



# New Supply-side Economics of Green Transition: Scale Matters

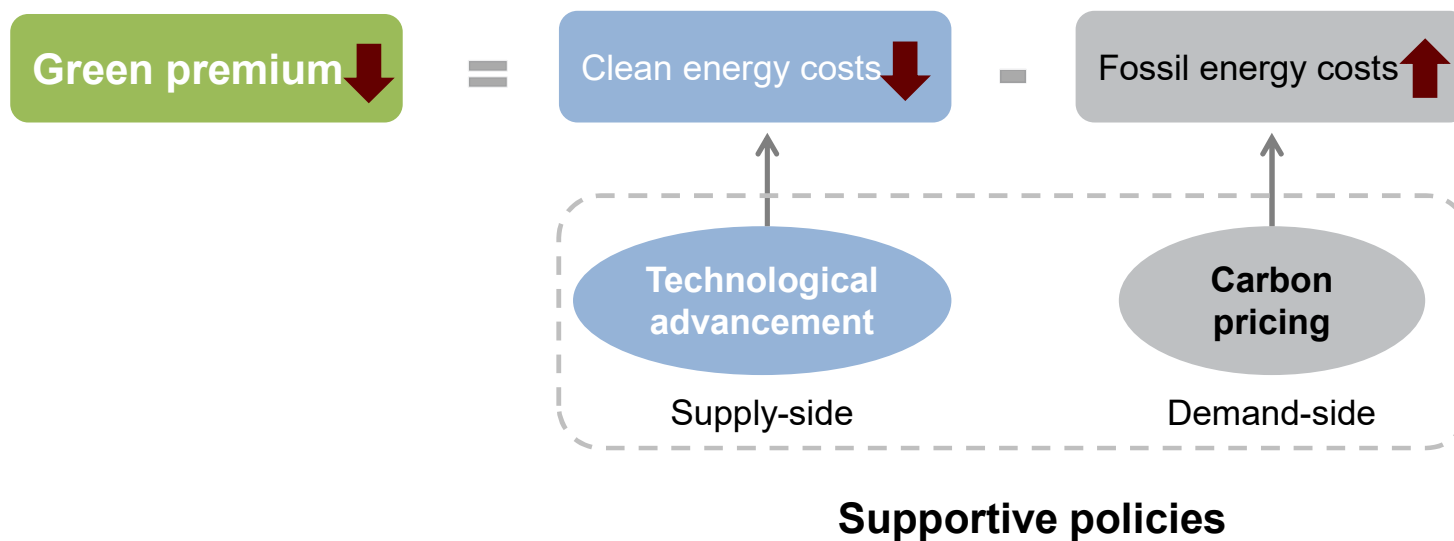
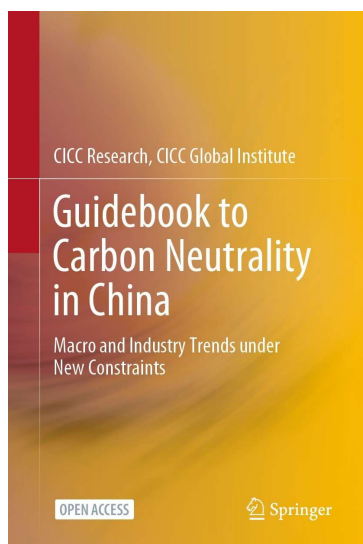
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# Two ways to reduce green premium; supportive policies are needed to correct externalities



