

New Energy Business of KEPCO

2018. 3



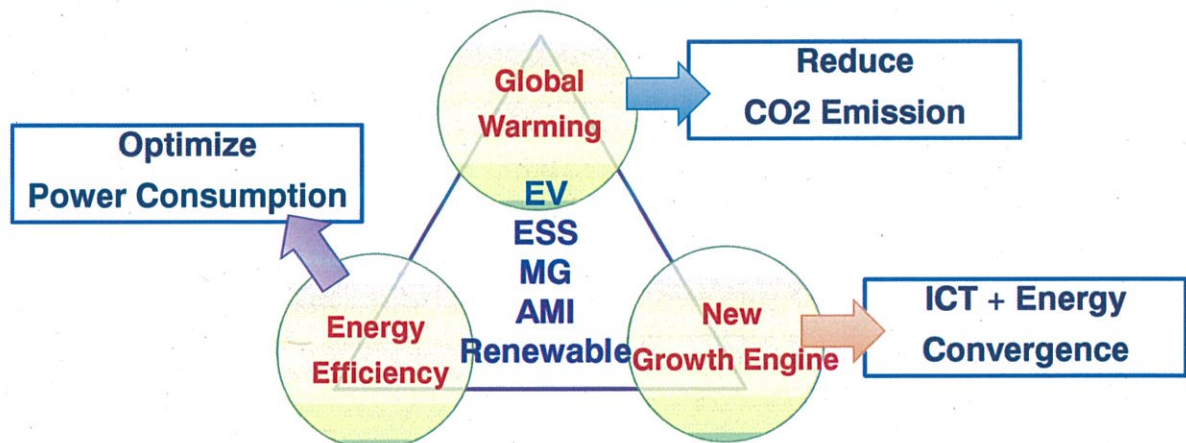
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1. Business Background

Purpose

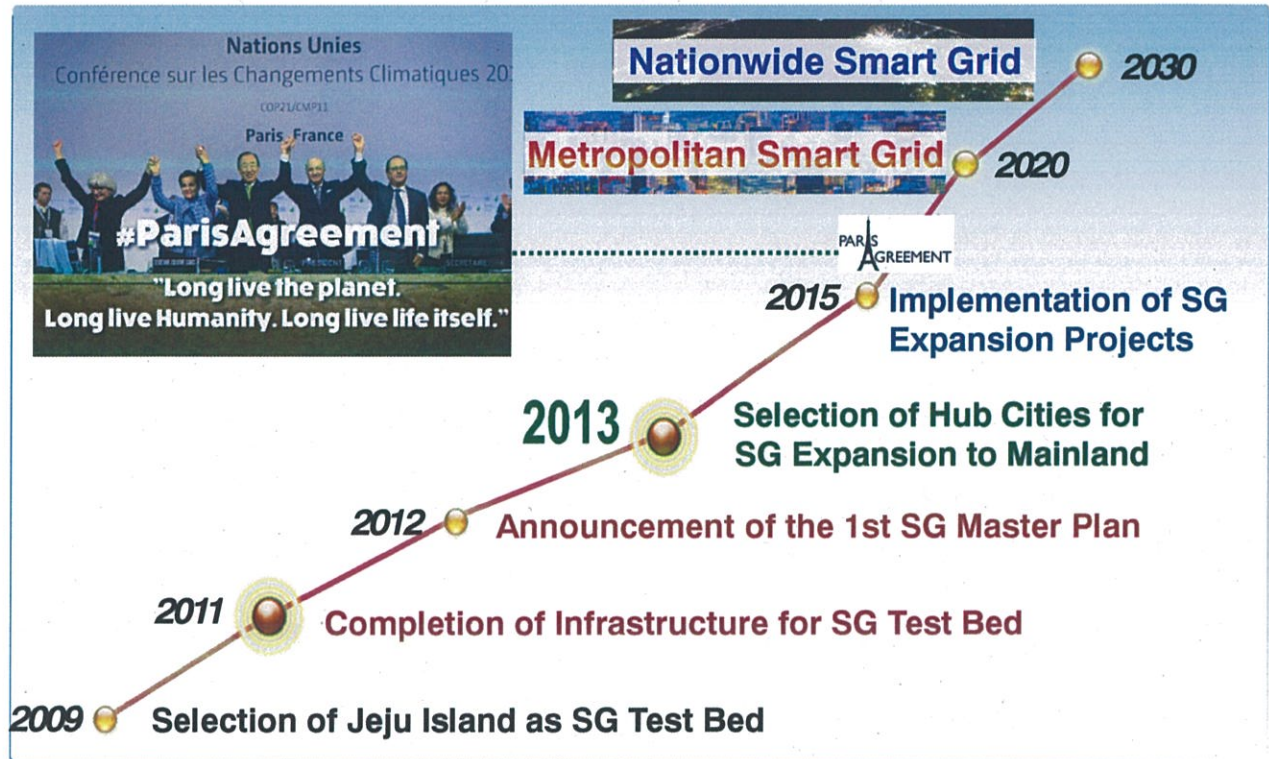
Our purpose of Smart Grid is to :

