ENERGY SECURITY FORUM
SESSION 6: PROPOSED COLLABORATIVE PARTNERSHIPS ON ENERGY SECURITY

KOREA

KOREA'S NEW LONG-TERM PLAN(~'31) FOR ELECTRICITY SUPPLY AND DEMAND

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CONTENT:

- Status of electricity security
- Back Ground to make Basic Plan of long-term Electricity supply and demand(BPE)
- Main direction(Target) of new BPE
- Action plan to realize BPE target
- Expected outcome with environmental perspective

STATUS OF ELECTRICITY SECURITY IN KOREA

- **Since summer of 2014, Korea has established stable electricity supply system**
  - ❖ Electricity reserve ratio against peak demand :

    ('13)12.8% → ('14)16.3% → ('15)18.3% → ('16)17.6%

- **This is caused by increasing power generation capacity more than that of electricity demand**
  - ❖ Increasing Ratio of Peak Demand : ('07~'11) 4.4% > ('12~'16) 3.1%
  - ❖ Increasing Ratio of Power Capacity : ('07~'11) 3.9% < ('12~'16) 5.9%

BACK GROUND OF 8TH BASIC PLAN FOR LONG-TERM ELECTRICITY SUPPLY AND DEMAND(BPE) IN 2017-2031

- This Long-term plan is supposed to made by bi-annually in order to predict the mid-long term electricity demand and establish the proper electricity facilities in responding to future demand

- This plan has been made since 2002 and made so far until 7th plan

- 8th plan was announced by Dec, 29th, 2017 and dealt with Long-term demand outlook, Target for demand-side management, Expanding plan of Power facilities(generation, T&D) during 2017-2031(15 years)

WHAT WE FACE NOW

In-home

- Increasing Safety concern over Nuclear Power plant
- Need to radical measure to improve air quality
- Need to contribute the Emission Reduction from Power sector
- Delayed construction on planned power supply infrastructures

Abroad

- Decreasing global nuclear and coal power gen
- Increasing global renewable energy gen. due to rising its investment and dropping its cost

MAIN DIRECTION OF THE PLAN: 1. DEMAND SIDE MANAGEMENT

- **Reducing 4.15GW peak demand through Energy Efficiency Improvement:**

- Expanding & more deployment of energy efficient equipment

- Reinforcing efficiency standard through tightening minimum energy performance standard and strengthening energy saving design standard

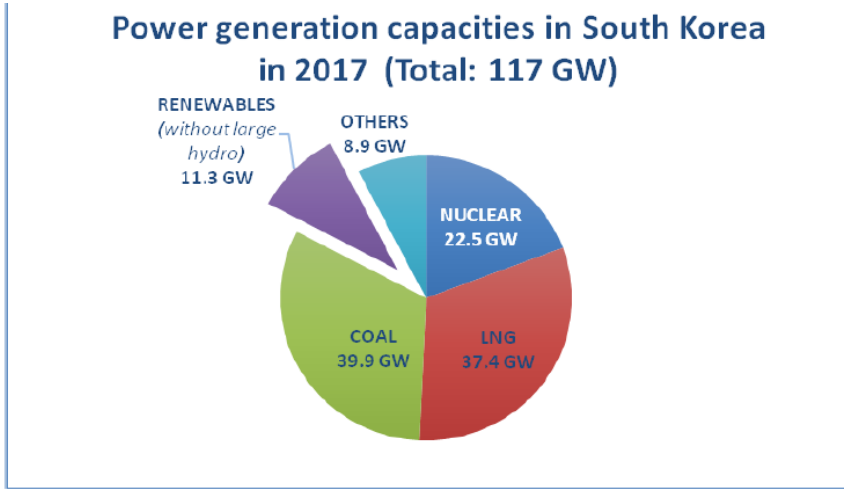
- **Reducing 2GW peak demand through promoting energy management System(EMS) on energy-guzzling buildings and factories**

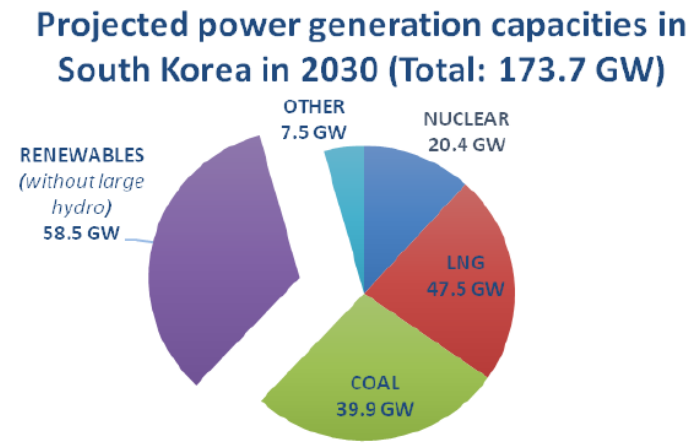
- **Adopting new DMS program**

- promoting the distribution of residential self-consumption of Solar PV power system (one per 15 households, 0.32GW)

- Enacting Energy Efficiency Resource Standards(EERS) program from 2018

MAIN DIRECTION OF THE PLAN: 2. GEN. FACILITY EXPANSION





< outlook of total capacity mix by fuel>

Year	Nuclear	Coal	LNG	RE	others
2017	19.3%	31.6%	31.9%	9.7%	7.5%
2030	11.7%	22.9%	27.2%	33.6%	4.6%

<outlook of total power generation mix by fuel>

Year	Nuclear	Coal	LNG	RE	others
2017	30.3%	45.4%	16.9%	6.2%	0.6%
2030	23.9%	36.1%	18.8%	20.0%	0.3%

ACTION PLAN

- **Establishing Environmental-friendly power Mix through phasing out coal and nuclear**

- No extension of the lifespan of 14 aging nuclear reactors and cancellation of plans to build the six new nuclear reactors

- Enforcing aging Coal power plants' temporary closure from March to June each year(when seasonal air pollution peaks) before final closure by 2022

- Eroding the cost gap between coal and LNG through adoption of environmental costs and adjustment of tax levy between two fuel

- Converting Planned 6 new coal units to LNG

- **While expanding NRE and distributed power**

- Lifting the share of RE in its total power mix to 20% by 2030 through mainly investing in Solar PV(up to 33.5GW) and Wind(up to 17.7GW)

- Lifting the share of distributed power system in its total power mix to 18.4% by 2030('17: 11.2%)

EXPECTED EFFECTS IN TERMS OF ENVIRONMENTAL PERSPECTIVE

- **Particular matter: 62%↓**

< Particulate matter and pollutants emission trend by year (unit: 10,000 ton) >

	2017	2022	2030
Atmospheric particulate matter (PM 2.5)	3.4	1.9 (44%↓)	1.3 (62%↓)
Pollutants	17.4	9.4 (46%↓)	6.5 (62%↓)

- **GHG Emission: 26.4*%↓ from BAU by 2030**

*** Expected GHG emission from Power sector by 2030: 322Mt(BAU)→237Mt(Plan)**

IMPLICATION IN TERMS OF ENERGY SECURITY

- change of energy security concept for energy policy

  - (before) reliable, affordable -> (now) sustainable, safe

- Focus to improve energy security

  - (before) supply, secure -> (now) demand, efficient

- Yet, still strong role of Government