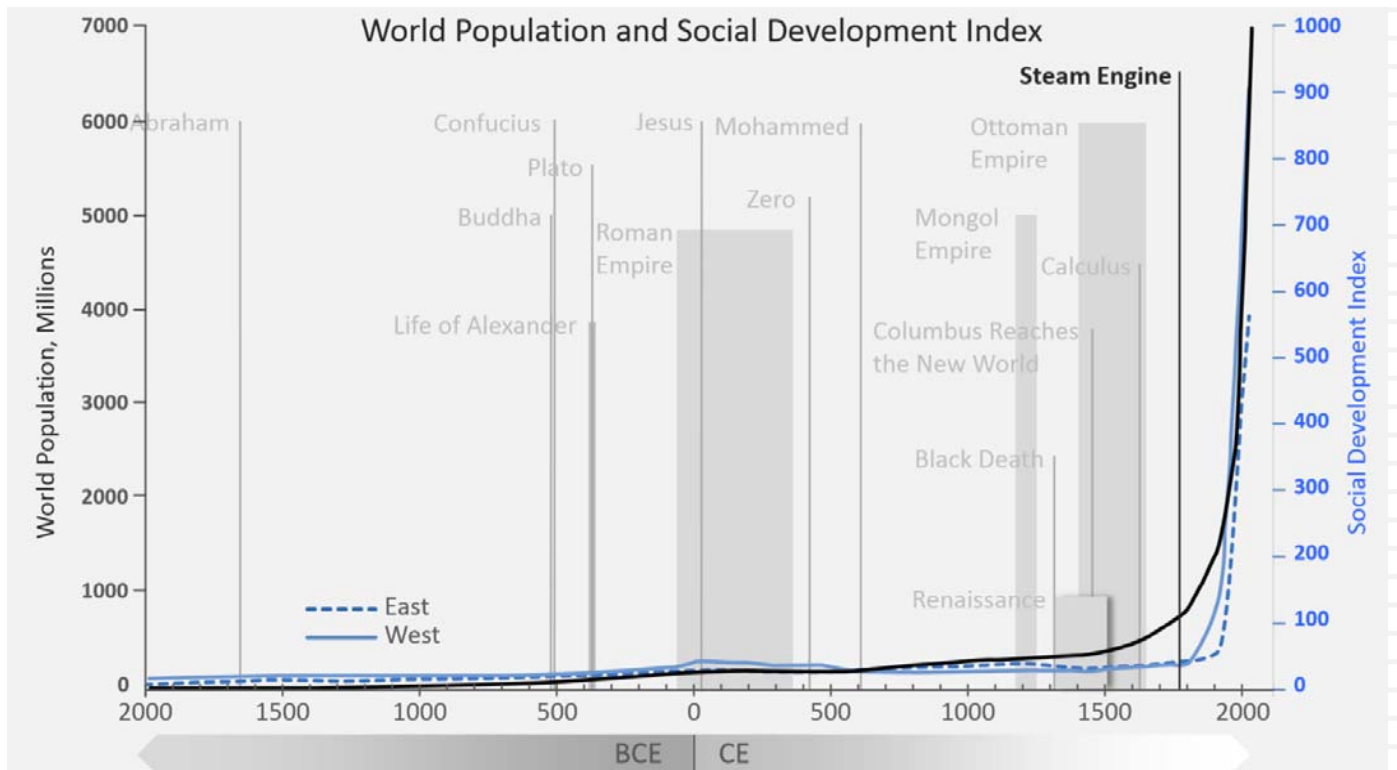




# Energy ICT Convergence in the 4<sup>th</sup> Industrial Revolution Era

2017. 07. 12 / Dongmyun Lee / KT

# Industrial Revolution



## The Past and The Present

Korean War(1950~1953)



Present(2016)



<b>GDP</b> (mil USD)	<b>43</b>	<b>32,818x</b>	<b>1,411,246</b>
<b>Trade</b> (mil USD)	<b>377</b>	<b>2,390x</b>	<b>901,619</b>

