

# Korea Energy Transition Outlook

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# BNEF coverage

Strategies for a cleaner, more competitive future

BloombergNEF

## Commodities



Gas & LNG



Power



Oil



Carbon & offsets



Coal



Metals



Chemicals



Agriculture

## Sector transitions

### Clean power



Solar



Wind



Storage



Advanced nuclear



Power systems & networks

### Advanced transport



Electric vehicles



New mobility services & tech



Commercial transport



Aviation & shipping



Renewable fuels

### Buildings & industry



Low-carbon heating & cooling



Circular economy



Green steel & aluminum



Sustainable plastics & chemicals



Low-carbon cement

### Sustainable agriculture



Sustainable proteins & fats



Green agrochemicals



Sustainable intensification



Carbon-smart farming



Biodiversity markets & finance

## Cross-cutting technologies



Industrial digitalization



Hydrogen



Bioenergy



Carbon capture, utilization, storage & removal (CCUSR)



Energy efficiency

## Sustainability



Corporate carbon & climate action



Regulation & reporting



Sustainable finance & ESG



Financial institution transition



Climate risk

Technology & innovation

Forecasts & scenarios

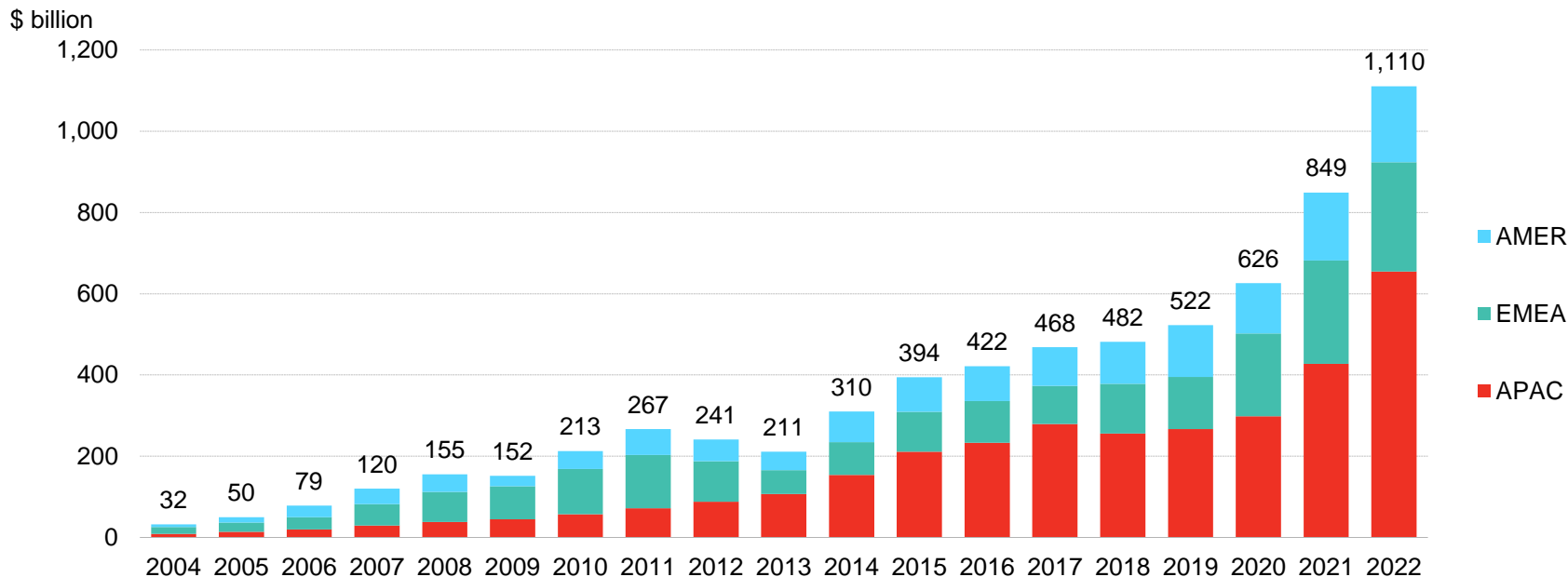
Countries & policy

Finance & economics

Consumers

