

Smart Home and Smart Grid in Korea

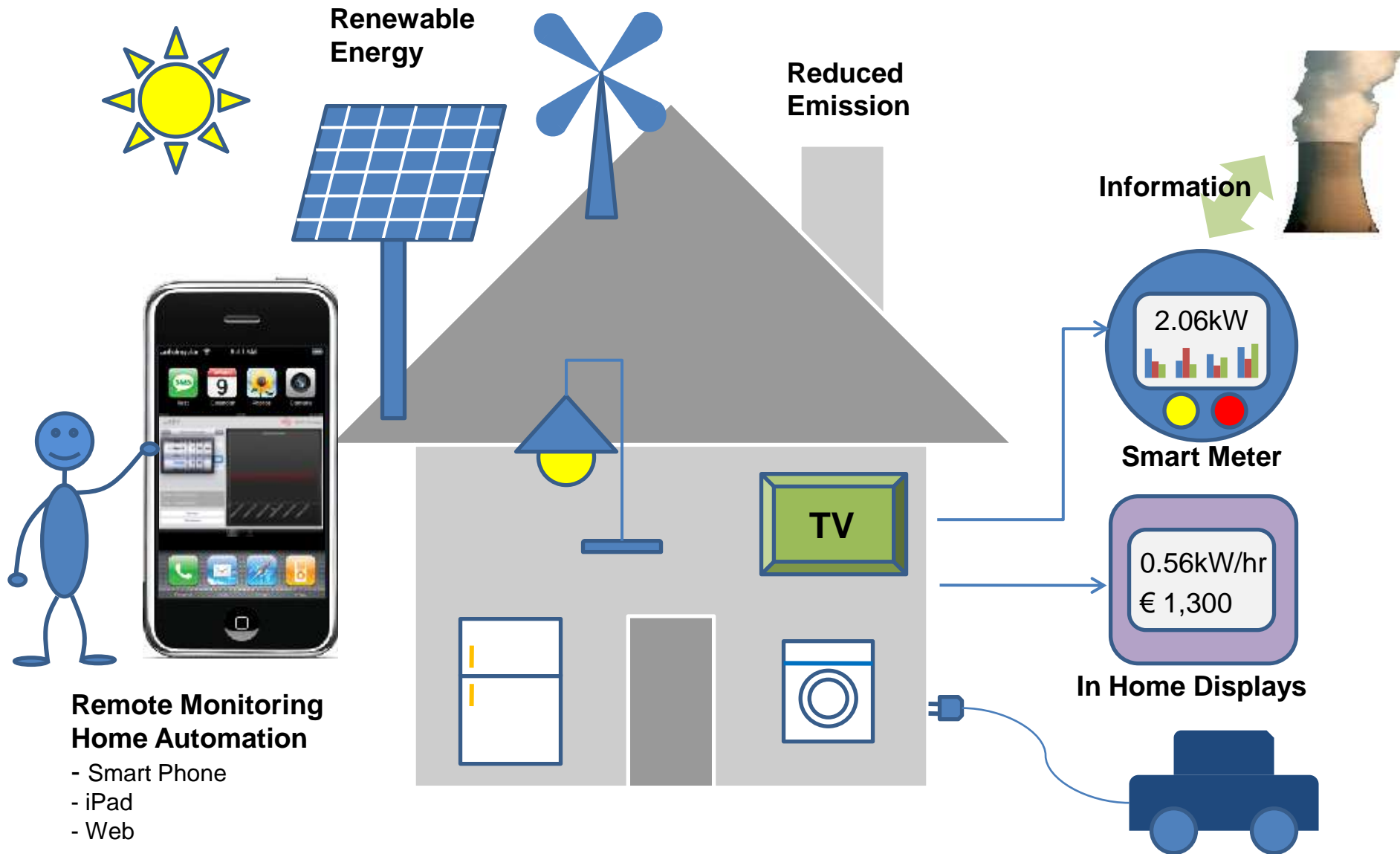
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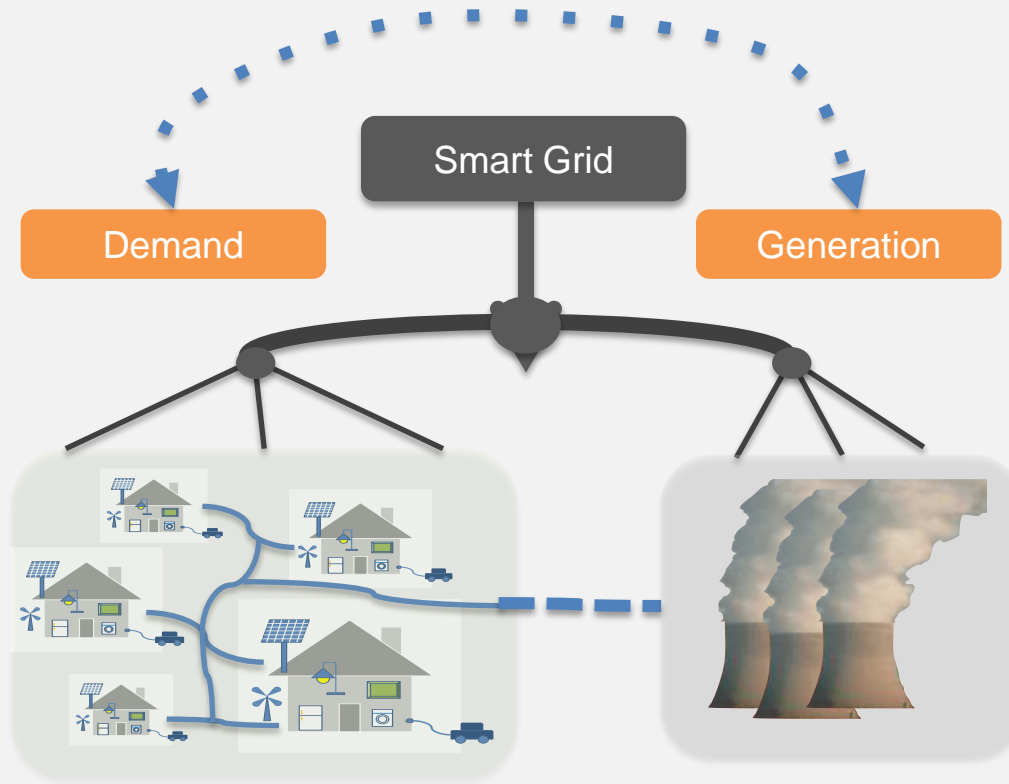
Frank Lloyd Wright's Usonian Houses, first built in New York City in 1953