## The ICT

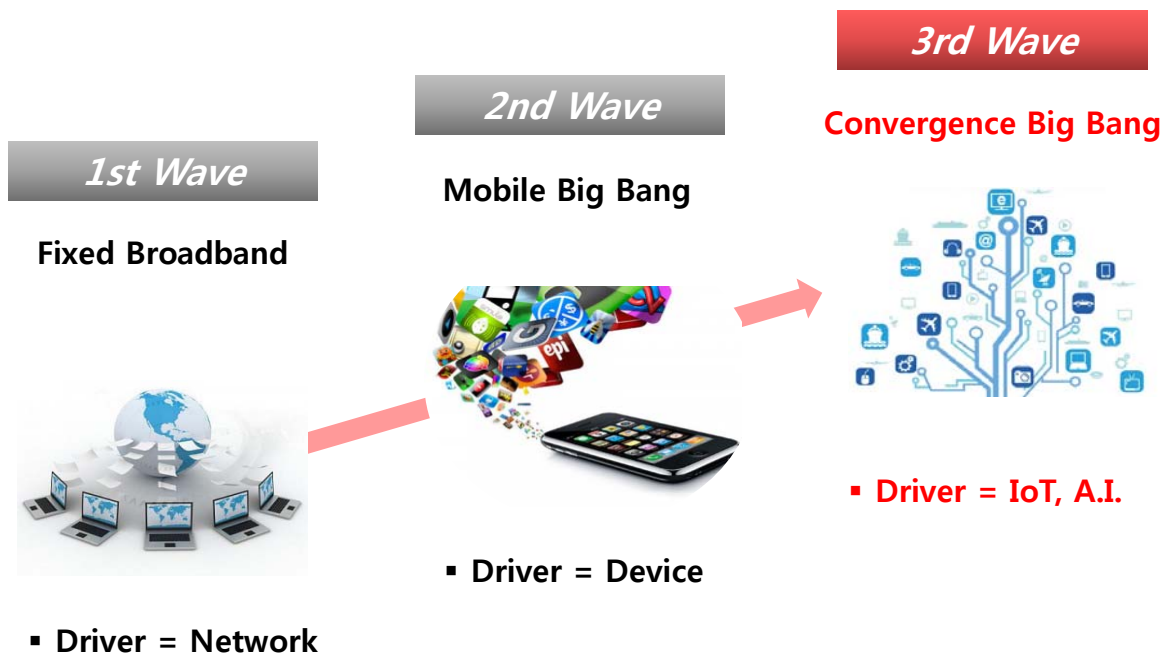
2007



2017

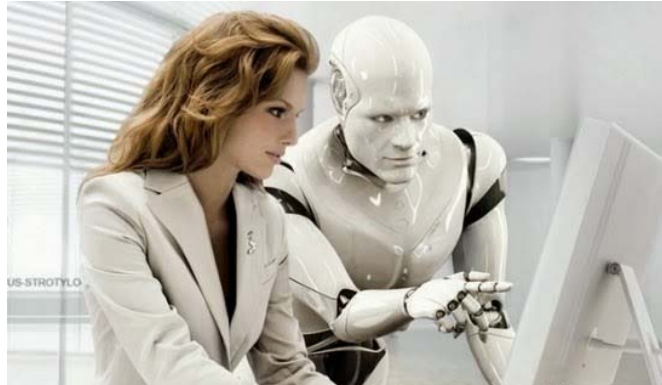


# The ICT Big Bang



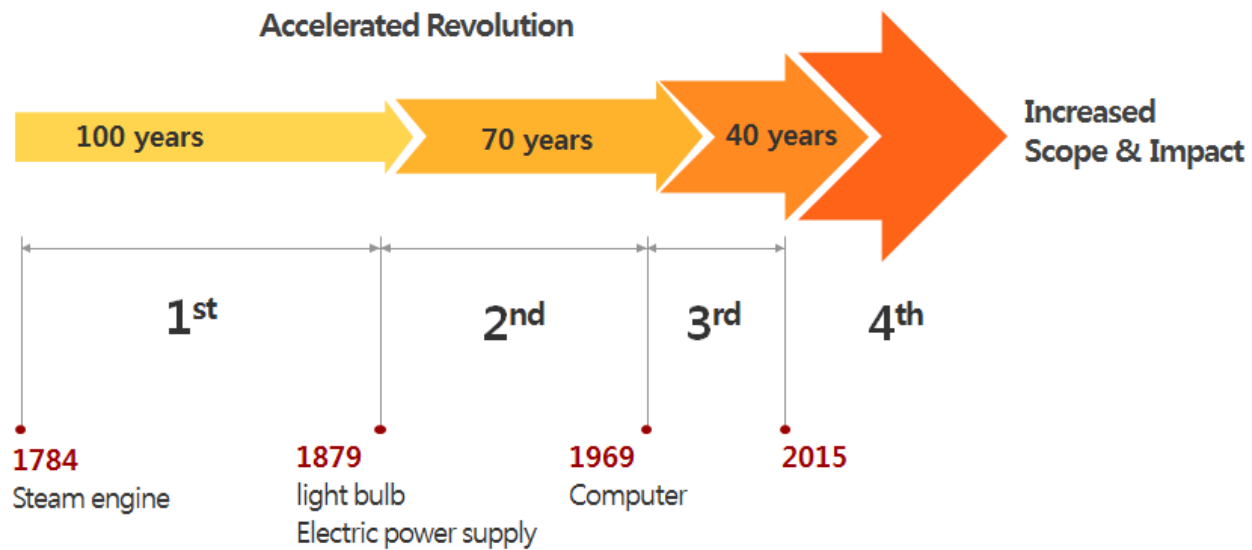


## The (Near) Future



# The 4<sup>th</sup> Industrial Revolution

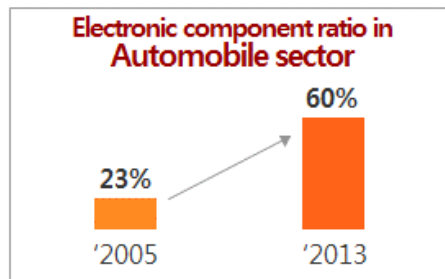
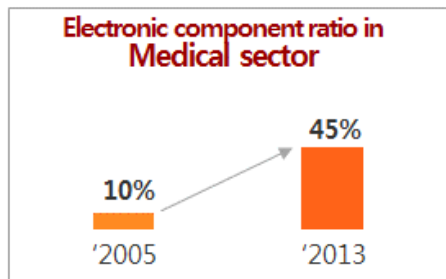
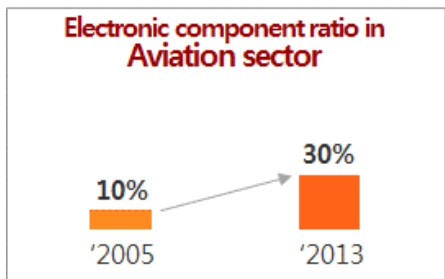
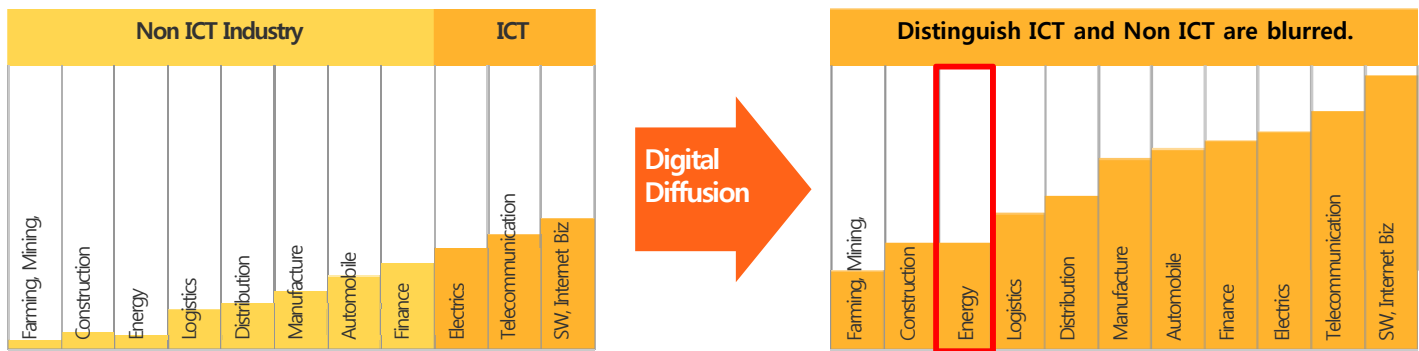