# Asia Pacific leads growth in global investment in energy transition

## Global investment in energy transition by region

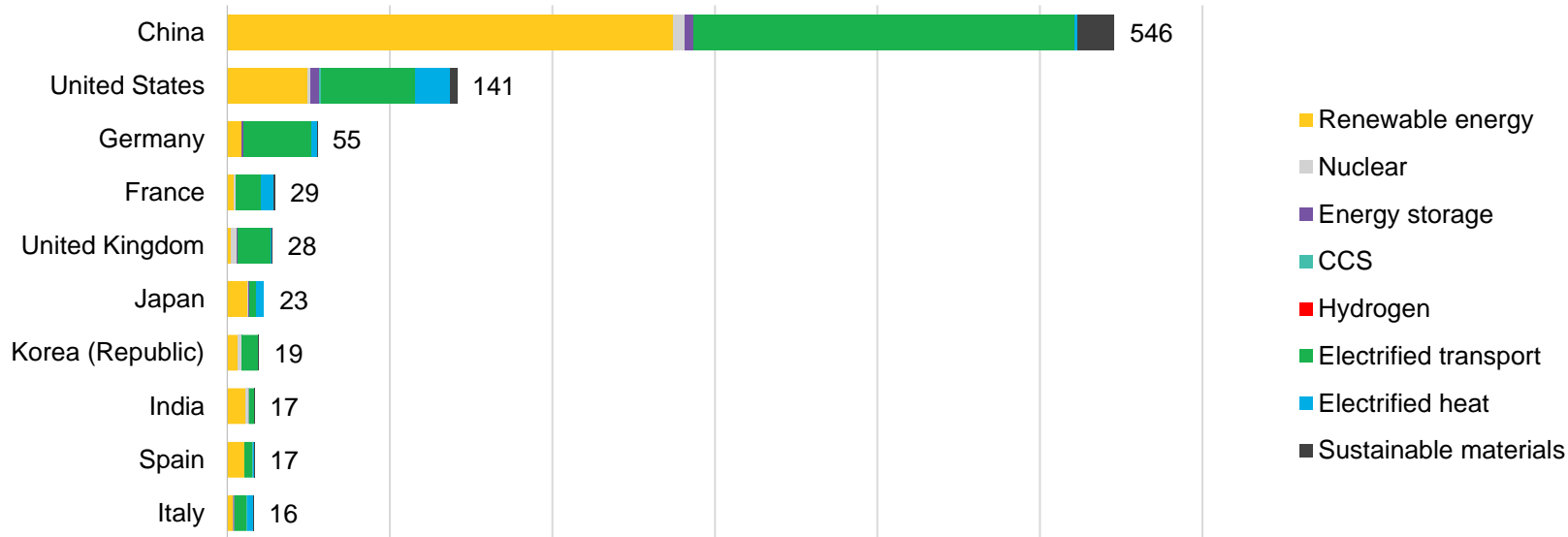


Source: BloombergNEF

# However APAC's lead is primarily thanks to China

## Top 10 countries for energy transition investment, 2022

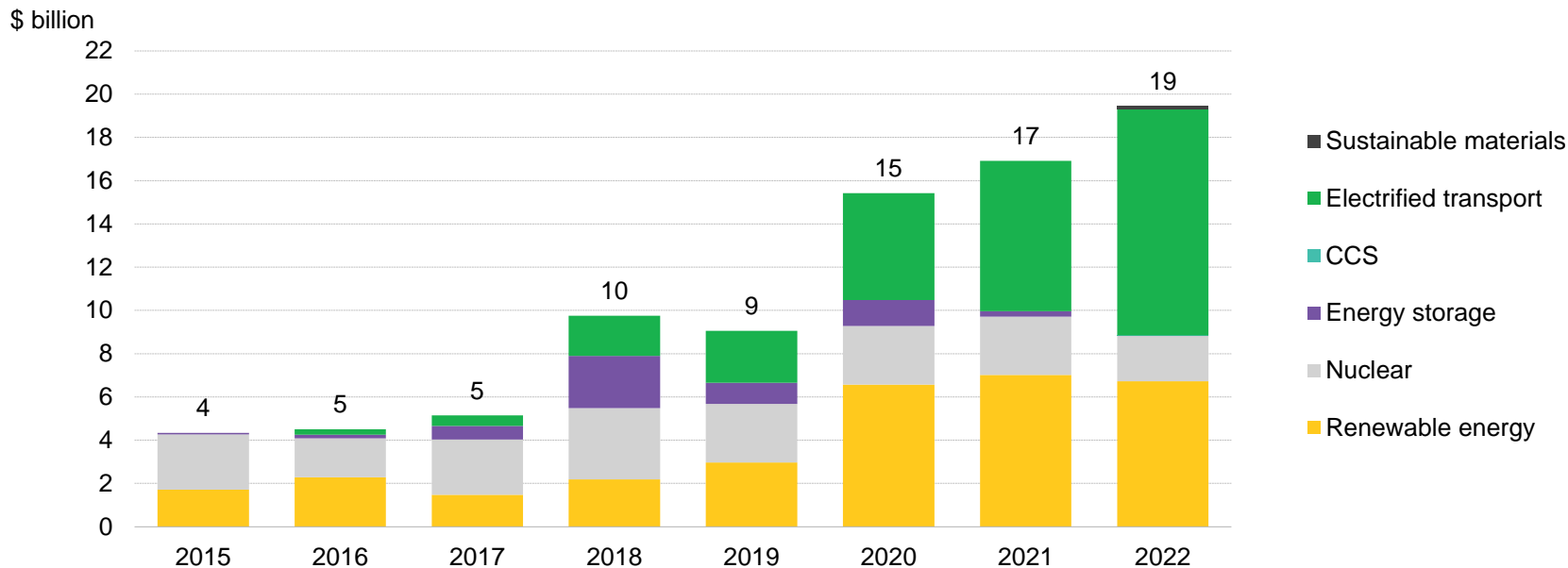
\$ billion



Source: BloombergNEF

# Korea is doing better on supporting uptake of EVs than renewables

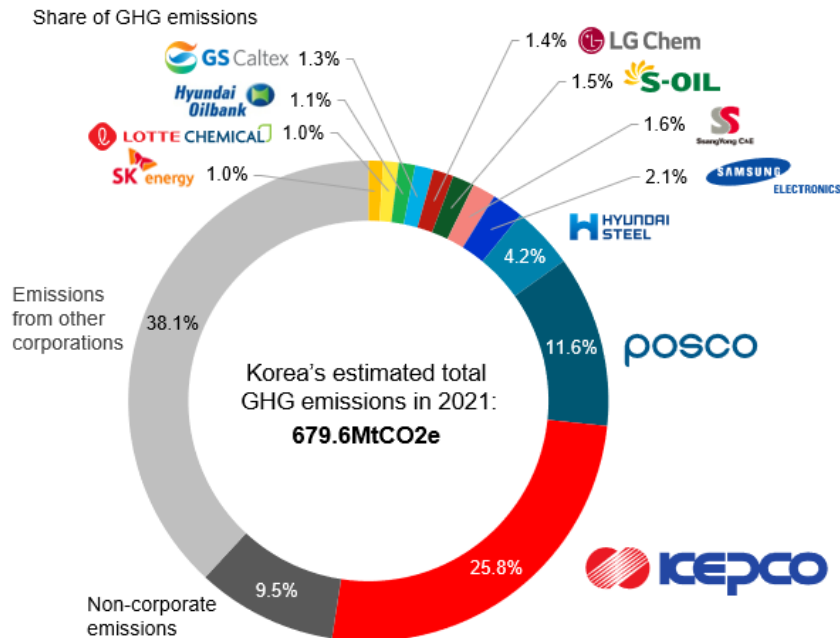
## Korea energy transition investment by sector



Source: BloombergNEF

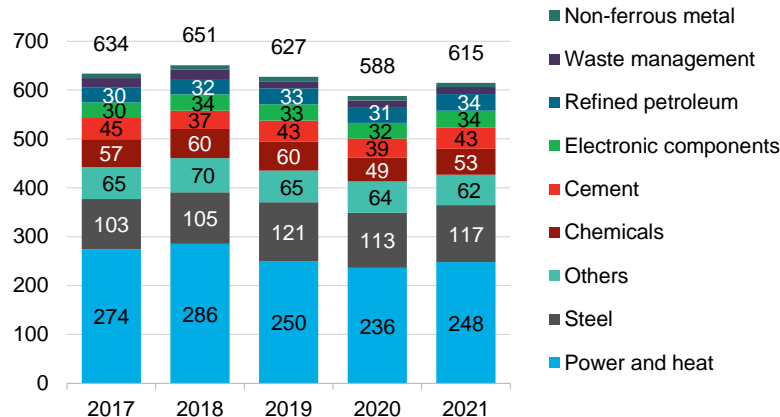
# Decarbonizing Korea's electricity supply, specifically Kepco is key to emission reduction