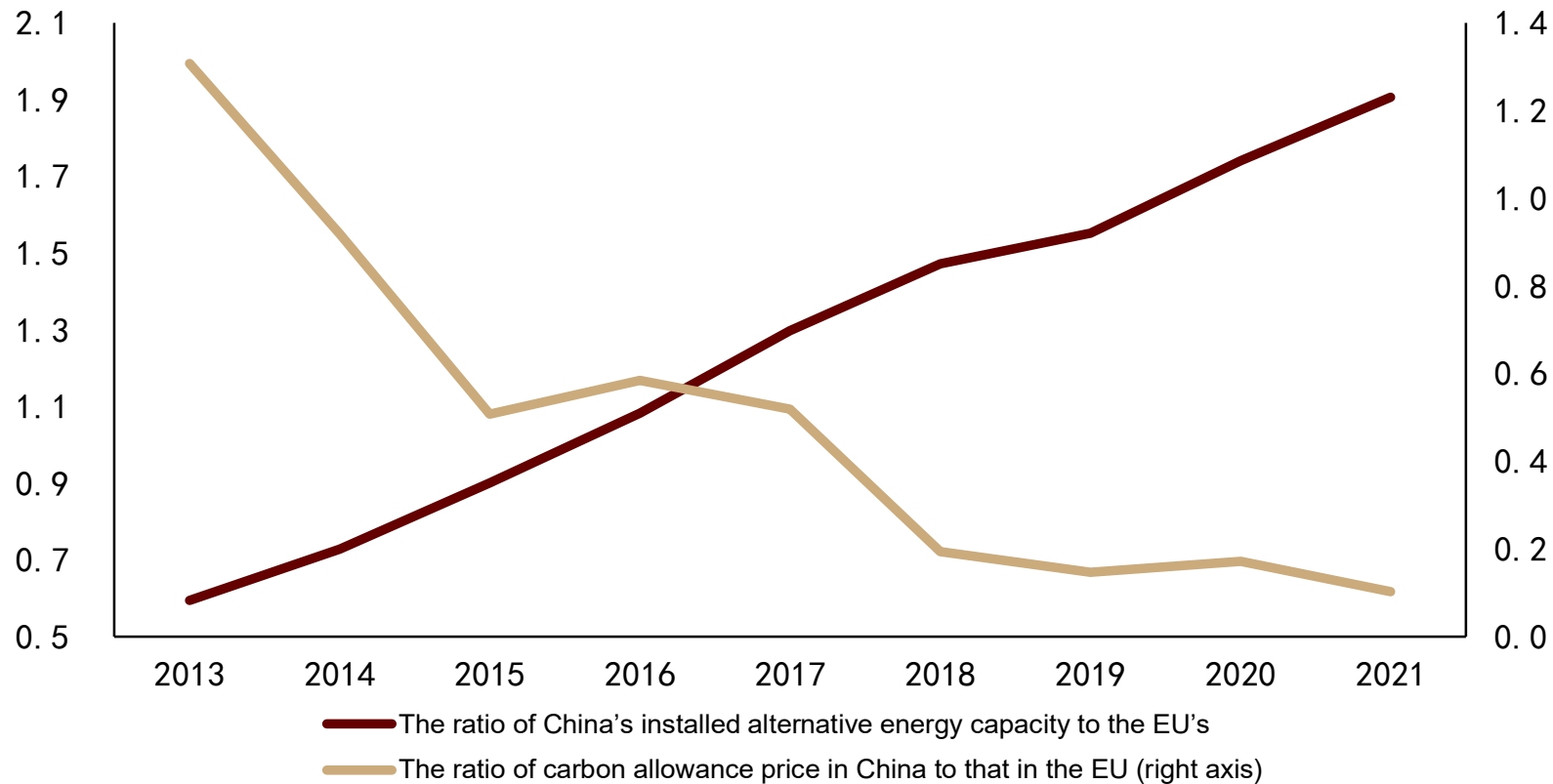


# Two different approaches

# China focuses on the supply-side, while the EU emphasizes the demand-side; the US is in between



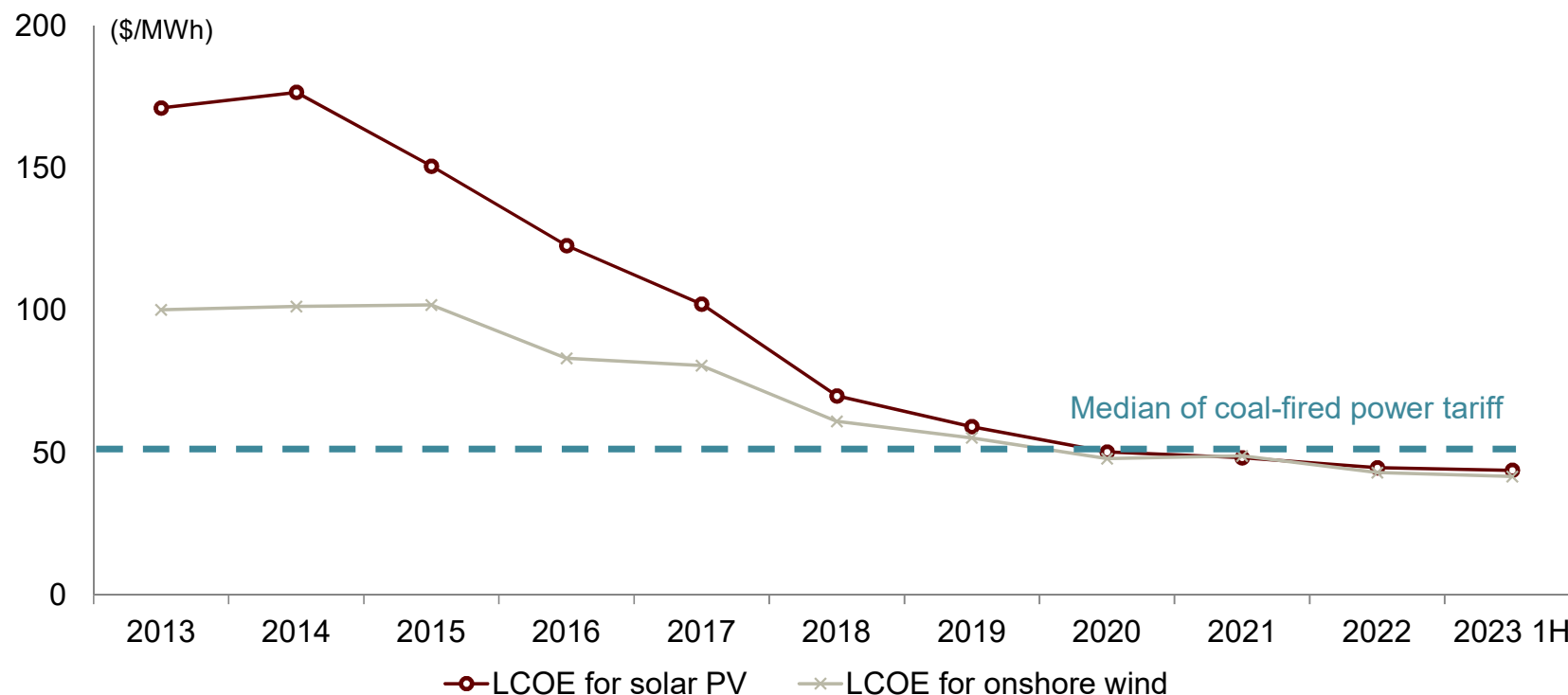
# China has seen falling carbon prices but rising capacity of alternative energy, relative to the EU



Source: BNEF, Wind, CICC Global Institute. Note: The carbon market price in China is the