**ICT** (IoT, Mobile, A.I.) + **Major Business Areas** = **Next Big Thing**







# ICT in the Game



\*Source : Bain&Company (2016)

# KT Vision



## Future Convergence Service



Media Contents



Smart Energy



Finance & Banking



Public Safety



B2B, B2G Service

GiGA Platform

GiGA Infra

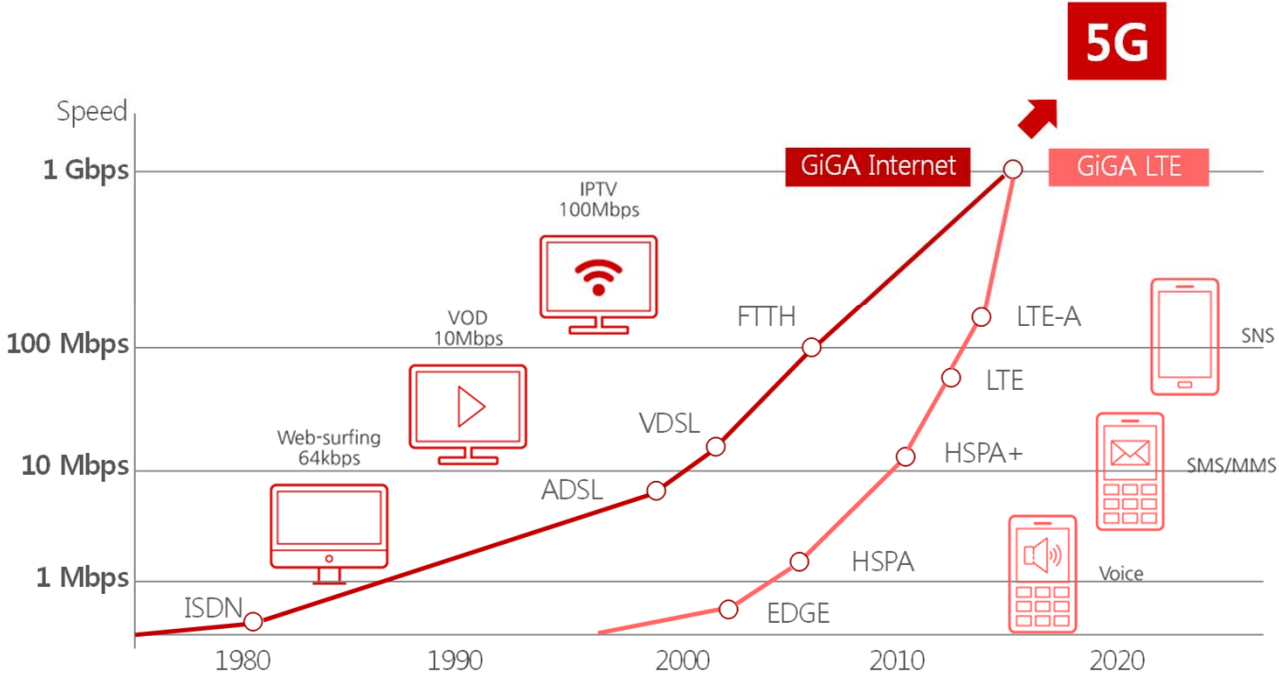
Ready for  
4<sup>th</sup> Industry Revo.