Affordable, using
available products and
technologies,
functional and
beautiful



Better control electricity supply and demand

Communication, Information



Smart Home

Monitoring home energy consumption
Real-time energy consumption analysis
Automatic control of devices at home
(air conditioner, heater, light, etc)

Smart Grid

Integrate information technology into
the existing power grid

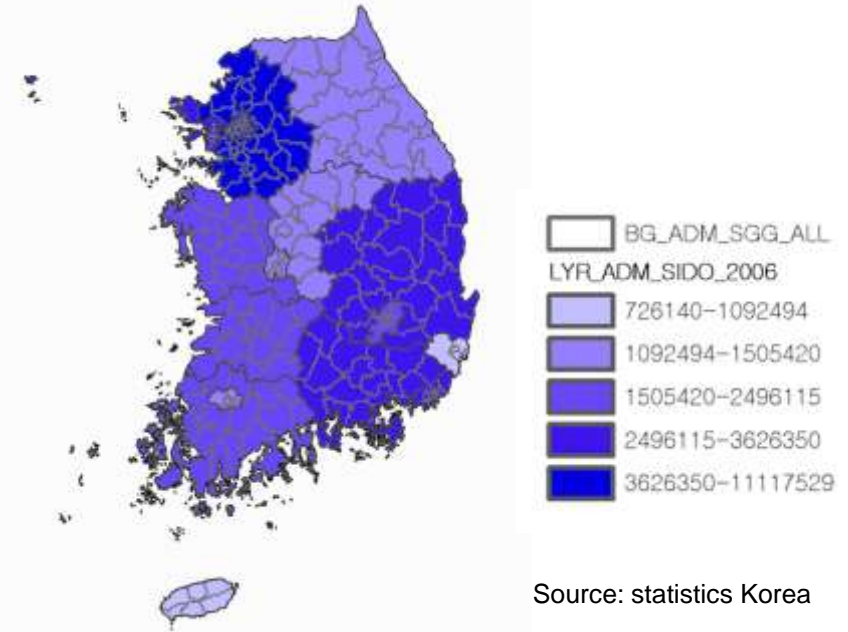
Two-way digital communication
(electricity and information)

