

Low Carbon Town Activities in Korea

**KE
RI**

*Korea Electrotechnology
Research Institute*

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Smart Grid Program



Smart Grid Program – Vision & Goal

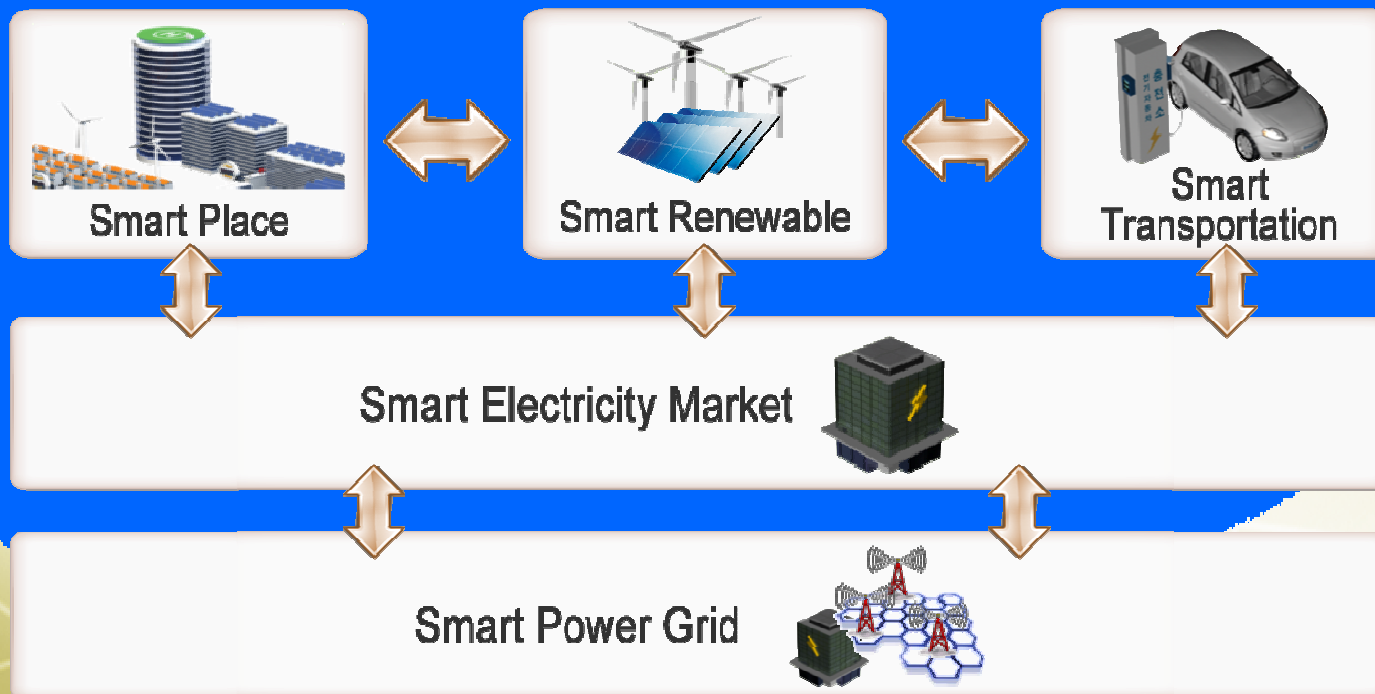
Vision

Low Carbon Green Growth Korea

Goal

Complete nation-wide Smart Grid by 2030

Smart Grid Platform