Domain  
Expansion

Differentiated  
Intelligence

Stronger Infra  
World First 5G

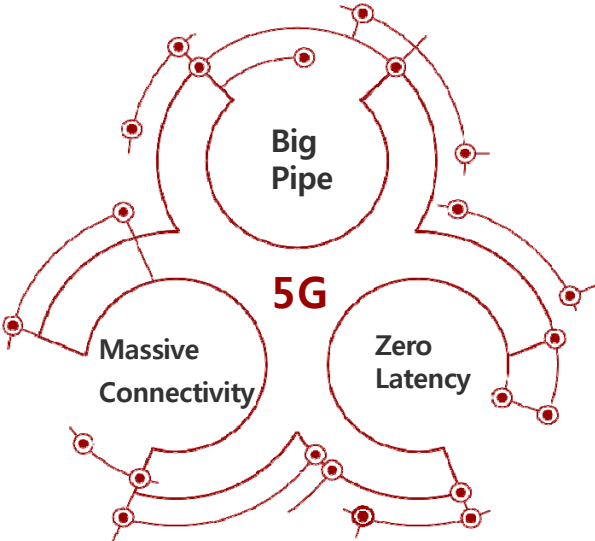
# Network - Speed



GiGA Internet, GiGA Wire, GiGA LTE ...

# Network - 5G

## GiGA Speed, Zero Latency, Massive Connectivity



	L T E	5 G	
Data Speed	300 Mbps	20 Gbps	X 60
Latency	20 ms	1 ms	X 1/20
Connectivity	200	2,000	X 10



PyeongChang

PyeongChang 2018™  
World's first **5G**



kt  
korea telecom



OFFICIAL TELECOMMUNICATIONS PARTNER

# KT 5 Platform Biz

## Platform Business Operator



Telecom Company

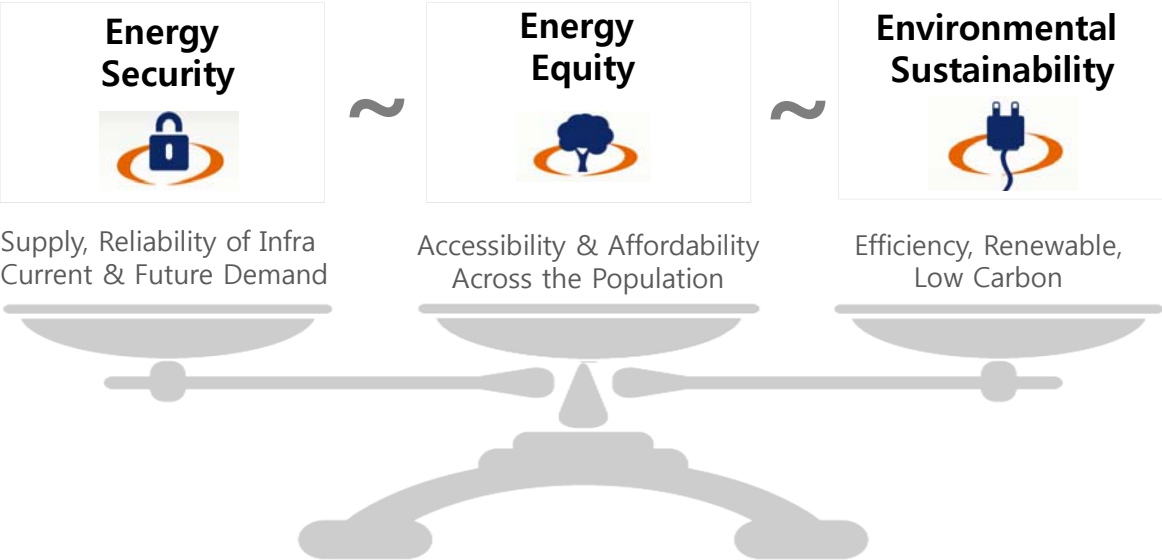


2018

In 2020, 5 Platform Businesses Revenue  
**over 20%**

# Energy Issue

## Balancing the triple challenge of the energy trilemma



# Energy Global Trend – 1. Government-led New Energy Policy

## Macro Energy Saving

Energy Saving Obligation (Company, Building)



- 60~65% CO<sub>2</sub> Reduction (~'30)
- Top 1,000 Program



- 37% CO<sub>2</sub> Reduction (~'30)
- 8 Energy New-biz Policy



Electric Vehicle



Energy Town



Demand Response



Zero Energy Building



Energy Independent Island



Waste Heat Recovery



ESS Integrated Services



Rental of Solar power

## Micro Energy Saving

Energy Efficiency Rate (Device)



- 26% CO<sub>2</sub> Reduction (~'30)
- Top Runner program



- 26% CO<sub>2</sub> Reduction (~'30)
- MEPS (Minimum Energy Performance)

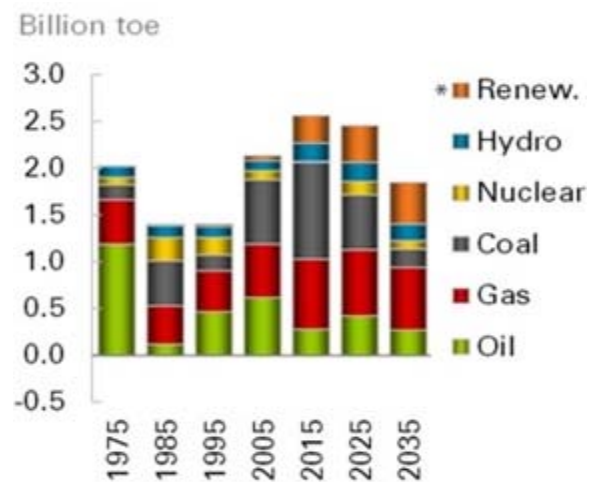


- 26~28% CO<sub>2</sub> Reduction (~'25)
- The Appliance and Equipment Standards Program



## Energy Global Trend – 2. Increasing Renewables Rate

### World Electricity Production by Source



\*Source : BP Energy Outlook 2035(2014)

