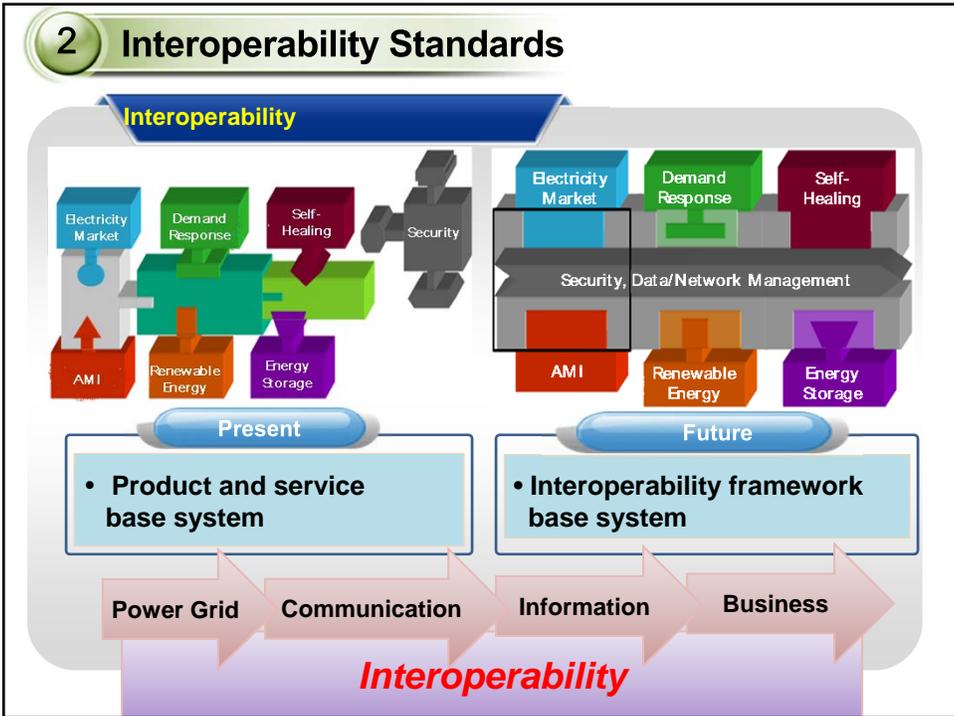
Why Regulation?

- Regulation can dispose the bound of Smart Grid
- Electricity price is determined by government, not that of market demand and supply

Why Standards?

- Standards for assuring interoperability is essential
- Various field such as smart home, renewable energy, EV should be interworked

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2 Interoperability Standards

Administrative procedure

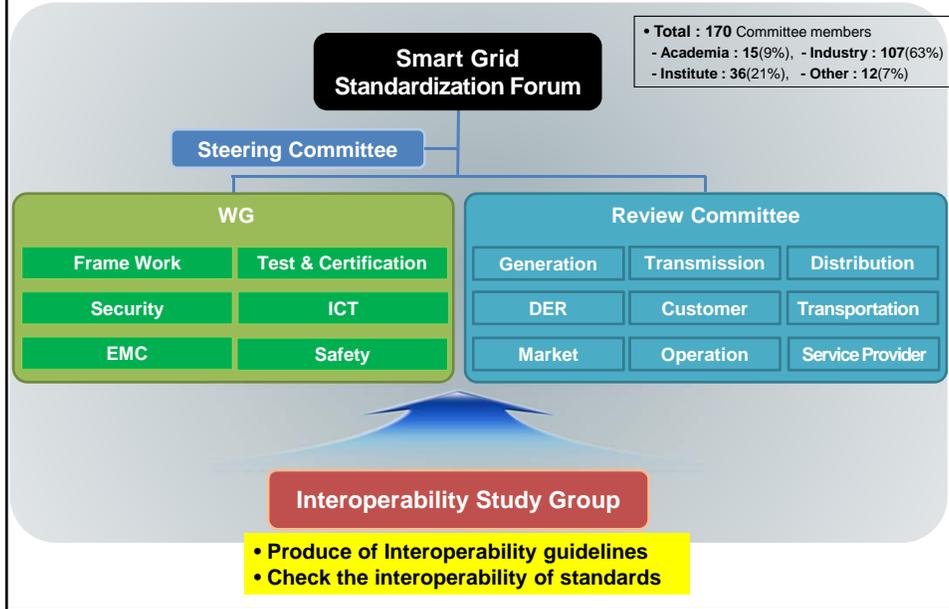
| | |
|---------|---|
| 2010.05 | Master Plan for Smart Grid Standardization |
| 2010.06 | Open Smart Grid Standardization Forum |
| 2011.04 | Establish The National Standards Coordinator System |
| 2011.05 | Approval of Bill for Smart Grid Promotion |

