

Utilities (Overweight)

Key takeaways from Korea's fifth renewable energy plan

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Fifth basic plan for new and renewable energy

Government announces fifth basic plan for new and renewable energy

- On Dec. 29, the government announced the fifth national basic plan for new and renewable energy. (The fourth plan was released in 2014.)
- The interim 2025 target for solar and wind power capacity was raised from 29.9GW to 42.7GW.
- Installed renewable energy capacity will be increased to 106GW (or 31% of total power generation) by 2034.

Five key strategies

Turning renewables into a major power source by 2034 and accelerating the transition to a low-carbon economy

- Distribution innovation: Boost private-sector/public-sector investments and diversify the participant base (local governments and residents)
- Market innovation: Raise renewable portfolio standard (RPS) quotas and expand the scope of RPS application, overhaul renewable energy certificate (REC) multipliers, introduce hydrogen portfolio standards (HPS), and expand renewable fuel standards (RFS)
- Demand innovation: Incentivize participation in the RE100 initiative, reorient demand, adopt Power-to-X (P2X) technology, and develop a storage mix plan
- Industry innovation: Improve solar power cell efficiency, develop mega-size wind turbines, and expand green hydrogen
- Infrastructure innovation: Improve transmission/distribution network access system, compensate opportunity costs related to output control, secure energy storage system (ESS) resources, and establish virtual power plants (VPP)

Improved demand outlook

Institutional/structural demand for renewable energy facilities to accelerate

- Expansion of RPS applicability to suppliers with 300MW of generating capacity (from 500MW); increase in the RPS quota (from 10% to 38% by 2034)
- REC multiplier overhaul (2021): Positive to demand for offshore wind power and biomass
- Hydrogen: Development of green hydrogen capacity (100MW by 2030) and support for the development of related materials, components, and equipment
- RE100: Potential adoption of direct power purchase agreements (PPAs), recognition of REC purchases, and preferential treatment/support for participating businesses

Upgrade investment opinion

Upgrade from Neutral to Overweight

- We upgrade our rating on the utilities sector to Overweight (from Neutral).
- We believe the government's plan to expand renewable energy will ease ESG risks related to carbon.
- The electricity tariff overhaul should make it easier to pass on overall costs (power generation cost increases and costs related to infrastructure development).

Table 1. New and renewable energy mix targets (based on output) (%)

Share in overall energy mix	2020	2022	2030	2034
New and renewable resources	7.4	10.1	20.3	25.8
Renewable resources	6.5	8.7	17.3	22.2
New resources	0.9	1.4	3.0	3.6

Source: MOTIE, Mirae Asset Daewoo Research

Table 2. Target share by energy source (based on output) (%)

Share in new and renewable energy output	2022	2030	2034
Solar power	47.4	38.9	39.3
Onshore wind power	7.2	8.1	7.6
Offshore wind power	3.0	23.8	27.5
Biomass	21.9	10.8	8.9
Hydroelectric	5.9	3.0	2.4
Marine power	0.8	0.4	0.3
Fuel cell	9.9	13.1	12.5
IGCC	3.9	1.9	1.4
Total	100	100	100

Source: MOTIE, Mirae Asset Daewoo Research

Table 3. Key strategies of Korea's fifth basic plan for new and renewable energy

Category	Description
Distribution innovation	<ul style="list-style-type: none"> Establish an orderly and sustainable framework Diversify participant base and improve regulations to support distribution Boost private-sector/public-sector investments and expand renewables with safety as a priority
Market innovation	<ul style="list-style-type: none"> Enhance market efficiency and encourage diversification Promote RPS market efficiency and advance market through the separation of new energy sources Expand base to non-electricity and distributed energy
Demand innovation	<ul style="list-style-type: none"> Diversify the demand base Strengthen the renewable energy user base with a focus on RE100 Carry out strategies to secure new demand
Industry innovation	<ul style="list-style-type: none"> Promote R&D innovation and vitalize the ecosystem Help foster new renewable markets by linking R&D to commercialization Establish a virtuous circle of business competitiveness, job creation, and global market expansion
Infrastructure innovation	<ul style="list-style-type: none"> Expand grid and revamp management system Support timely grid connection through preemptive grid investments Address grid congestion and improve grid management system to reduce volatility

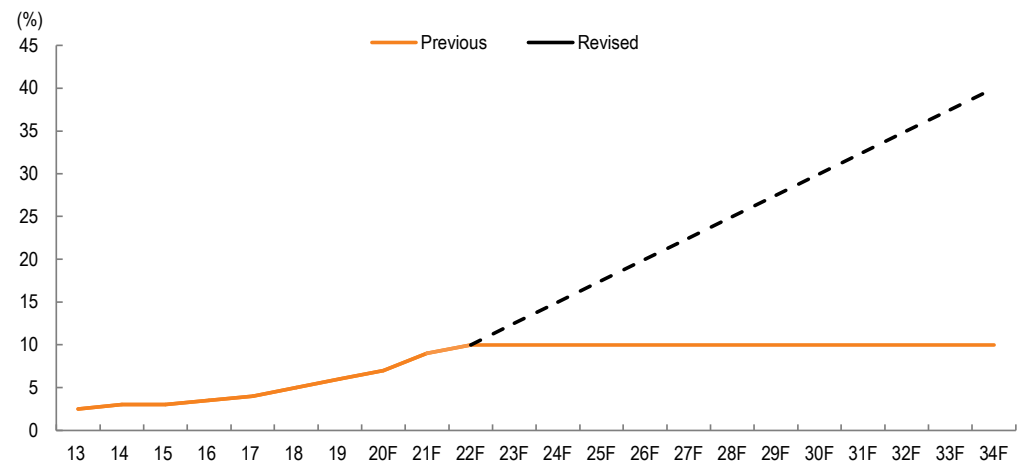
Source: MOTIE, Mirae Asset Daewoo Research

Table 4. Global power generation mix forecasts (%)

Type	2019	2030	2040
Renewable energy (excluding hydropower)	26.6 (10.6)	28.2 (22.7)	46.9 (32.1)
Coal	36.6	28.3	22.4
Nuclear power	10.4	9.4	8.6

Source: IEA, MOTIE, Mirae Asset Daewoo Research

Figure 1. RPS quota outlook (estimated)



Source: MOTIE, Mirae Asset Daewoo Research

Appendix 1

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