### Renewables Generation Unit Price

Grid Parity  
Renewables Unit Price = Fossil Fuel Unit Price

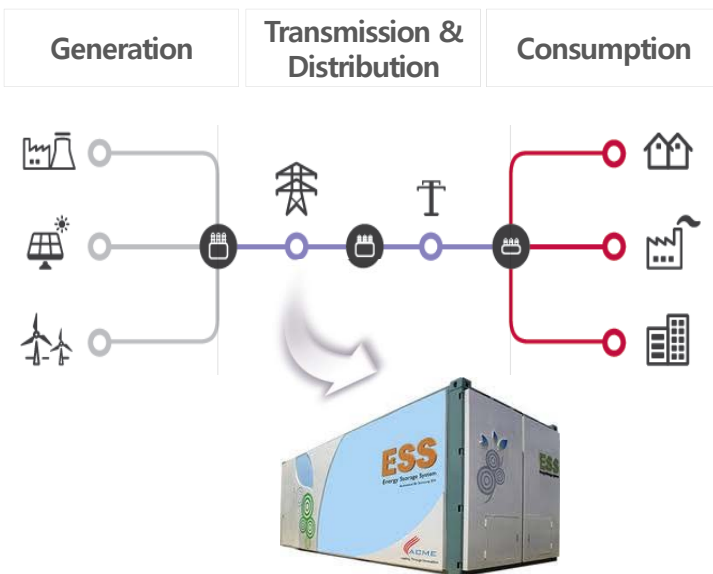


- Countries with Regions of Grid Parity
- Grid Parity for Regions with High Electricity Price

\*Source : Deutsche Bank Estimates(2015)

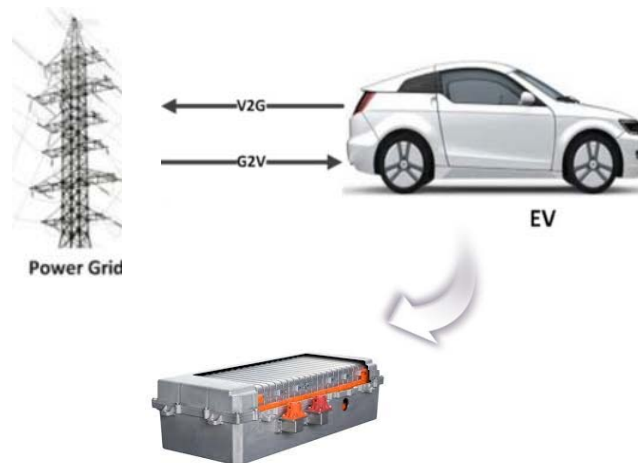
## Energy Global Trend – 3. Emerging New Energy Resources