2 Interoperability Standards

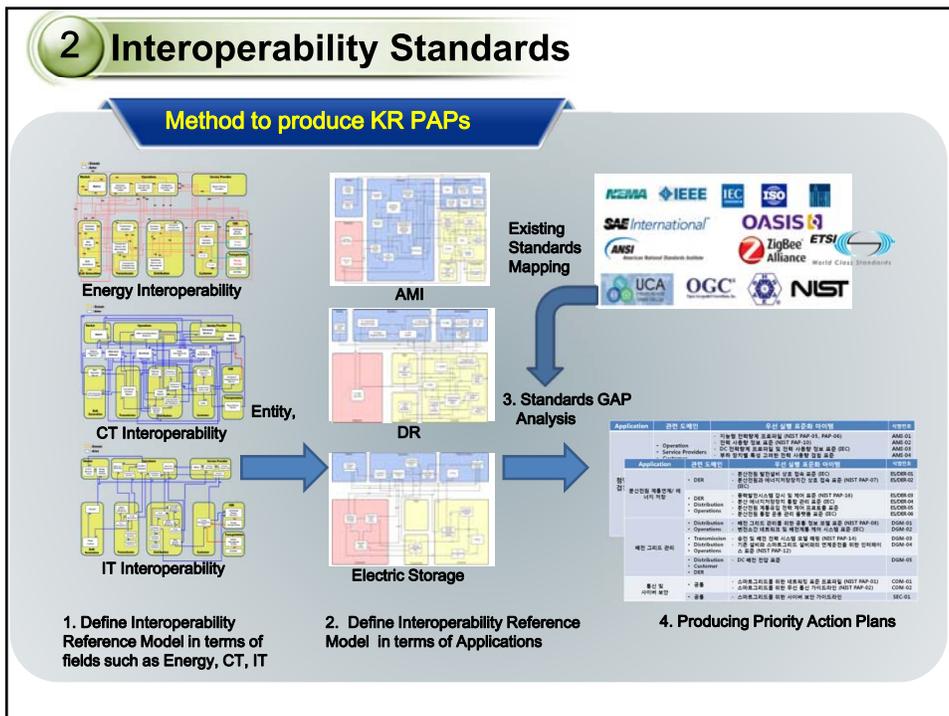
Standardization Master Plan

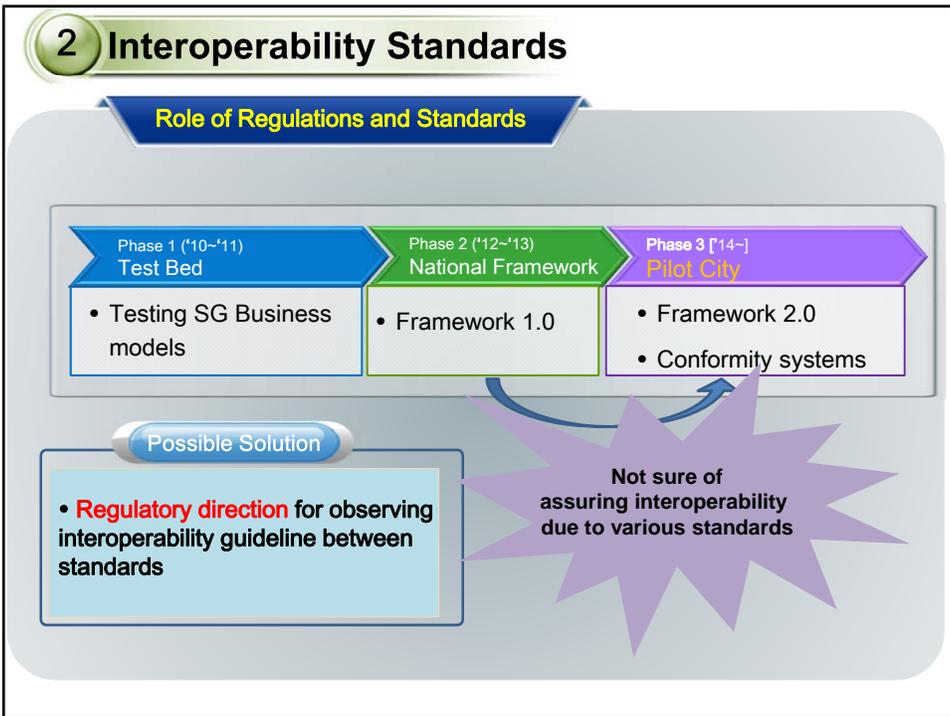
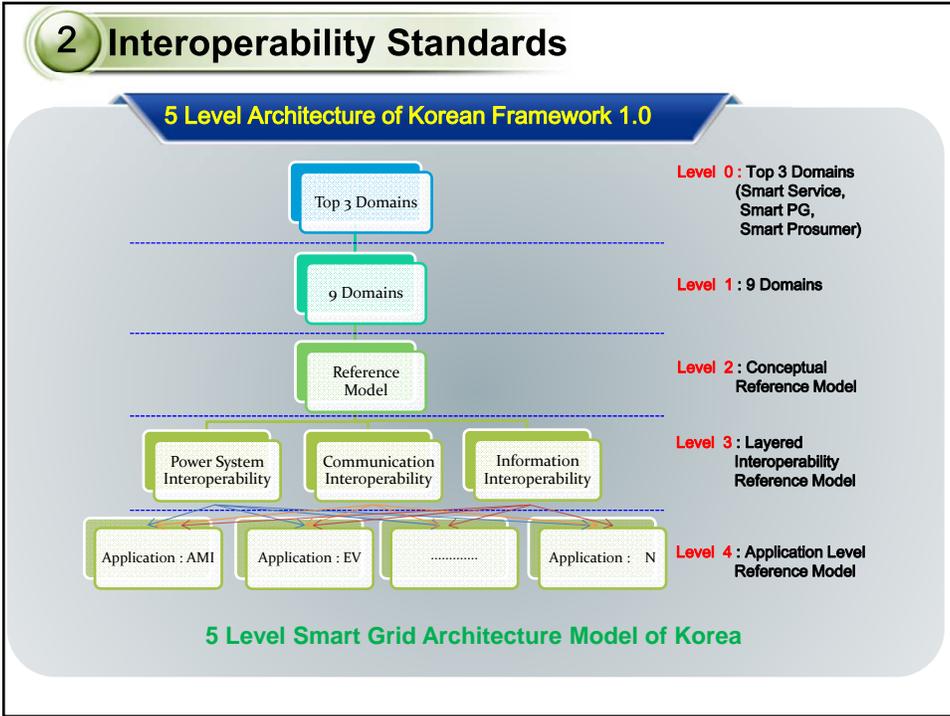
| Main Projects | Strategies | Objectives |
|--|---|---|
| <ol style="list-style-type: none"> 1. National interoperability standards framework 2. Framework operation and management system 3. Major key standards 4. Participation on international standardization activities 5. Global conformity assessment & certification system | <div style="background-color: #e6f2ff; padding: 5px; margin-bottom: 5px;">Establishment of Standardization Cooperation System with KSGA, KSIG and Consortia</div> <div style="background-color: #e6f2ff; padding: 5px; margin-bottom: 5px;">Verification & Test of Standards approved throughout "JEJU" Demonstration Project</div> <div style="background-color: #e6f2ff; padding: 5px;">General Management of overall Standard Activities by Standard Coordinator</div> | <p>Establishment of Smart Grid Standardization System & Aggressive role for International Standardization</p> |