Smart Home + Smart Grid = Maximize Energy Efficiency!

What we know about Korea



Image and Data processing by NOAA's National Geophysical Data Center. DMSP data collected by the US Air Force Weather Agency.



Source: statistics Korea

Population

- More people in cities
- Seoul had a quarter of the population of the republic of Korea
- Seoul accounts for less than 1% of the country's area

Sleepless in Seoul?

- The night owls
- 25,000 shops open 24 hours

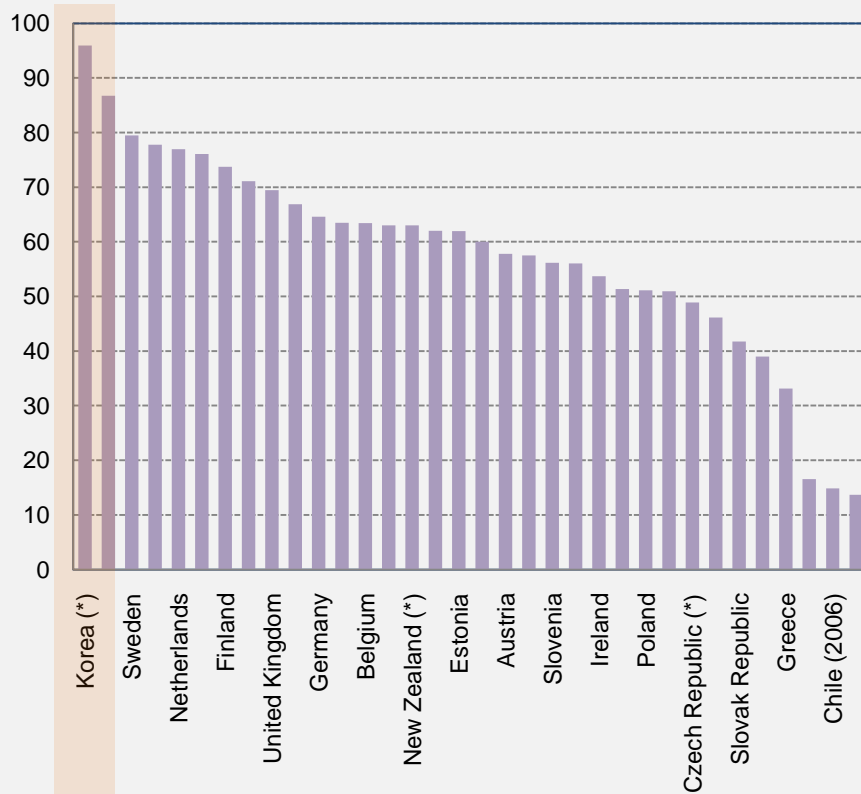
Housing

- High Rise Apartments, Individual houses
- Dense in a city, a lack of spaces, lots of apartments

Infrastructure

- Mobile ownership 78%
- Internet penetration 91%
- Broadband penetration 25.5% (Highest in the world)

The largest number of households with broadband access (95.9%)