## Share of top emitters in South Korea's annual GHG emissions in 2021



## Corporate emissions, by sector

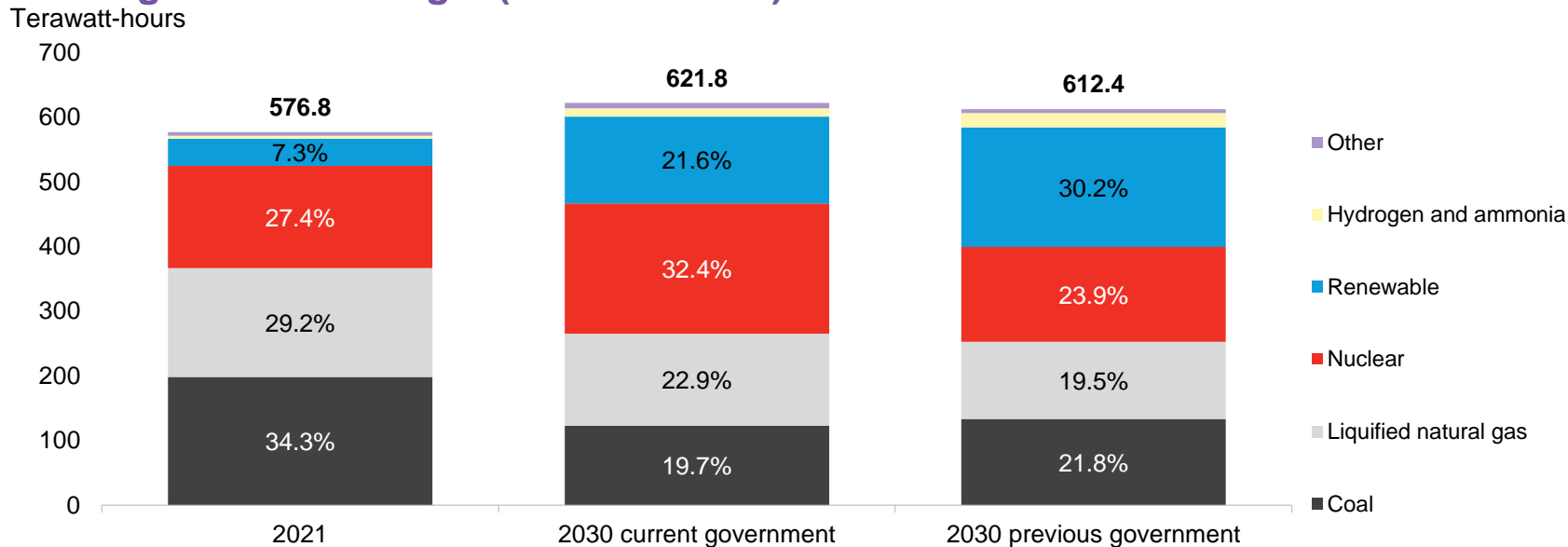
MtCO<sub>2</sub>e



Source: Greenhouse Gas Inventory and Research Center under South Korea's Ministry of Environment, BloombergNEF. Note: Emission figures include Scope 1 and 2 emissions. Korea Electric Power Corp.'s emissions include those of its six power generation subsidiaries. Non-corporate emissions include emissions not reported under the Korea Emissions Trading Scheme and Target Management Scheme.