2 Interoperability Standards



2 Interoperability Standards





| | |
|----------|-------------------------------------|
| 1 | What's special in Smart Grid |
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| 3 | Smart Grid Promotion Law |
| 4 | Suggestions and Conclusion |

| | |
|---------------------------------|---|
| 3 | Smart Grid Promotion Law |
| Administrative procedure | |
| 2010.05 | Held public hearing |
| 2010.06 | Communication with related organizations |
| 2010.08 | Announcement of legislation |
| 2010.09 | Examination by Regulatory reform committee |
| 2010.10 | Review by Office of Legislation |
| 2011.05 | Approval of the Bill by Korea National Assembly |

3 Smart Grid Promotion Law - Purposes

Legislative Support for Smart Grid Since 2011

- **Present:** Smart grid R&D is inevitably dependent on voluntary participations from industries
- **Future:** Need legislative support to sustain project and maintain industry participation
 - Major leaders such as United States and EU are designing to enact legislations to support R&D, standards, and smart grid deployment.
 - There is an urgent need to provide legislative support for smart grid to deal with climate change issues for competing in the global green market

Appeasement of Constraints

- **Present:** Electricity Enterprise Act restricts the diversity of businesses
 - Electricity Enterprise Act allows at present only monopole system for electricity retails
- **Future:** Need to transcend current legislative constraints by establishing a law and implementing next generation technologies to raise up the freedom of market

3 Smart Grid Promotion Law - Major Articles

Legislative Support for Smart Grid Since 2011

Master Plan for Smart Grid (Article 5, 6 and 9)

- Develop/Execute comprehensive plan for the establishment of smart grid and for the fostering of correlated businesses
 - Master Plan(5 yr) : Aimed at technology development, deployment , commercialization, standards
 - Enforcement Plan (annually) : Manage results and enforce relative plans each year
- Develop periodic transition plan for technology deployment/replacement to ensure participation from electricity suppliers and users

R&D Support (Article 10)

- Provide administrative, financial support regarding technology development, demonstration, policies and workforce development

International Cooperation (Article 11)

- Provide technological and resourcing support regarding international standard, R&D cooperation to help domestic companies to penetrate into international market

3 Smart Grid Promotion Law - Major Articles

Legislative Support for Smart Grid Since 2011

Business license for smart grid (Article 12)

- Individuals wishing to initiate a business for managing and supporting of smart grid industry may register via Minister of MKE
 - The scope of work for smart grid business ranges from manufacturing of equipments, products, and providing correlated services
 - Business license registration standard will be based on presidential decree

Investment for smart grid (Article 14)

- The article provides a basis for companies to receive subsidy in the case that they are making business investment for the benefit of the public
 - Plan to finance through utilizing Electric Power Industry Basis Fund, Treasury of Energy Resource and National IT Industry Promotion Agency Fund

3 Smart Grid Promotion Law- Future direction

Still Leftover works

- **How to activate electricity market**
 - Electricity Enterprise Act allows at present only monopole system for electricity retails
 - How to give a market more freedom and minimize possible negative effect
- **Fair distribution of energy resource**
 - Implementation of Real Time Price should make not only the efficient distribution of electricity but also fair distribution
 - The design of allocation through regulations is a key factor

**The Promotion of Smart Grid Business for
More Green Society in Korea**

1 What's special in Smart Grid

2 Interoperability Standards

3 Smart Grid Promotion Law

4 Suggestions and Conclusion

4 Suggestions

What is role of APEC?

- **Gap between developed economy and developing economy :**
 Interoperability standards should be internationally accepted in order to contribute to the trade and investment among developed economies.
 However, non-tariff barriers could be any type of obstacles for the developing economies

 - ☛ **The future role of APEC becomes important for international interoperability standards**
- **The cooperation in the form of JWG, panel and forum is the key for making any type of consensus between different stakeholders joining together**
- **The establishment of steering committee and coordinators could be suggested dealing with many cross-cutting issues** such as Safety, Cyber Security, Data Model

4 Suggestions

What is Future Task of APEC?

- Severe competitions should be avoided for dominant global standards : However, Premature standards may be pushed by Top-down approach to prevent mushroom standards
- Harmonizing standards and regulations would be better considering the business environment of each economy
 - Need international cooperation across APEC



4 Conclusion

Activating SG Industry