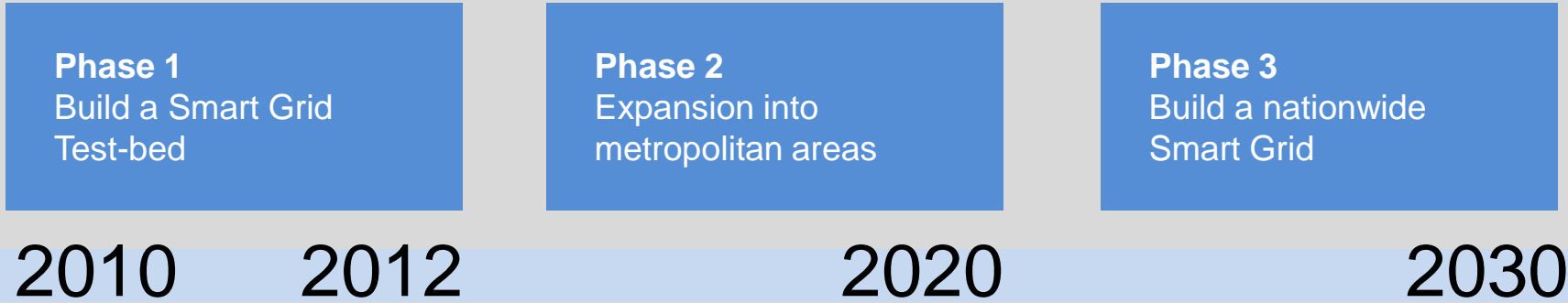
[OECD Broadband statistics \[oecd.org/sti/ict/broadband\]](http://oecd.org/sti/ict/broadband)
 Households with broadband access, 2009 or latest available year
 Percentage of all households

The fourth-fastest broadband speed in the world

	Average advertised broadband download speed, kbit/s*	Number of offers used to calculate average**	Median
Mexico	2 514	46	1536
Ireland	6 088	37	3072
Luxembourg	10 457	38	8192
Turkey	10 473	69	8192
Belgium	10 825	45	12288
Spain	12 800	40	6144
Italy	14 336	30	10240
United States	14 619	81	12288
Greece	15 945	43	24576
Germany	16 033	38	16384
Iceland	17 774	89	12288
New Zealand	17 807	65	24576
Norway	18 000	100	16384
Finland	18 384	99	8192
Czech Republic	18 788	28	10240
Canada	19 567	97	10240
Poland	19 675	54	5120
United Kingdom	19 681	48	20480
Switzerland	20 073	60	10240
Denmark	20 397	85	12288
Australia	21 823	103	20480
Sweden	23 693	86	10240
Austria	25 519	94	10240
Slovak Republic	26 939	134	10240
Hungary	27 542	71	15360
OECD	30 550	2117	12288
Netherlands	33 679	67	25600
Korea	52 772	107	51200
France	54 551	37	28672
Portugal	103 718	98	24576
Japan	107 725	119	102400