- Enhance energy efficiency
- Reduce 30% of CO₂ emission by 2030 (Paris Agreement)
- Create new biz model by Power industry with ICT
- Save budget for building additional power plant
- Encourage customers on use of electricity with “smart” technologies
- Minimize power consumption with smart management

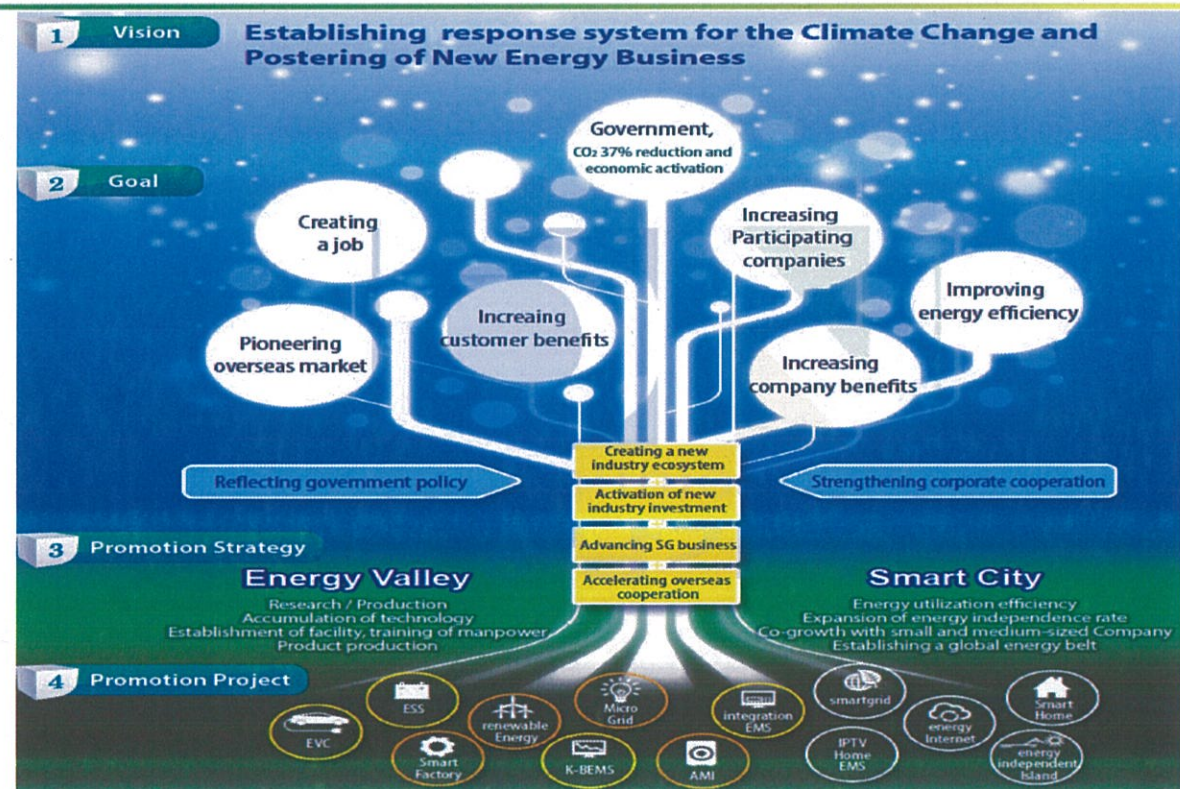


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2. National Smart Grid Road Map