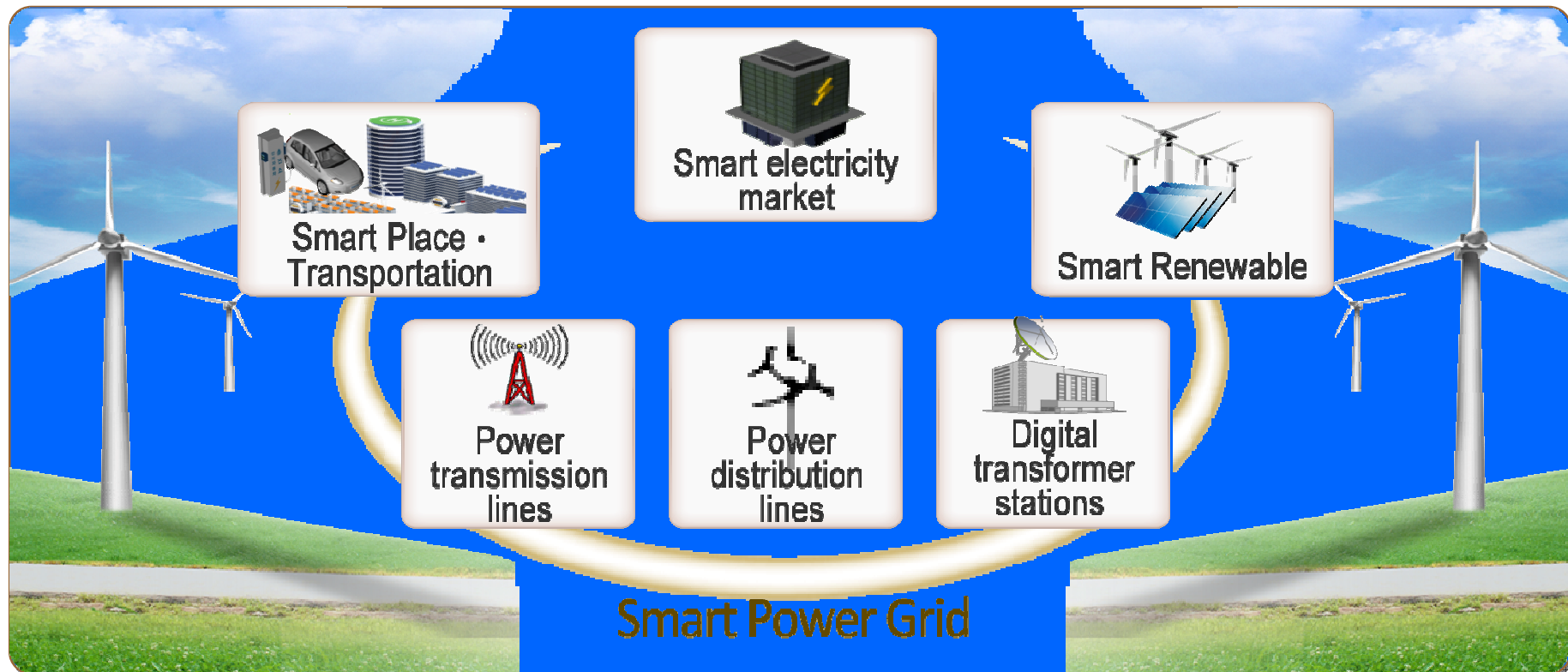
Smart Grid Program - Smart Power Grid

Short-term Goal (2012)

- Key operation technologies
- Distribution automation
- Key communication network

Long-term Goal (2020)

- WAMS
- Self-healing
- DER accommodation
- Advanced Communication network



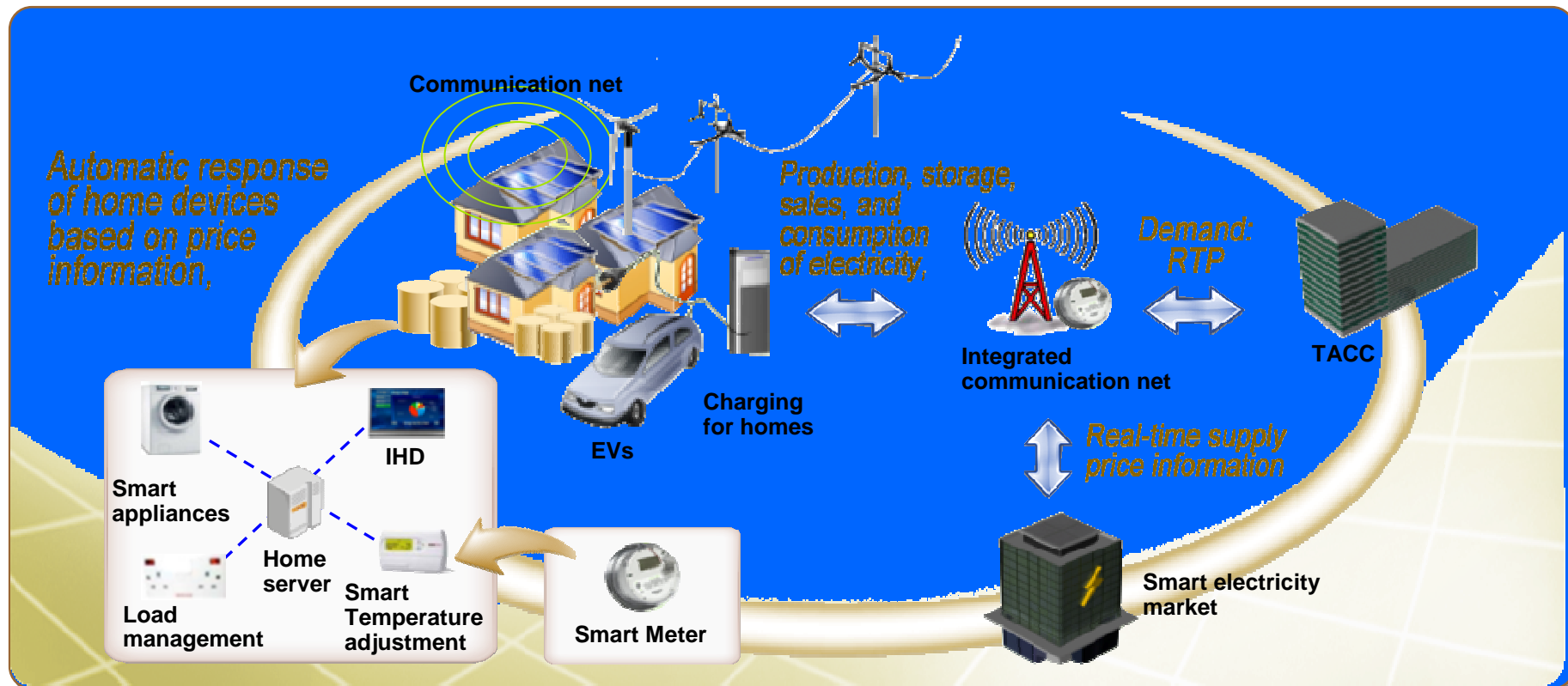
Smart Grid Program – Smart Consumer

Short-term Goal (2012)