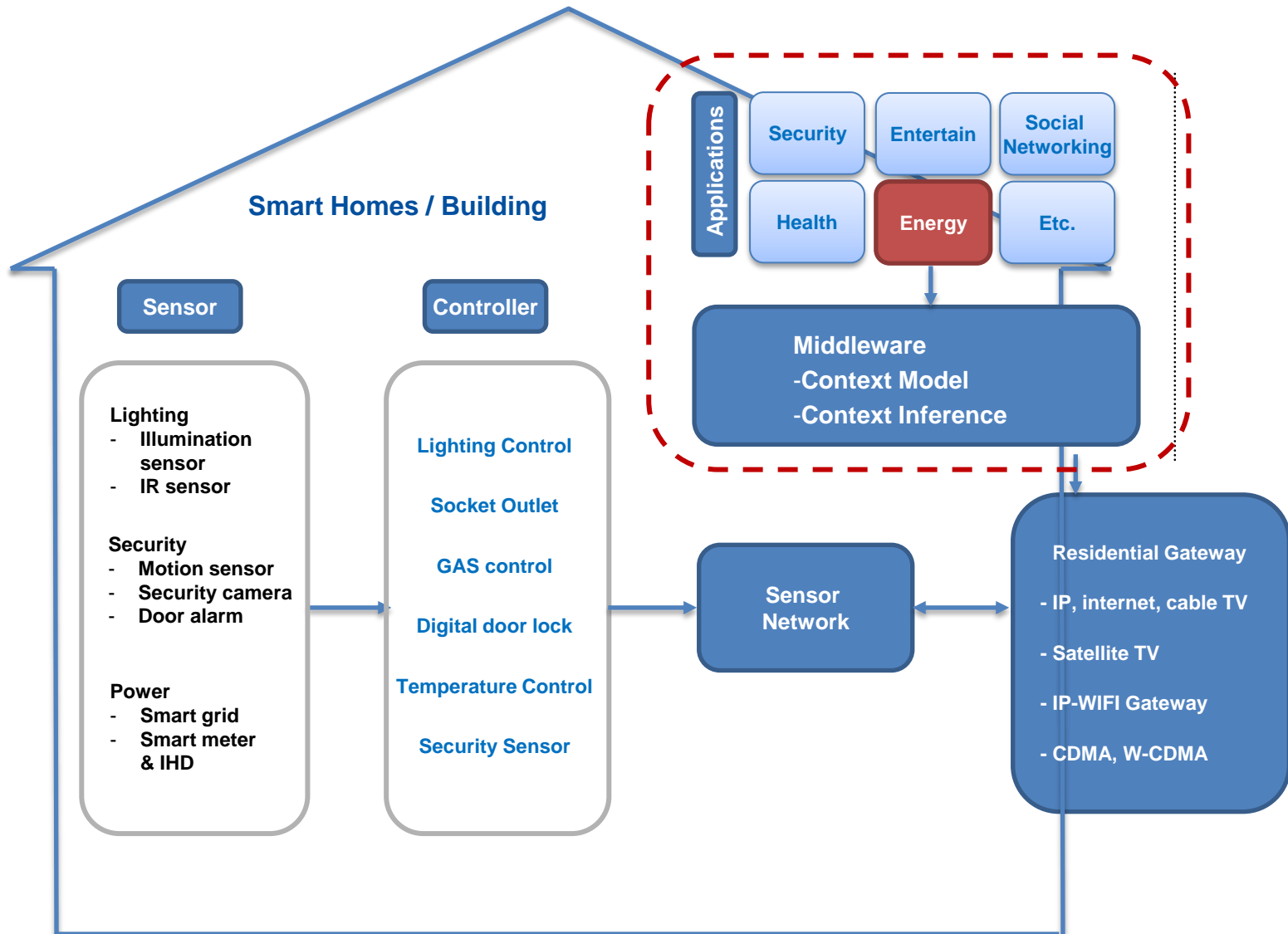
[OECD Broadband statistics \[oecd.org/sti/ict/broadband\]](http://oecd.org/sti/ict/broadband)
 Average advertised broadband download speed, by country, kbit/s,
 October 2009