3. Goal and Strategy



4. EV Charging Expansion

EV Expansion Plan (Nation Wide)

2018.2	2020	2022
27,425	250,000	350,000



• Apartment



• Public Station

Installed EV Charging Infra(2018.2)

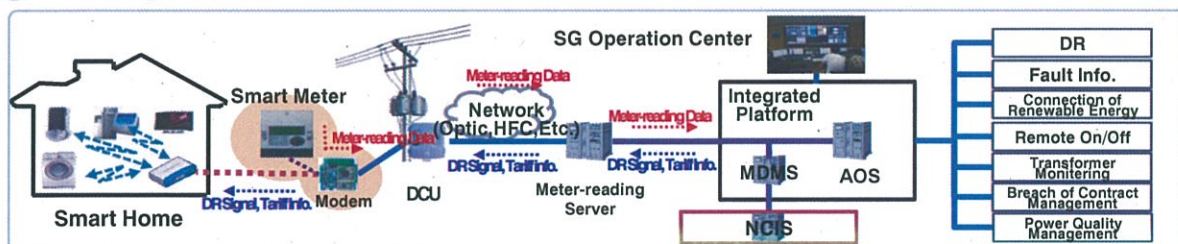
Classification	EV	Charging Infra		
		Quick	Slow	Total
National-Wide	27,425	2,858	5,768	8,626
KEPCO	664	1,486	3,010	4,496

5. AMI (Advanced Metering Infrastructure)

Key Performances

- **Controlling** Power Demand through Sending Demand Response Signals by Bi-directional Communication Network
- **Supporting** Utility's Main Businesses in Power Distribution, Sales, etc.

Configuration



Installation Plan (Budget \$1,562 million)

Item	~'17	'18	'19	'20
Installation (10 thousand unit)	780	400	520	550
Cumulative Installation (10 thousand unit)	780	1,180	1,700	2,250

6. F/R ESS Expansion

ESS for Frequency Regulation

Utilizing 100% of Generator Output by Replacing Frequency Reserve in Thermal Generators with ESS → Reduce Generation Costs

Target : To Build 500MW ESS (2014~2016)

Item	2014	2015	2016	Total
Capacity	52MW	184MW	140MW	376MW
substations	2	7	4	13 Sites



< Seoansung S/S >



< Shinyongin S/S >



< Shingerong S/S >



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✳ The largest capacity of F/R ESS in the world

- Reduced \$346 million of generation cost
- Project with 33 SME's provided track record for SME's to win overseas contracts



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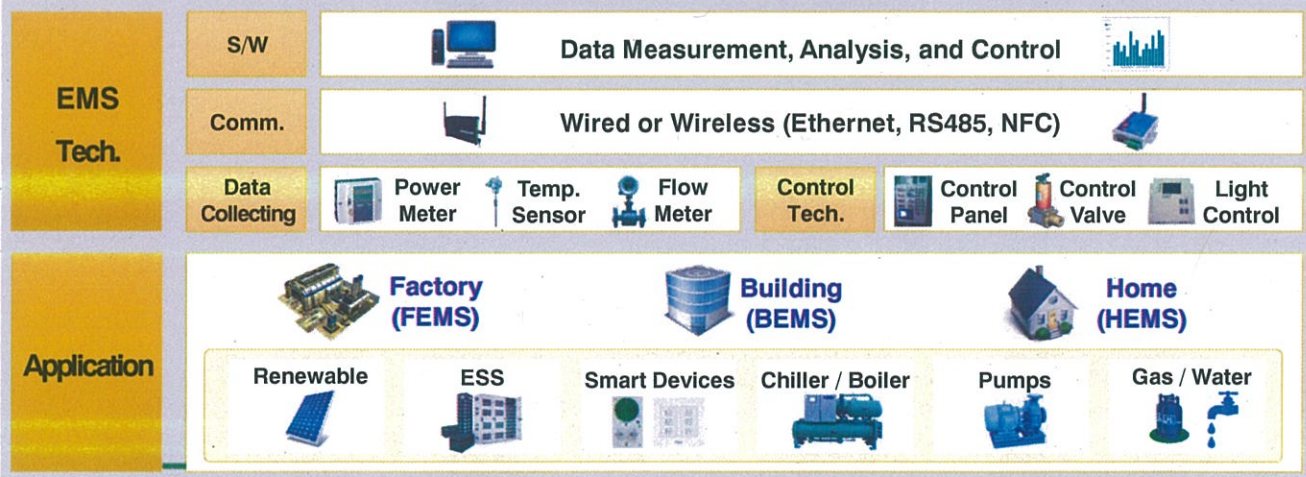
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7-1. K-EMS : Definiton