- Real-time information exchange based on AMI
- Dynamic Pricing (CPP, RTP)

Long-term Goal (2020)

- Full-fledged consumer participation
- Automated retail transaction based on advanced AMI



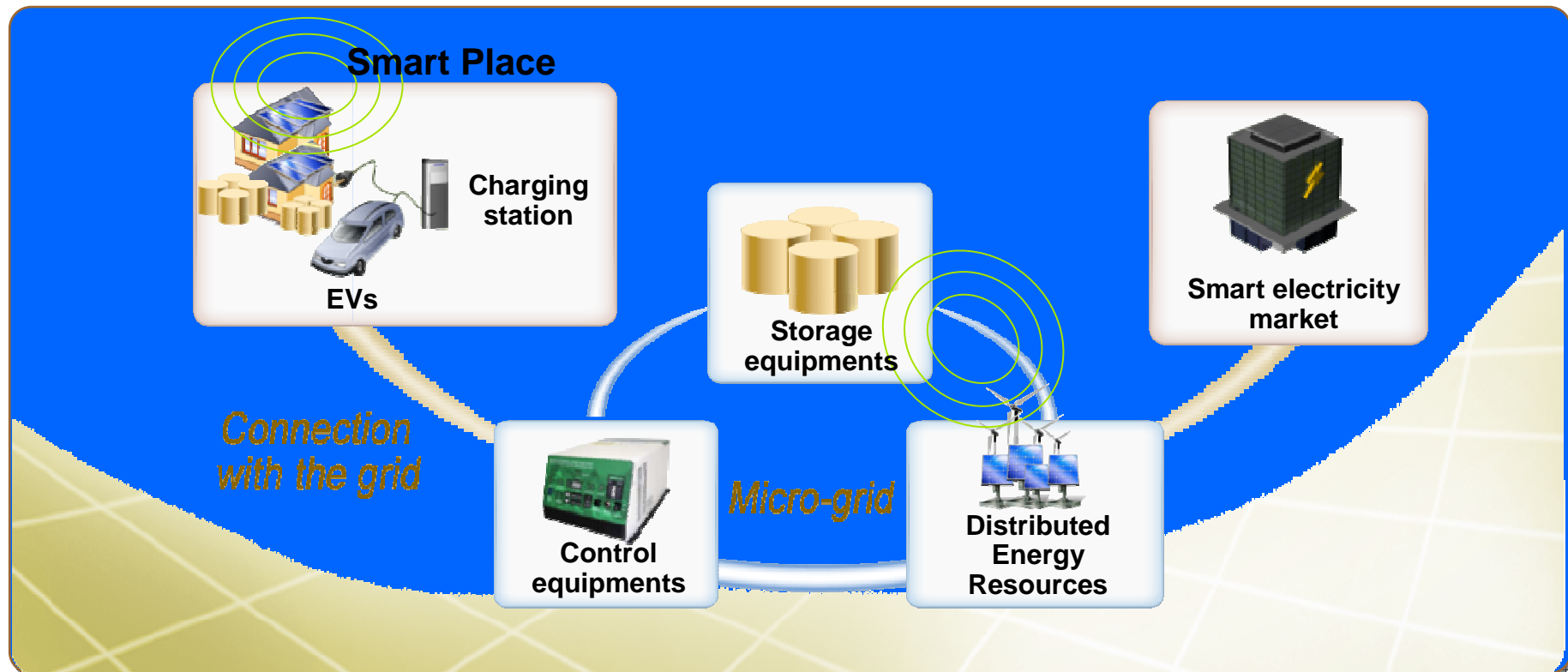
Smart Grid Program – Smart Renewables

Short-term Goal (2012)

- Flawless integration of micro-grid
- Commercialization of storage products

Long-term Goal (2020)

- Full accommodation of DER and micro-grid
- Large-scale gridwise storage system



Smart Grid Program – Smart Transportation

Short-term Goal (2012)

- EV charging infrastructure
- Best practice for EVs

Long-term Goal (2020)

- National charging infrastructure
- Consumer friendly charging system



Smart Grid Program – Smart Electricity Market

Short-term Goal (2012)

- RTP based on wholesale electricity market
- Consumer friendly dynamic pricing (CPP, RTP..)