Vision Pave the way for low carbon, green growth through a Smart Grid

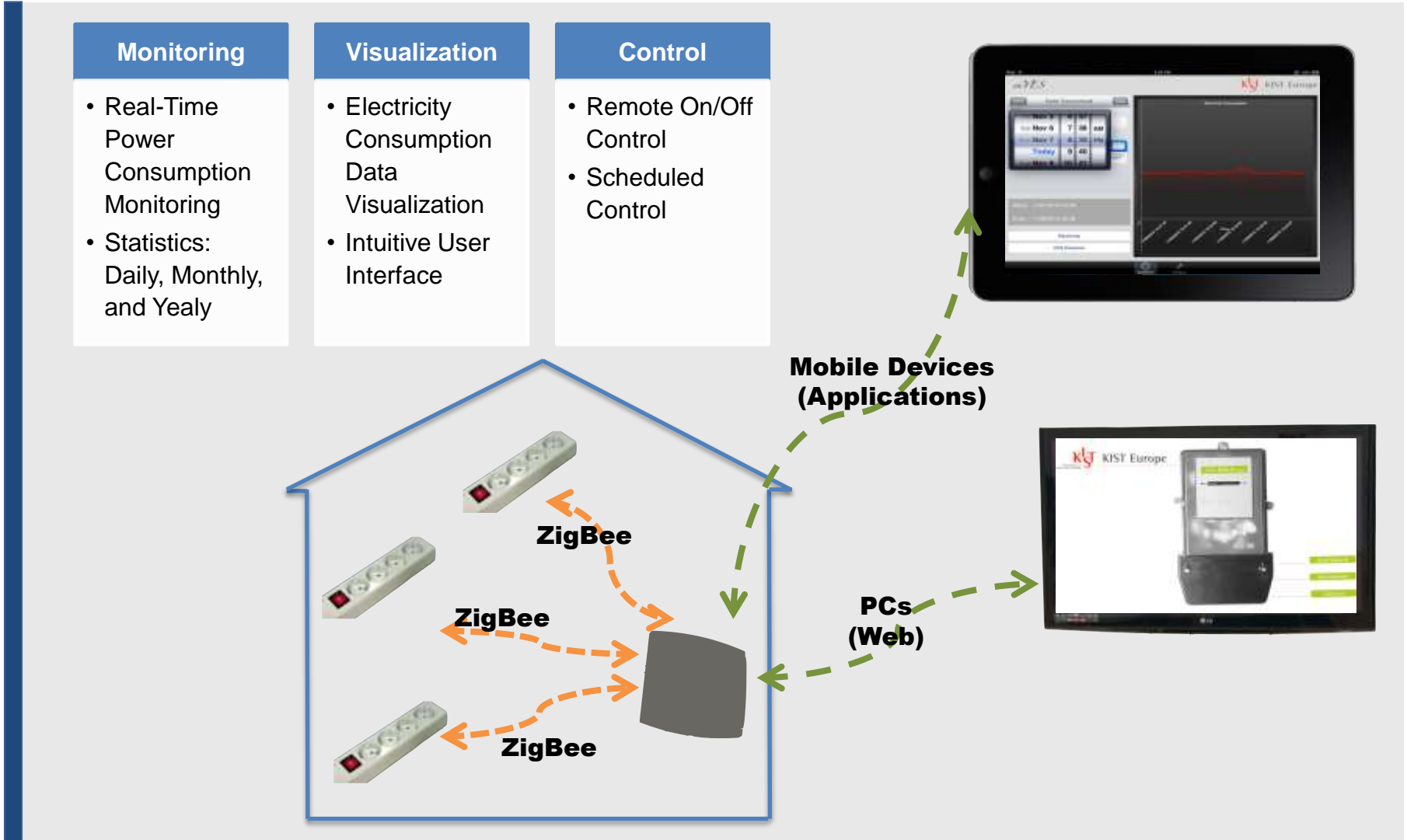


Smart Power Grid	<ul style="list-style-type: none"> • Build a monitoring & control system of the power grid • Build a failure prediction & automatic recovery system of the power grid
Smart Consumer	<ul style="list-style-type: none"> • Distribute nationwide smart meters • Build an automated energy management system
Smart Transportation	<ul style="list-style-type: none"> • Build a nationwide charging infrastructure • Build an ICT-based electric vehicle operating system
Smart Renewables	<ul style="list-style-type: none"> • Create a large-scale renewable energy generation complex • Develop large capacity energy storage devices
Smart Electricity Service	<ul style="list-style-type: none"> • Develop a various pricing system • Develop consumer's elect

Towards Smart Homes/Buildings



Smart energy management system for households and buildings




Smart Grid In Korea

- 4.7 billion euro technology development
- 13.7 billion euro construction of infrastructure
- Total 230 million tons greenhouse gas reduction
- About 31.3 billion euro energy import reduction

Research in Global Knowledge Research Center KIST Europe

- Context inference engine for smart homes
- Living lab for smart homes
- User studies



Towards the Excellence

Towards the Excellence

KIST Europe
Global Knowledge Research
Center

Intelligent System Lab

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