### ESS(Energy Storage System)



### EV(Electric Vehicle)

#### Vehicle to Grid & Grid to Vehicle



## Energy Global Trend – 4. Energy-independent MEG (Micro Energy Grid)

**Distributed Energy Resources**  
(Solar, Wind, ESS)



**Total Management**  
(ICT)

**Off-Grid Solar Powered BTS**  
(Base Transceiver Station)



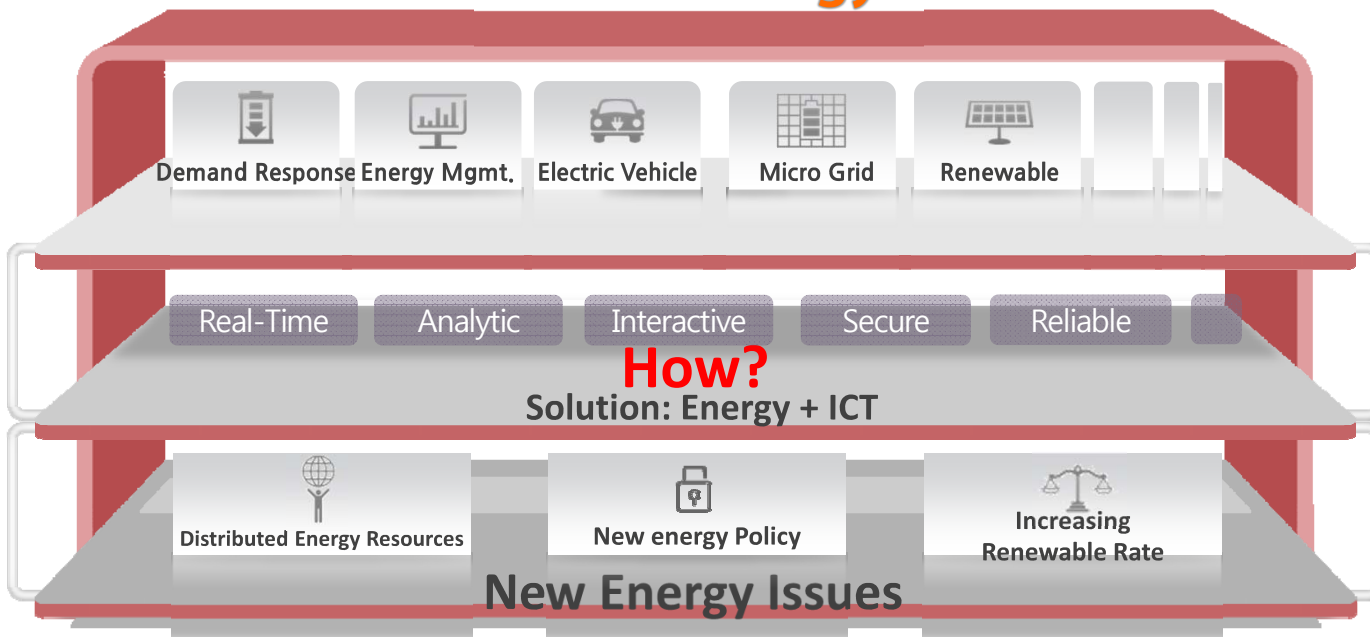
**Energy-independent Island**



# Energy + ICT = Smart Energy

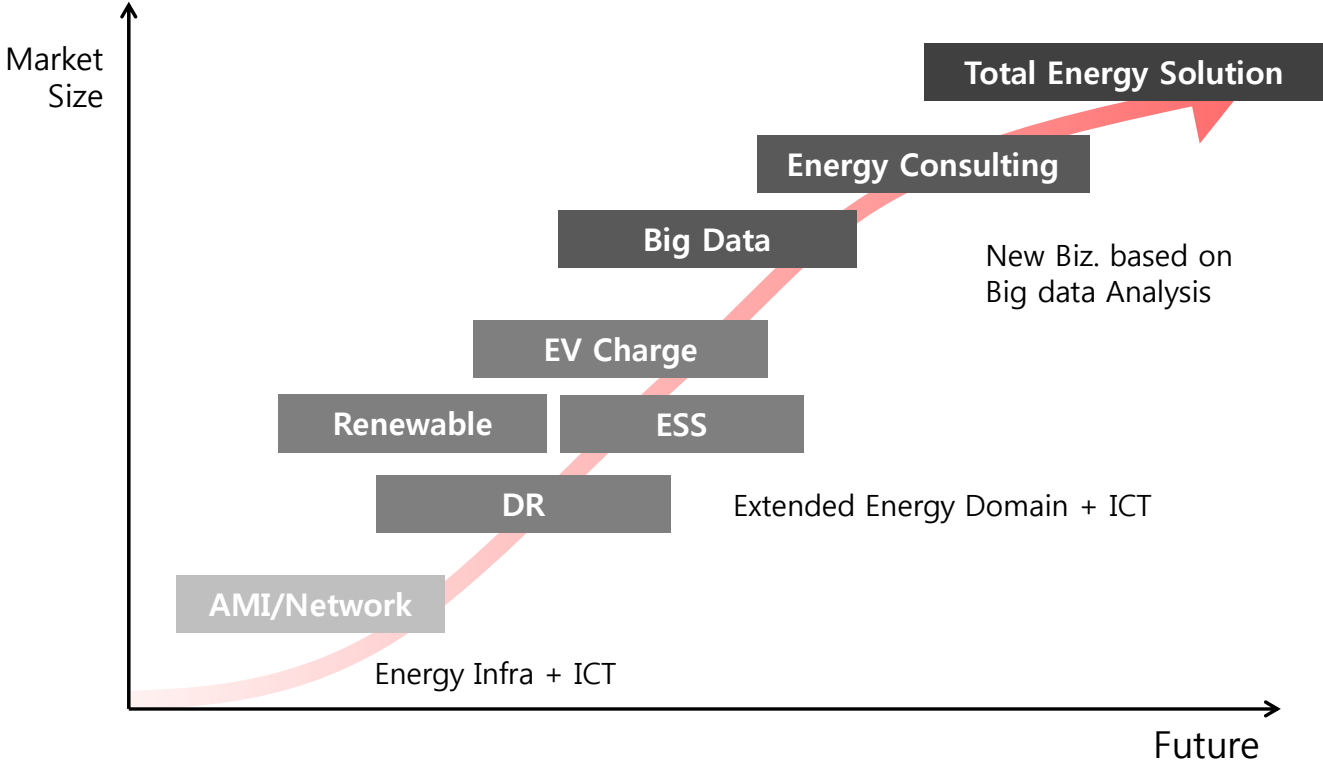
Solving energy issues via new ICT - energy convergence business