Long-term Goal (2020)

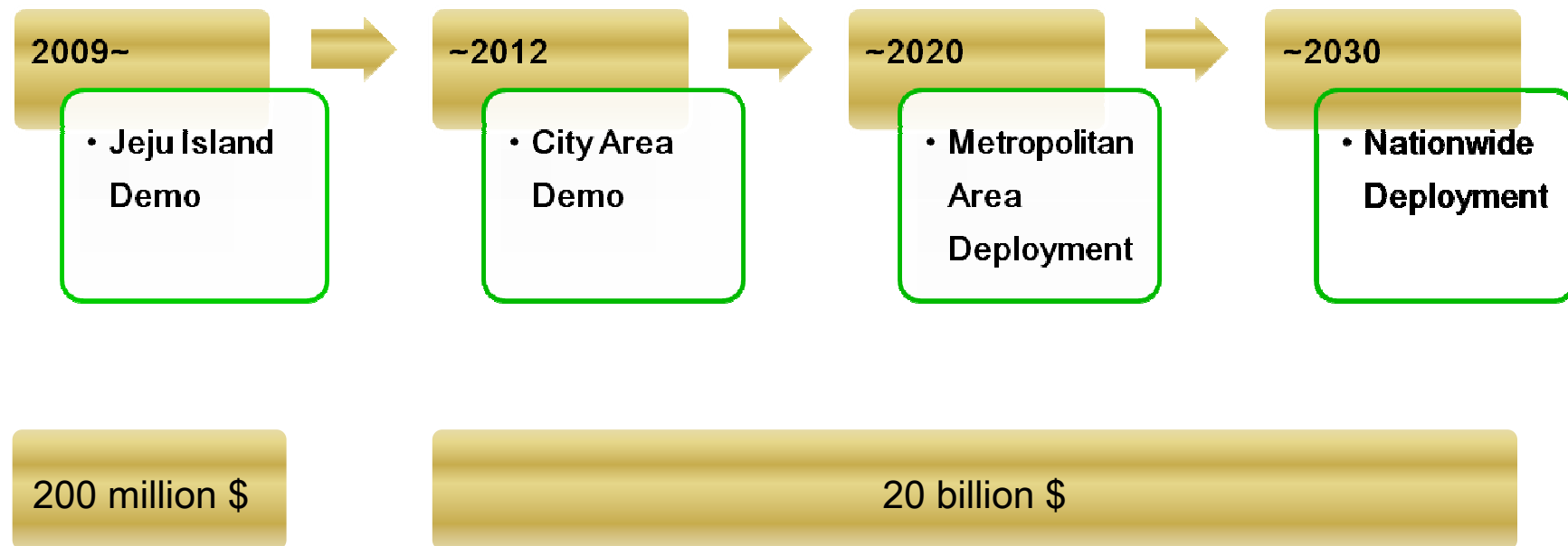
- Mature retail market based on RTP
- Fusion of heterogeneous industries
- Fast-east Asia interconnection