# The current government is prioritizing nuclear power more than the previous government

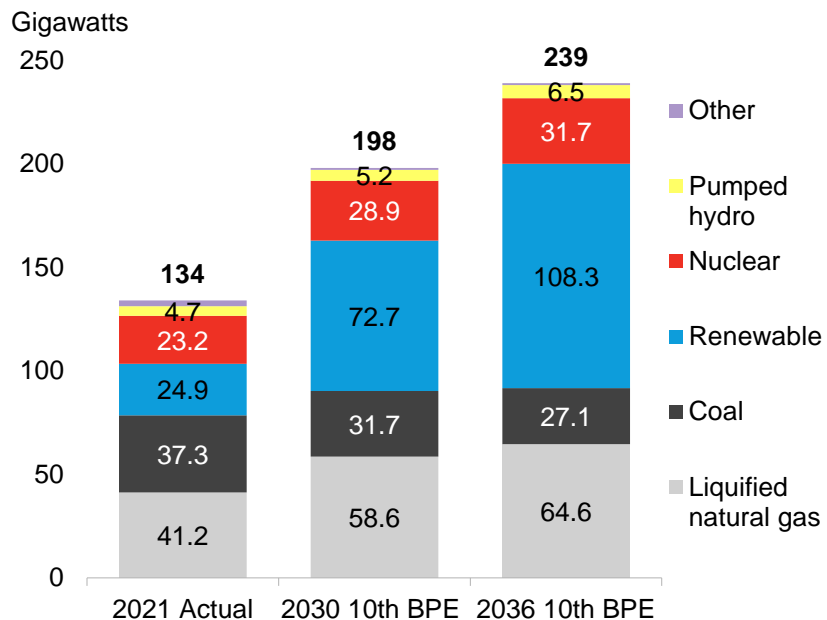
Electricity generation, actual 2021, previous government target (2030 NDC plan) and current government target (2030 10<sup>th</sup> BPE)



Source: BloombergNEF, Ministry of Trade, Industry and Energy

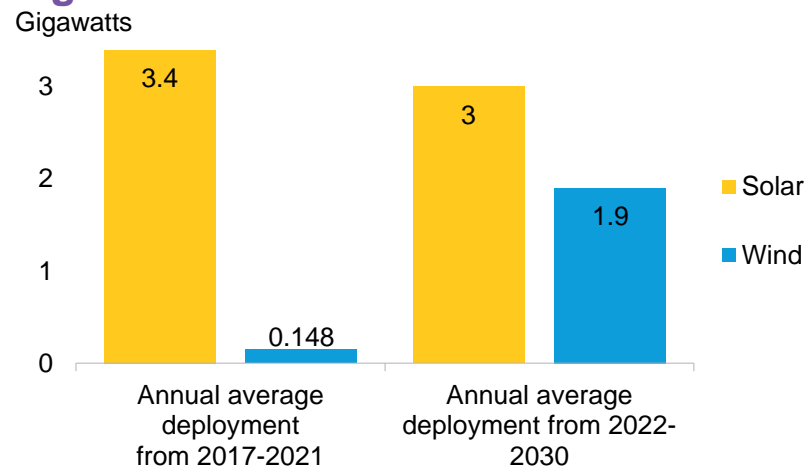
# The Korean government's new renewable and nuclear capacity targets require higher annual capacity additions

## Capacity targets under 10th BPE



Source: BloombergNEF, Ministry of Trade, Industry and Energy

## Average annual solar and wind deployment, historical trend and average target

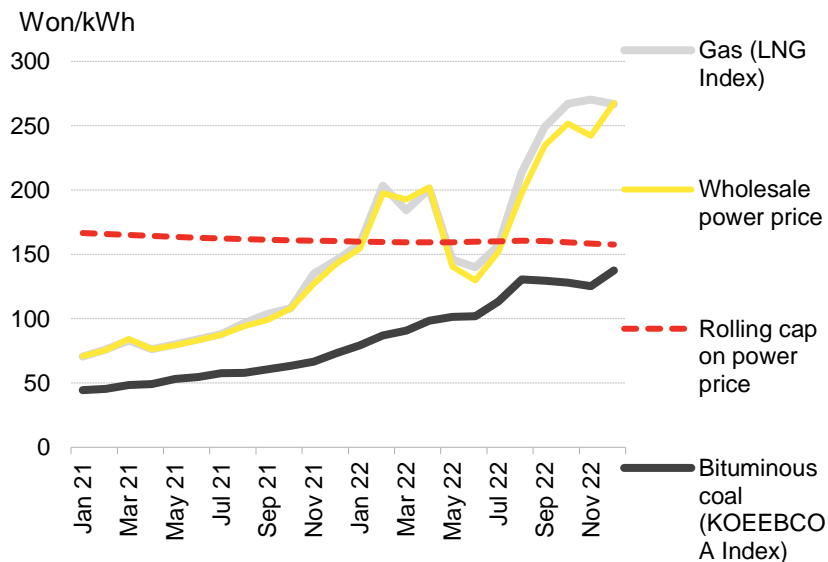


Source: BloombergNEF, Ministry of Trade, Industry and Energy, Electric Power Statistics Information System