## Smart Energy



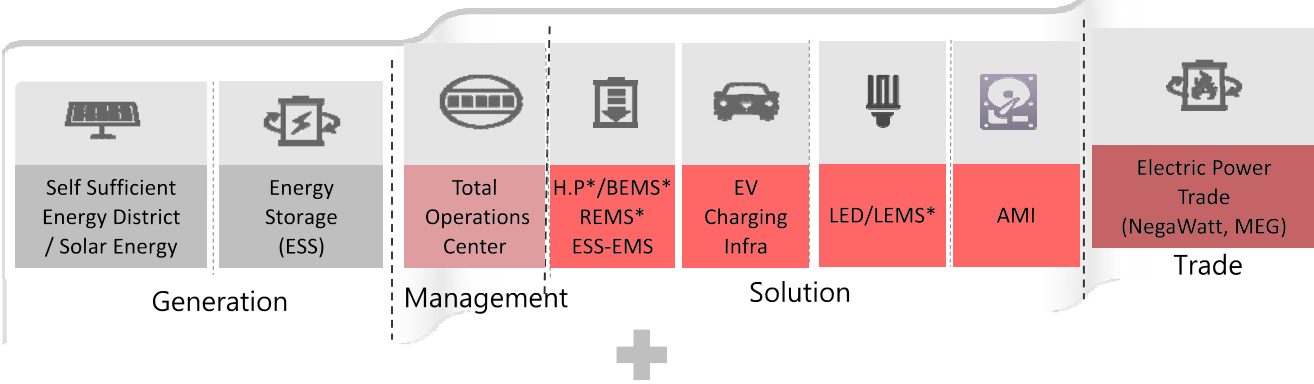


# Evolution of Energy ICT



# Overview: KT Energy Business

Convergence with ICT → New energy market opportunities



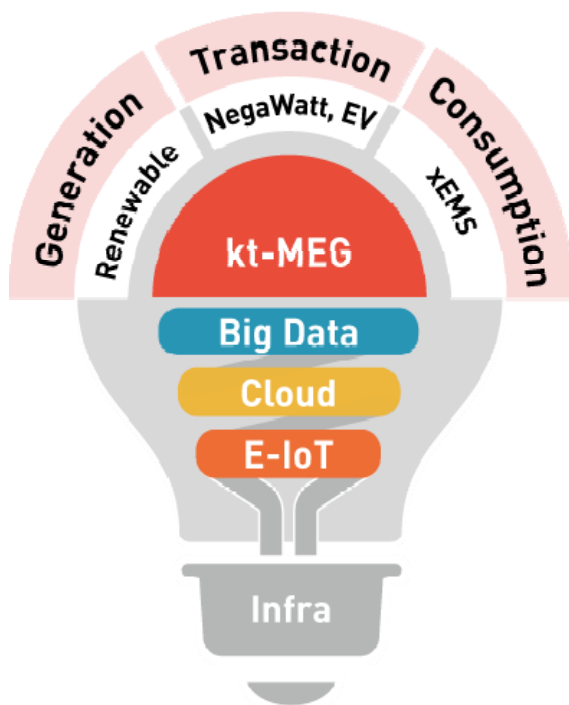
※ MEG: Micro Energy Grid

-   
BTS
-   
Solar Plant
-   
Demand Response
-   
Energy Efficiency
-   
EV Charging
- .....

\* H.P: Heat Pump, BEMS: Building Energy Management System, REMS: Renewable Management System, LEMS: LED Management System

## KT Energy ICT Solution: KT-MEG(Micro Energy Grid)

Energy optimization by managing energy sources from generation to transaction



- **Real-time O&M Service**
  - Monitoring & Consulting on 3,486 Sites
- **Energy Intelligence based on Big Data**
  - Intelligent Analytic Engine (eBrain)
  - Operational Intelligence
- **Cloud EMS**
  - Cost effective management by Saving H/W and management cost
- **Multi-Service Control**
  - Total management function to customer

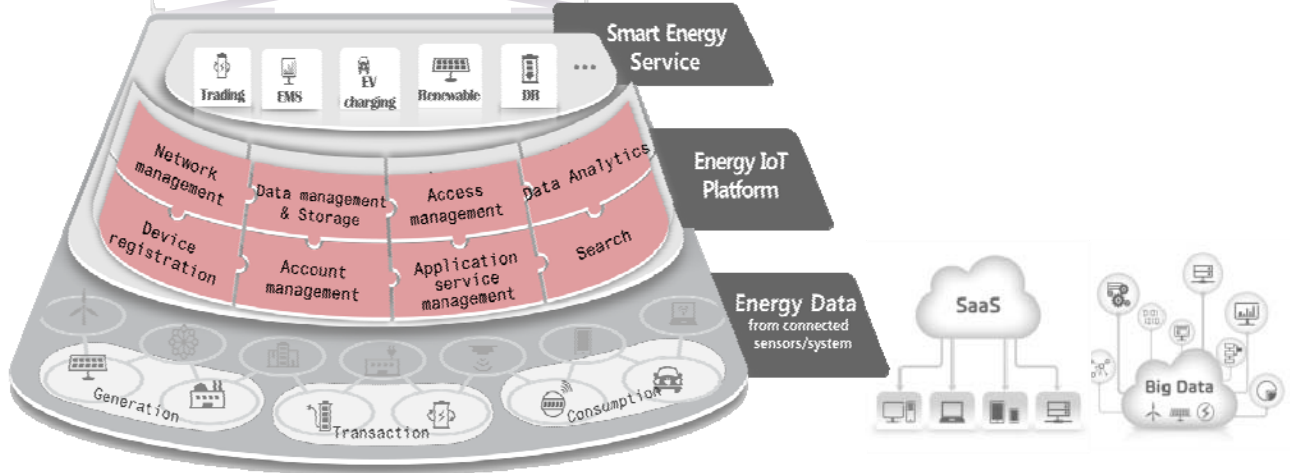
# KT-MEG Key Features

## KT-MEG Center: Operating & Managing Energy with ICT(3,486 Sites)

Total Operation Center(KT-MEG)



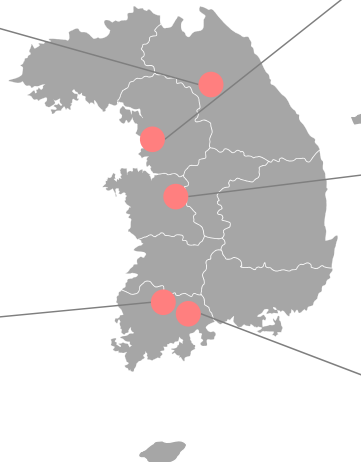
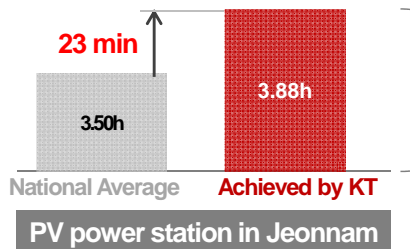
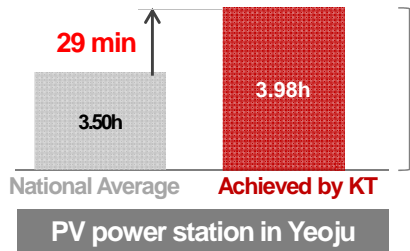
- 1 **Real-time Remote Control**  
(24 x 7 days) 
- 2 **Customer Care**  
(Dispatch, Achievement Mgt.) 
- 3 **Consulting & Reporting**  
(Analytics, Forecasting) 