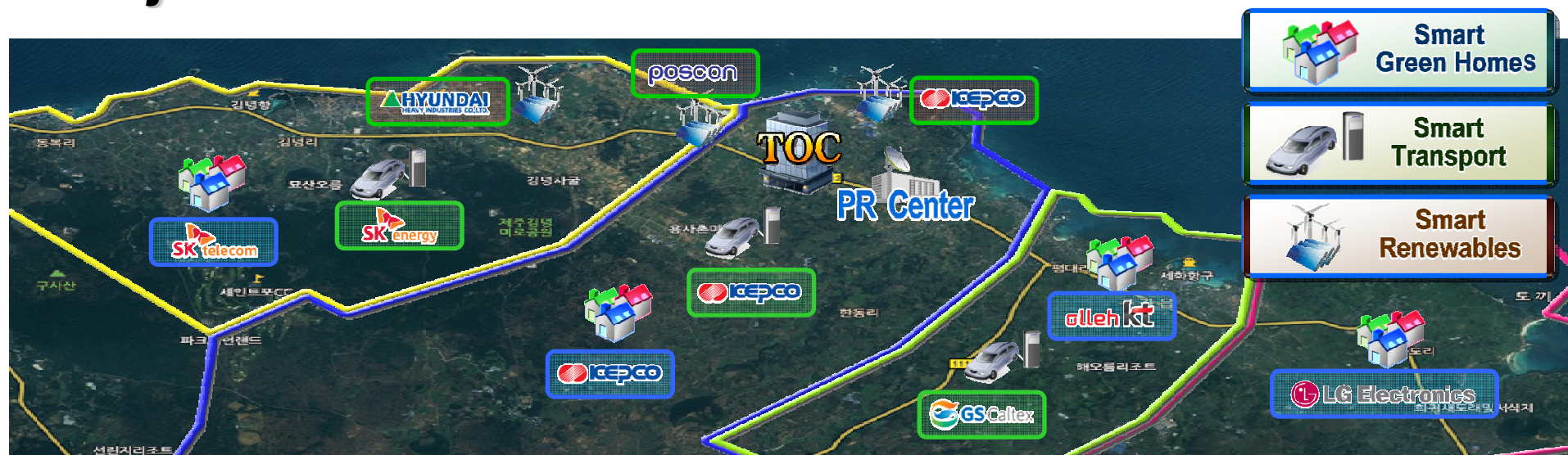
Jeju Island Demonstration



Overview of Demonstration & Deployment



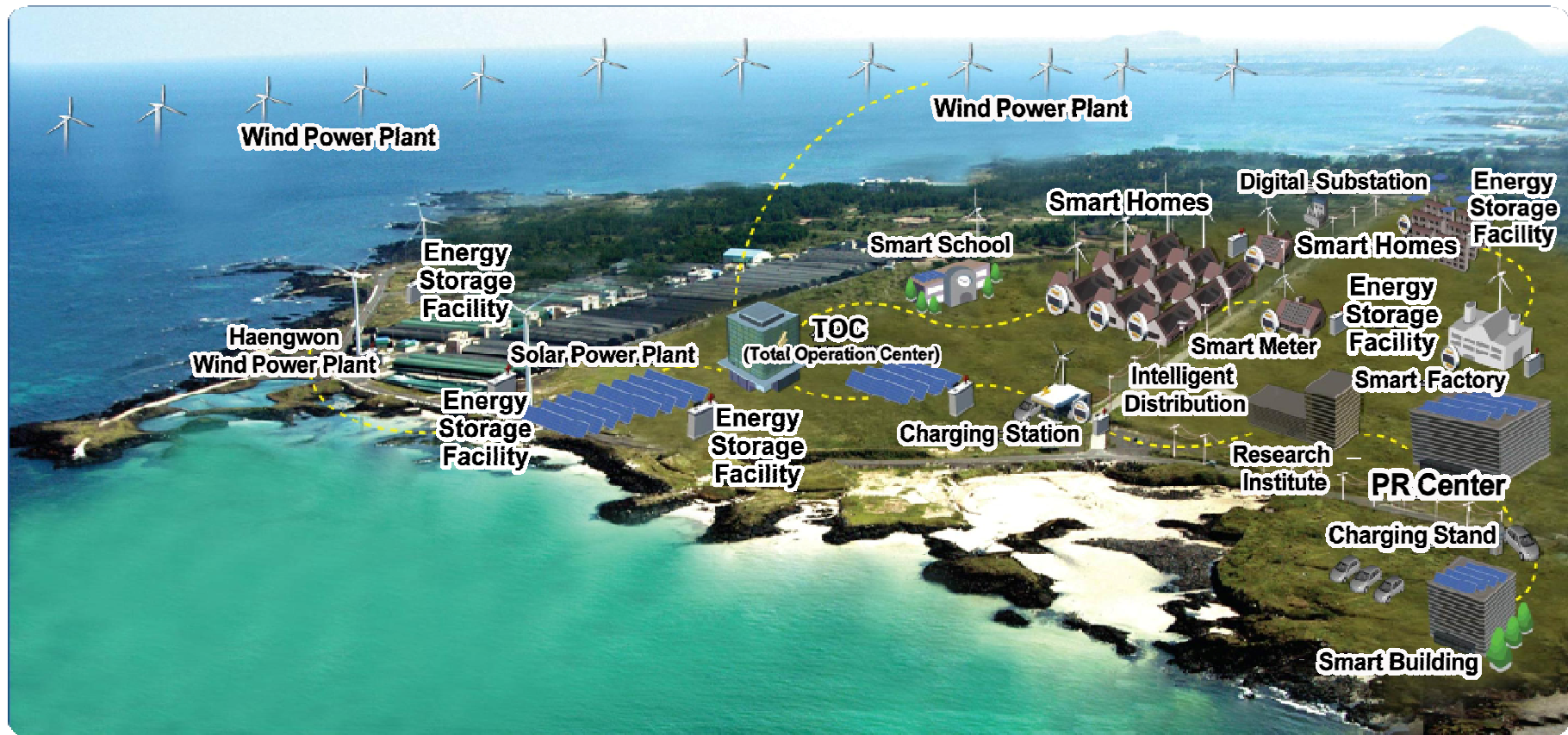
Jeju Island Demonstration



- ❖ Schedule: December 2009 to May 2013 (first 18 months to build infrastructure; next 24 months to test integrated operation of smart grid)
- ❖ Location: Gujwa-eup, Jeju Island (185 km²; 6,000 households)
- ❖ Budget: \$200 million (\$50 million public funds; \$150 million private investment)