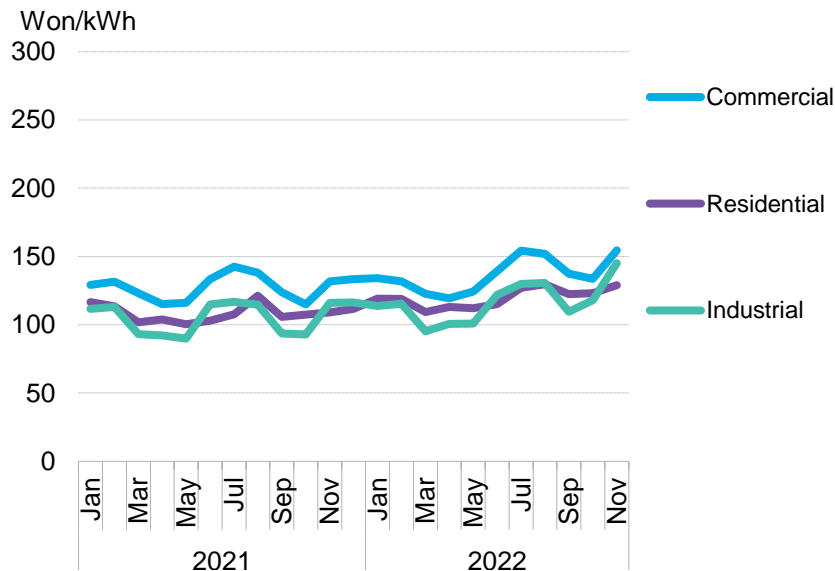
# However, Korea's energy market structure hinders the investment required to achieve the targets

## Power prices and marginal cost of generation



Source: BloombergNEF, Korea Power Exchange

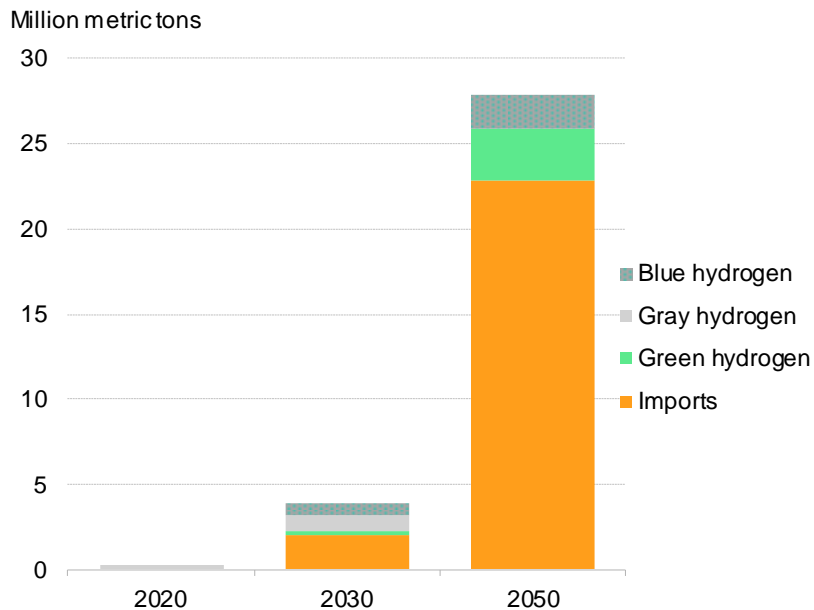
## Average retail power price



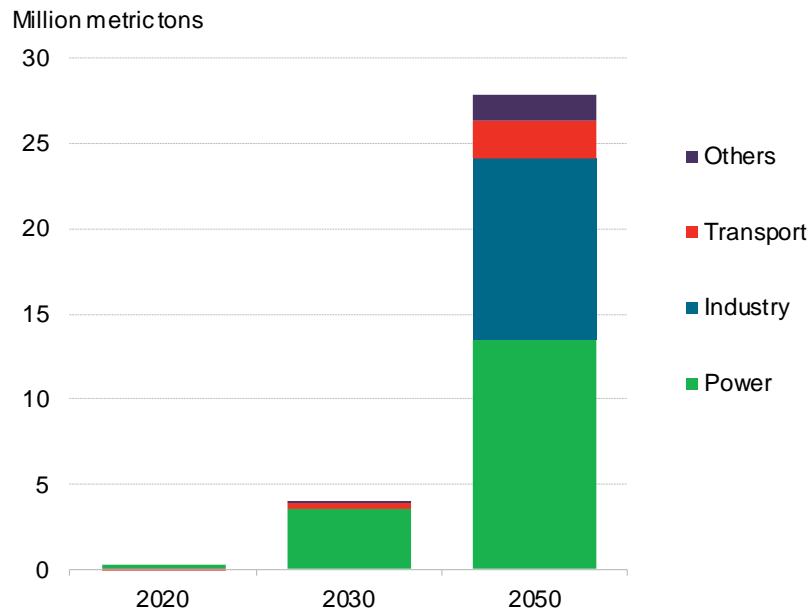
Source: BloombergNEF, Korea Electric Power Corporation. Note: Tariffs calculated by dividing total revenue over total electricity sold by category.