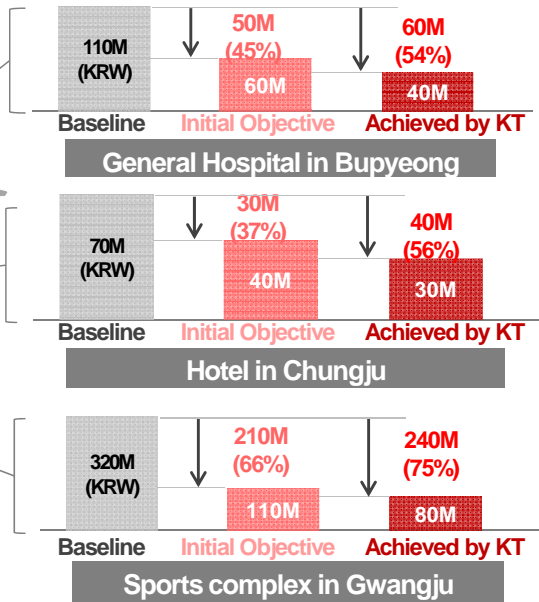
# KT-MEG Key Benefits

Energy efficiency exceeded objectives by up to 20%

## • Energy Producers



## • Energy Consumers



# KT-MEG



# Global Biz Collaboration

**Building Energy Management('13)**  
(BEMS, Consulting, ICT )



Sahara Hotel(Las Vegas) Montgomery(Chicago)

**3G AMI('16)**

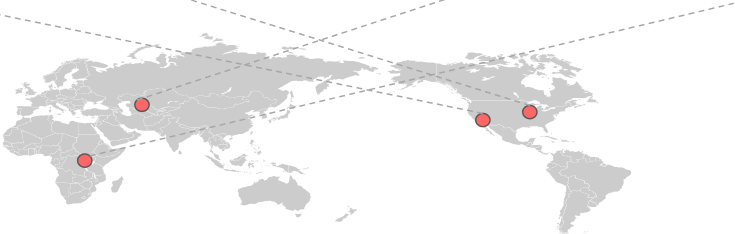


Uzbekistan-KT

**Off-Grid Trial('17)**  
(Solar, ESS)

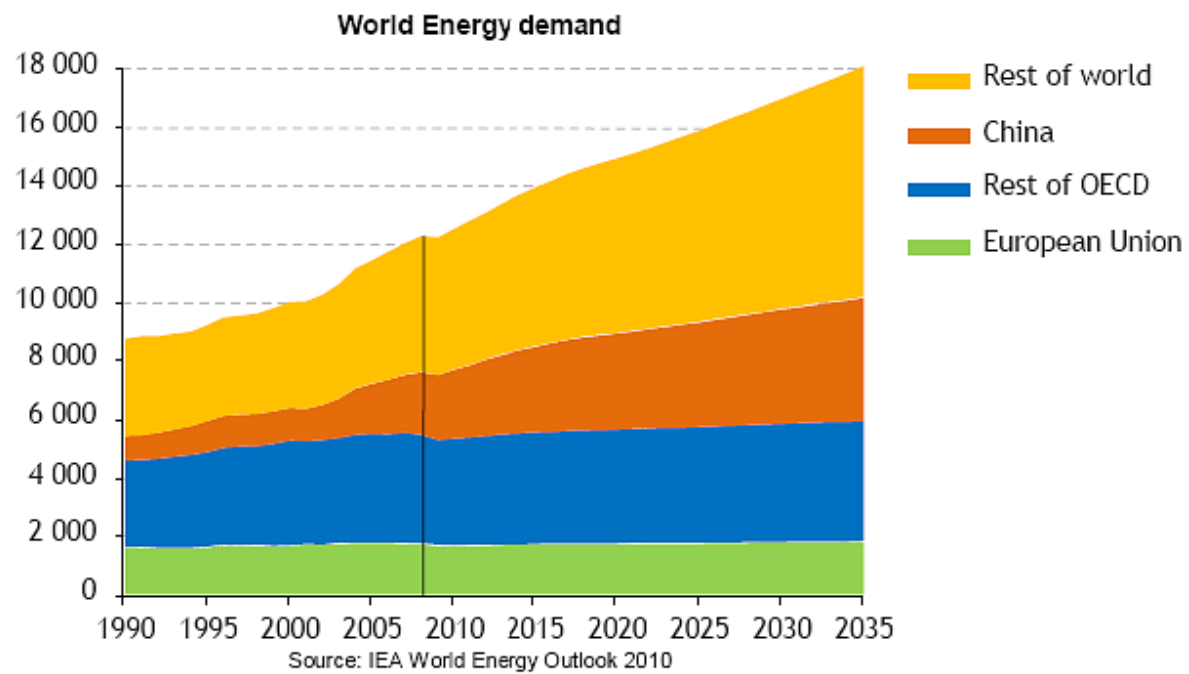


 Rwanda Network





## World Energy Outlook



**Energy revolution has just begun**

**Great Opportunity**

**Great Future**



PEOPLE. TECHNOLOGY. 