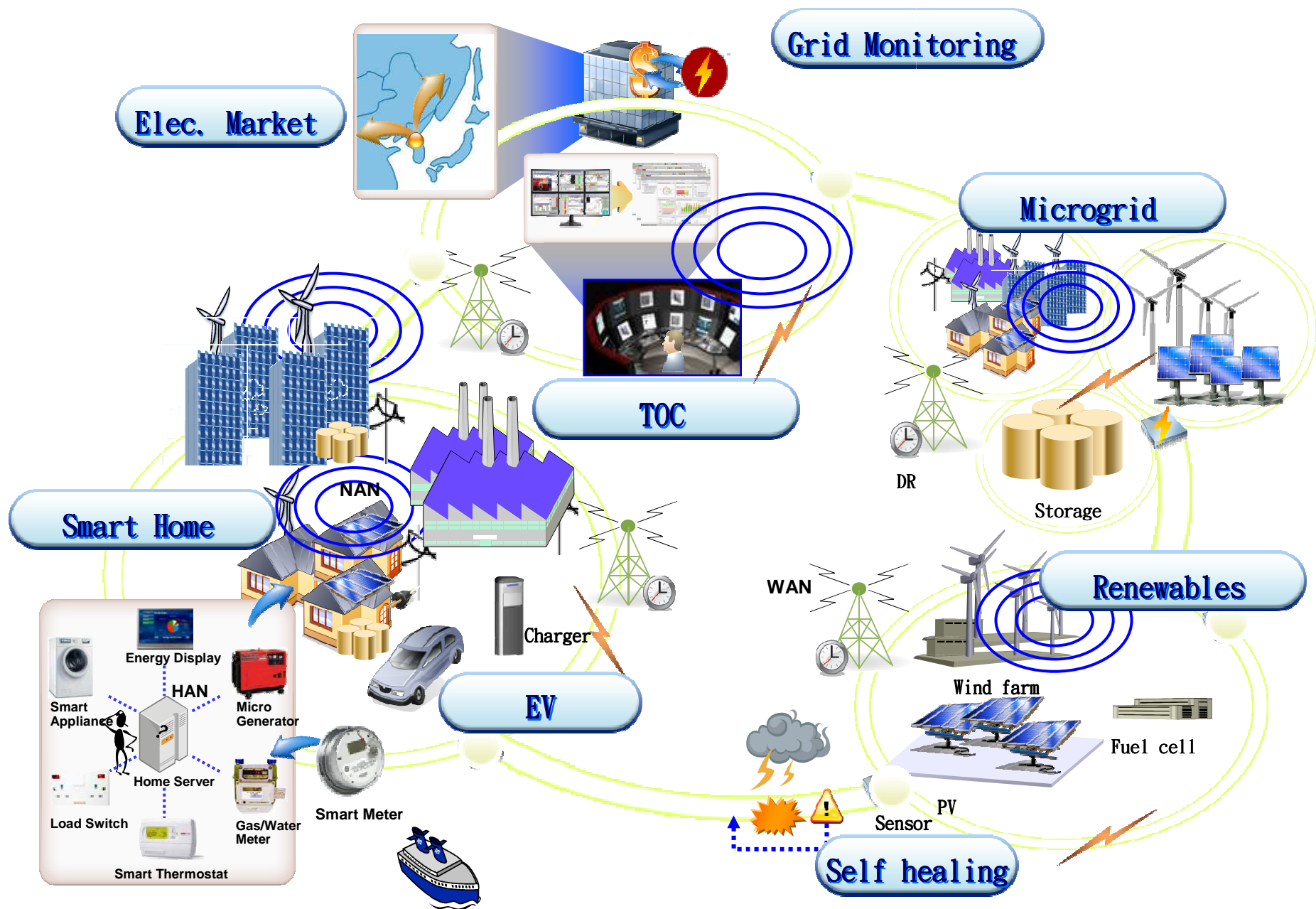


Jeju Island Demonstration



- Features:
 - Integrated test bed
 - Close collaboration between public and private sectors
 - Verification of different power market models
 - Participants: Korea Electric Power Corporation (KEPCO) plus automakers, telecommunications companies and home appliance manufacturers
 - Includes major companies such as LG, SKT, KT and Samsung
 - Open to foreign companies