K-EMS : KEPCO Energy Management System

- Saves cost and enhances energy efficiency through real-time monitor, control and analysis on various energy consuming facilities including gas, thermal and other energy sources as well as electricity

Technology & Application

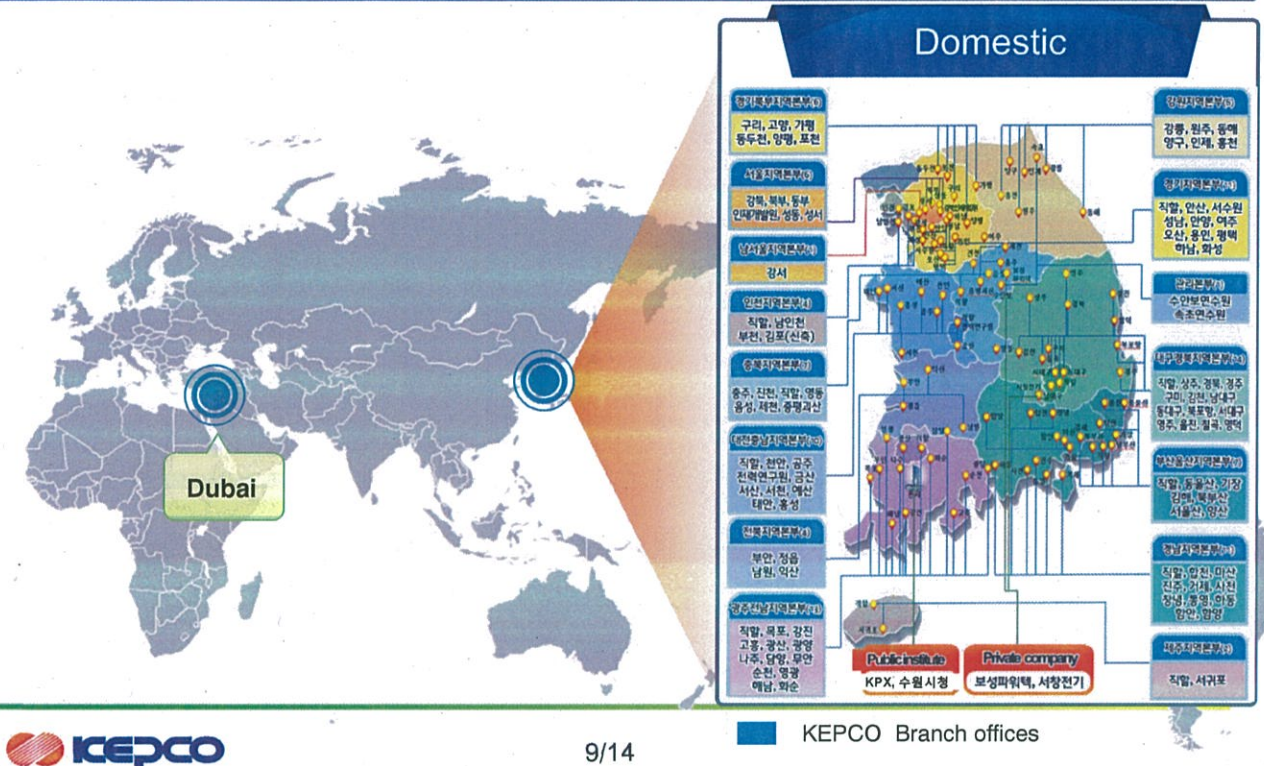


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7-2. K-EMS : EXpansion

Construction of 130 domestic & overseas locations including public institutions & factories