# Korea's hydrogen plan still prioritizes power and road transport applications

## Hydrogen supply targets



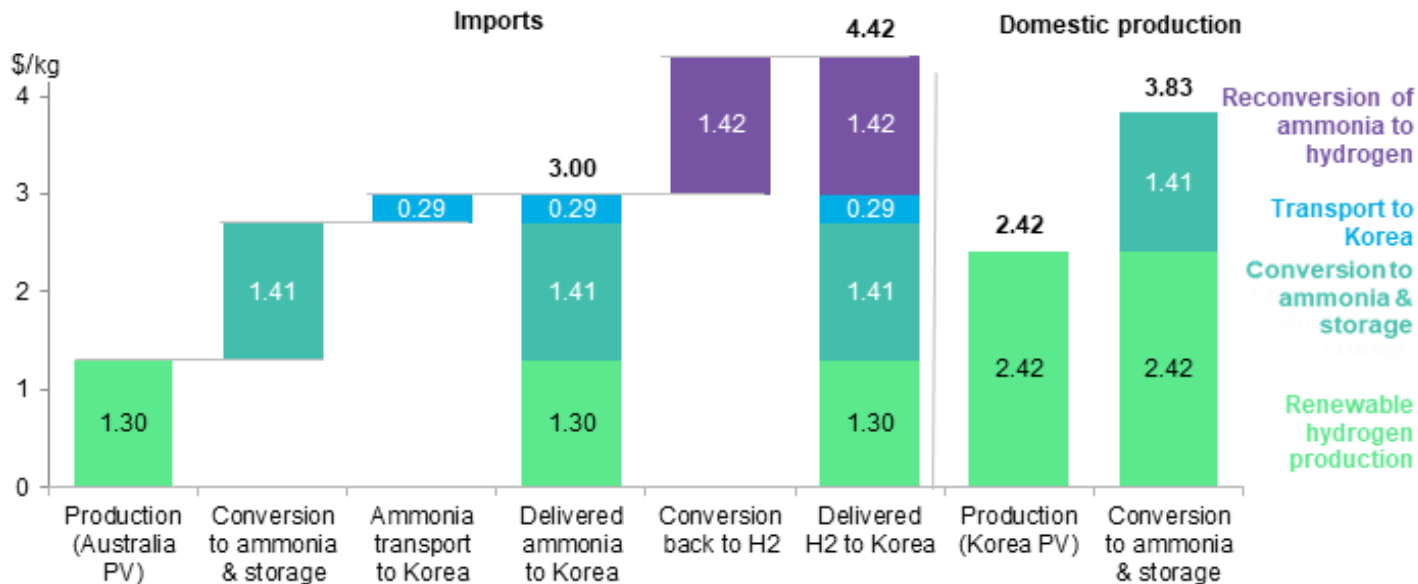
## Hydrogen demand targets



Source: Korea Ministry of Trade, Industry and Energy. Note: Gray and blue hydrogen produced domestically will remain dependent on liquefied natural gas imports. City gas blending targets not included in the 2021 Basic Plan target.

# Importing clean ammonia from Australia can be economic if appropriate clean ammonia-use is prioritized by importing market

Cost of importing green hydrogen and ammonia into Korea versus domestic production, 2030



Source: BloombergNEF

# Recommendations to the Korean government on decarbonization

- Restart long-dormant energy market reforms
- Revamp Korea's emission trading scheme
- Prioritize government funding for R&D in hard-to-decarbonize sectors

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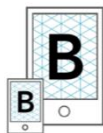
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