Future of Jeju Island Demonstration



Example of Smart Renewables

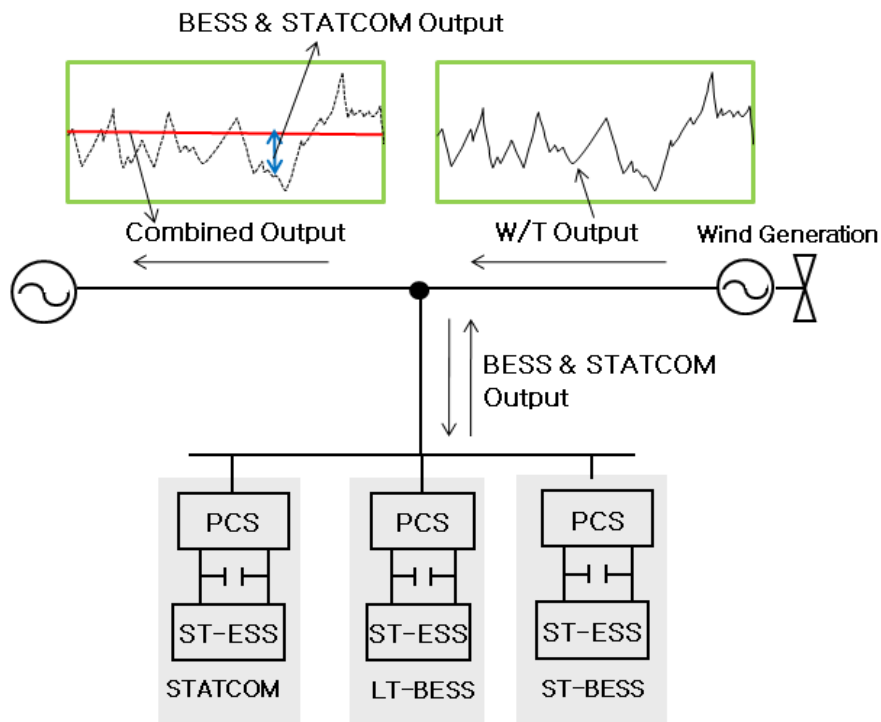


Fig a. Grid Interconnection

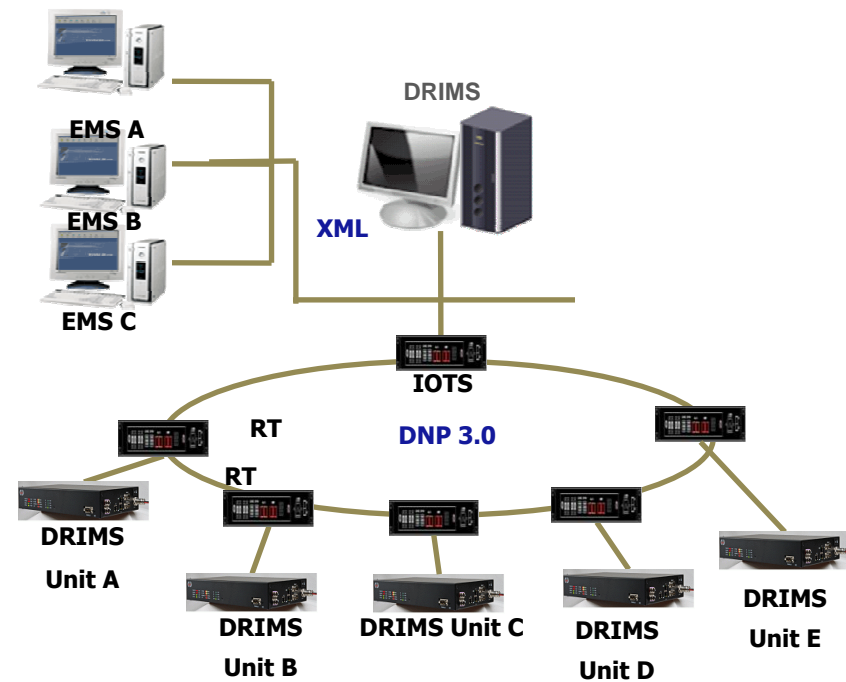
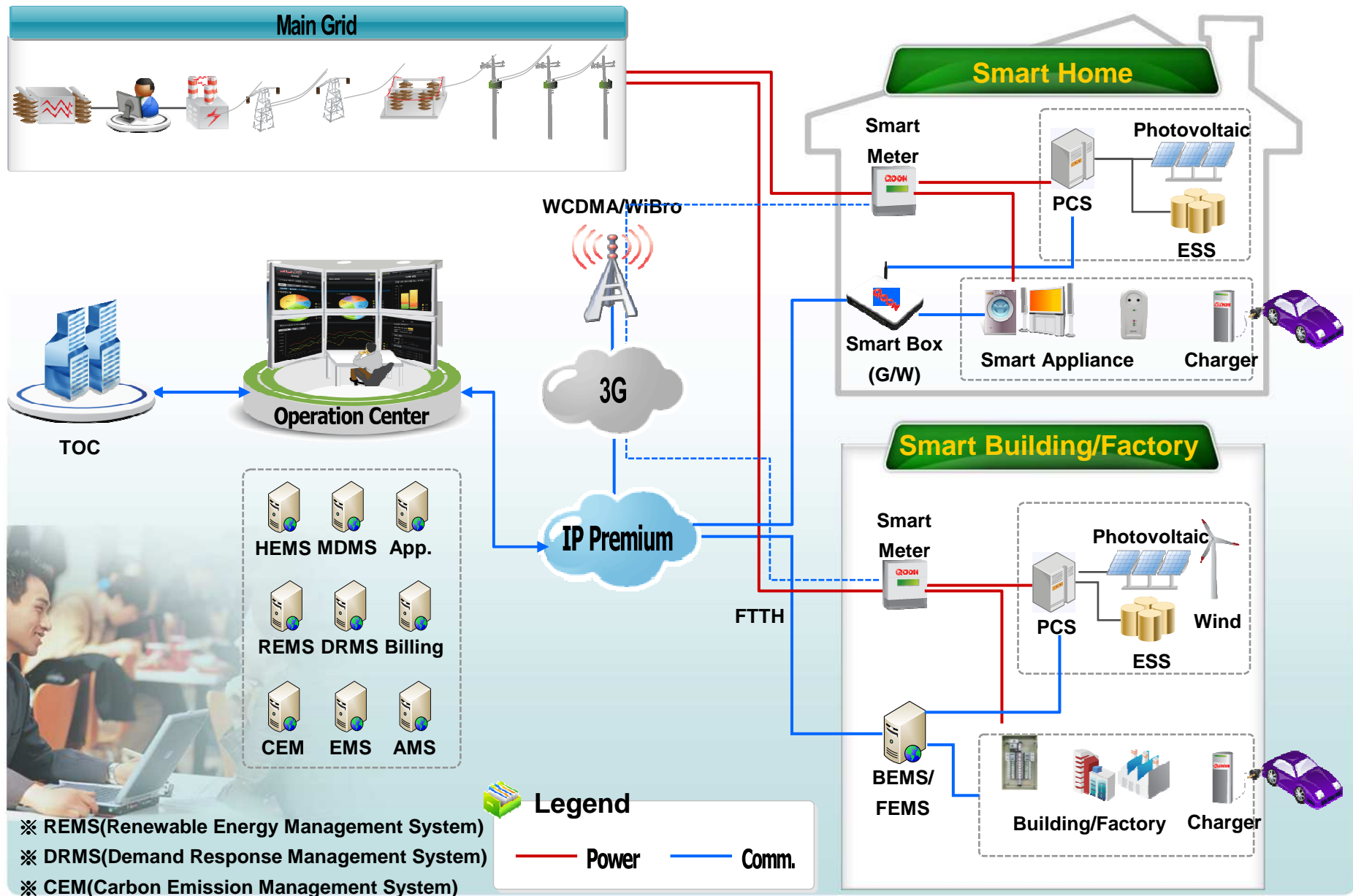