8. Smart Town

Purpose

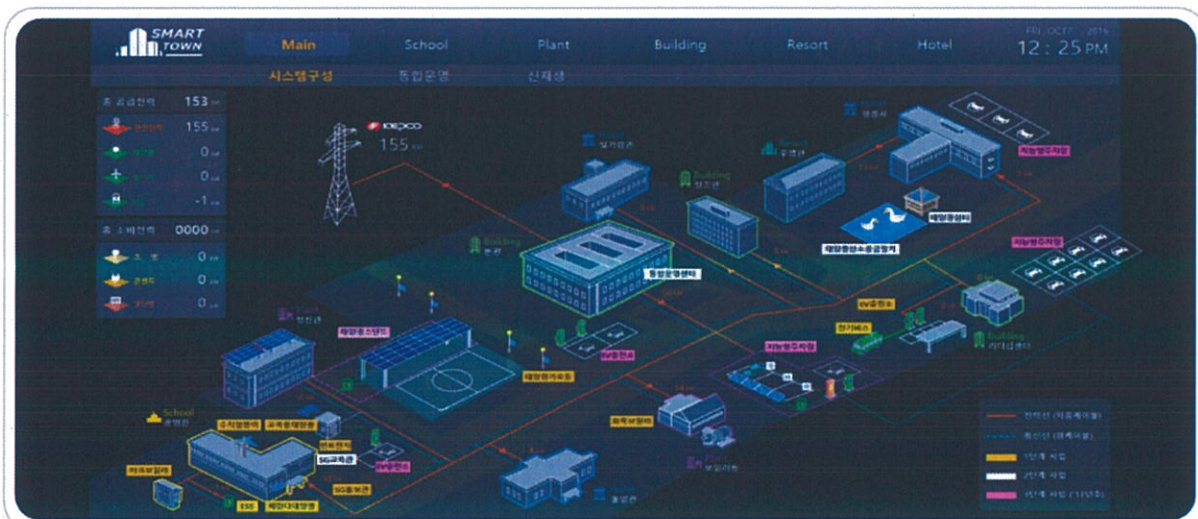
Improving energy efficiency by installing SG facilities in each building and operating all K-BEMS system implemented.

Duration

DEC 2014 ~ MAR 2015 (1st Stage) , DEC 2015 ~ OCT 2016 (2nd Stage)

Goal

Reduce Power Consumption by 15%, Peak Load by 10%, CO2 by 15%



9. Smart City: Naju Innovative City Project

Goal

To Enhance the quality of life and sustainability of the city

- Establishing the Smart City with advanced Smart Solutions to reduce CO₂ and enhance energy efficiency
- Energy Self-supporting 20%, Utilization Efficiency Enhancement 15%, CO₂ reduction 30%