Fig b. DER Integration

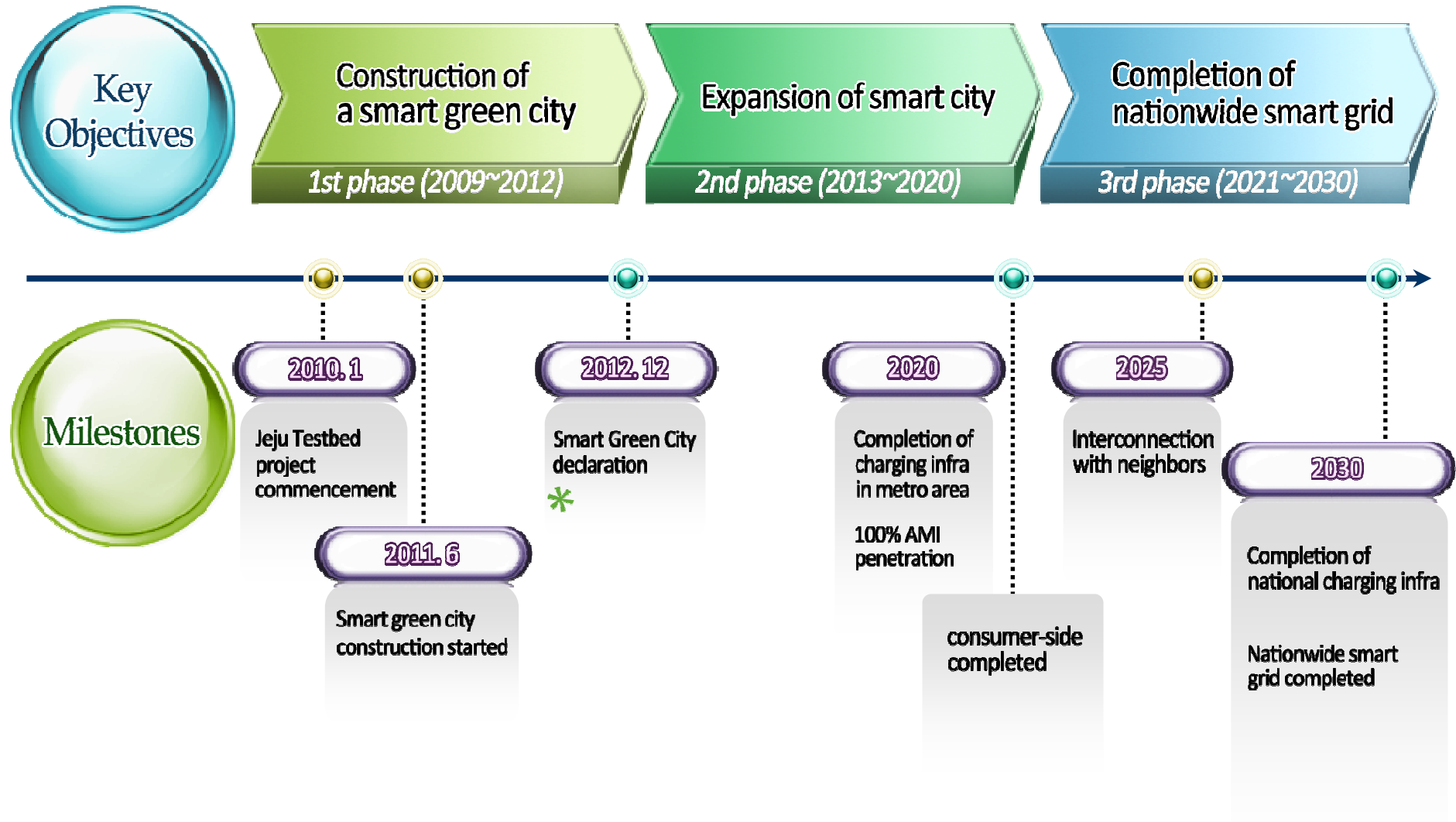
Example of Smart Consumer



Summary



Summary



Thank You!