Duration

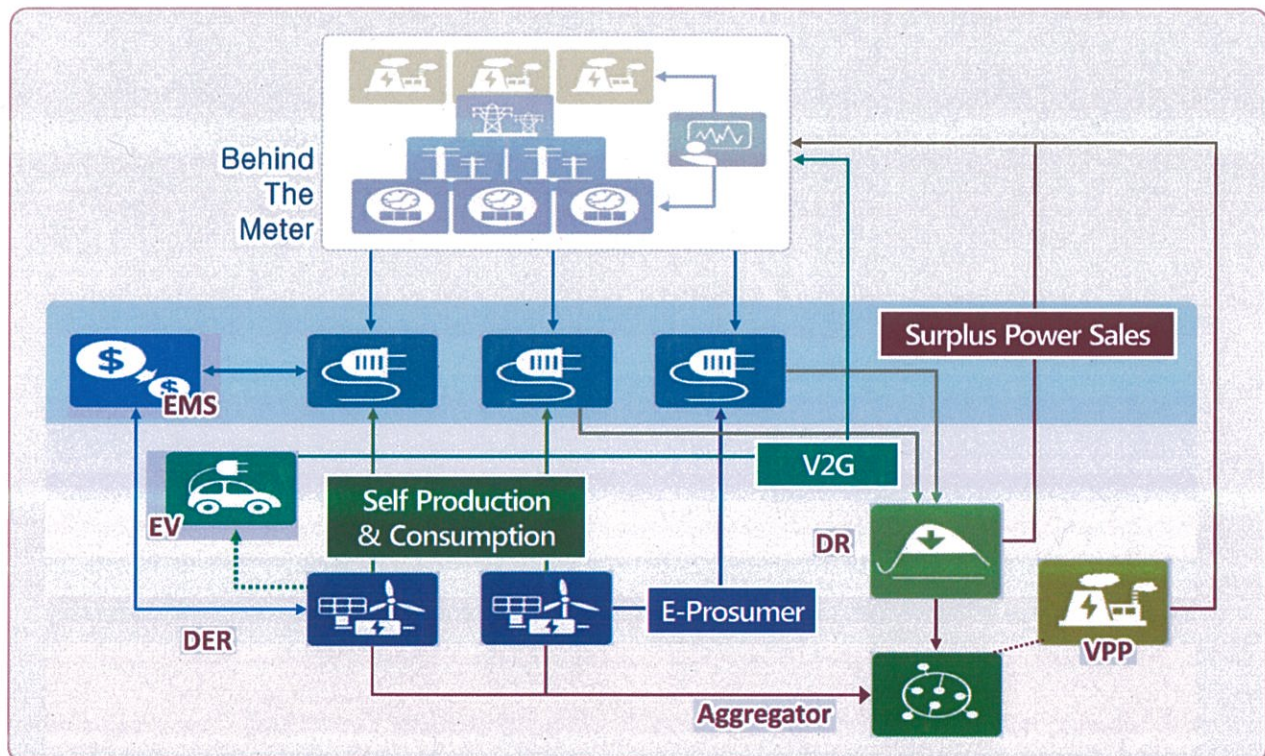
2016 ~ 2020

Infra

- K-EMS (Building, Factory etc.)
- Photo Voltaic
- EV Charger
- AMI
- Total Integrated Operation System for Smart City

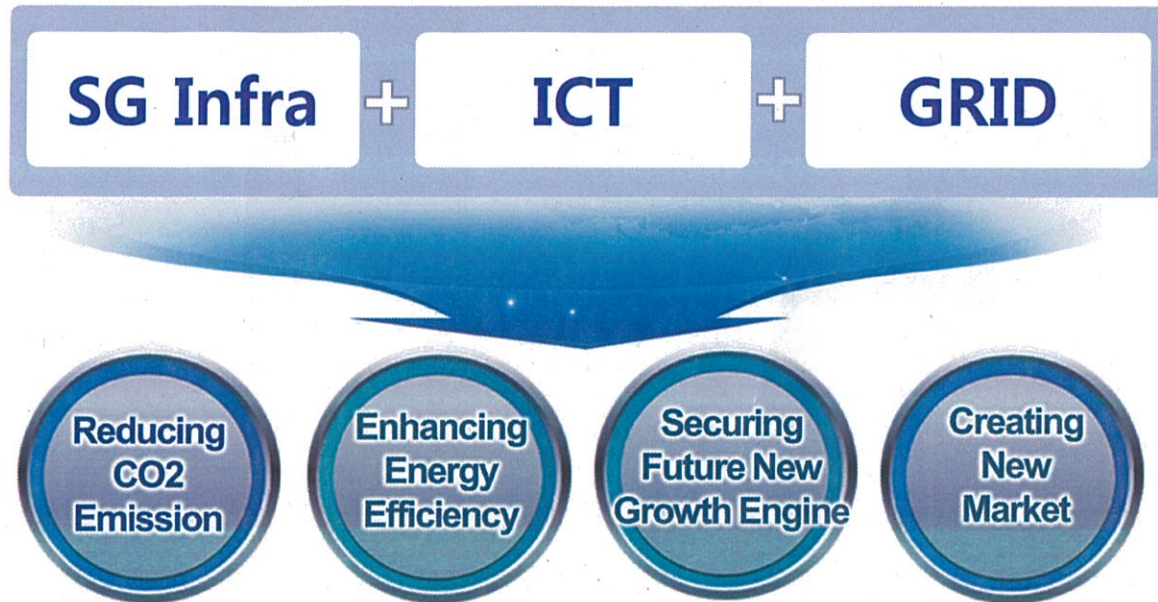


10. New Energy Biz Model



11. Expected Benefit

KEPCO SMART City



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