average price in nationwide and regional markets. The installed alternative energy capacity is the sum of cumulative wind and solar installed capacity.

# Green premium in China's power generation has become increasingly negative

## Comparison of levelized costs of energy (LCOE) for solar PV and onshore wind power with the coal-fired power tariff in China (2023 1H)

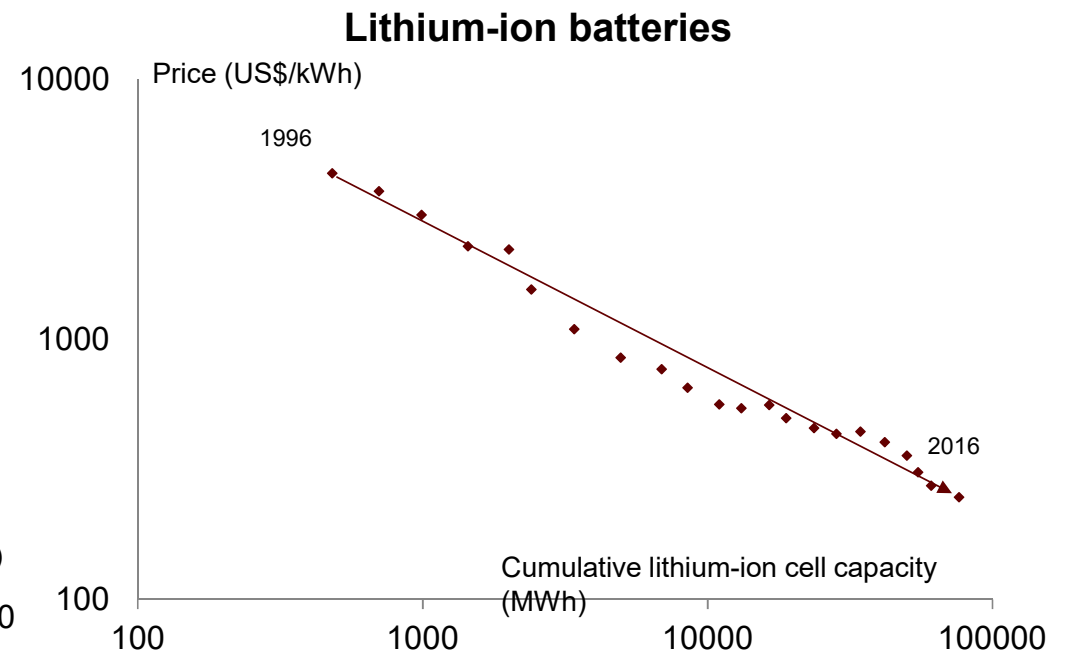
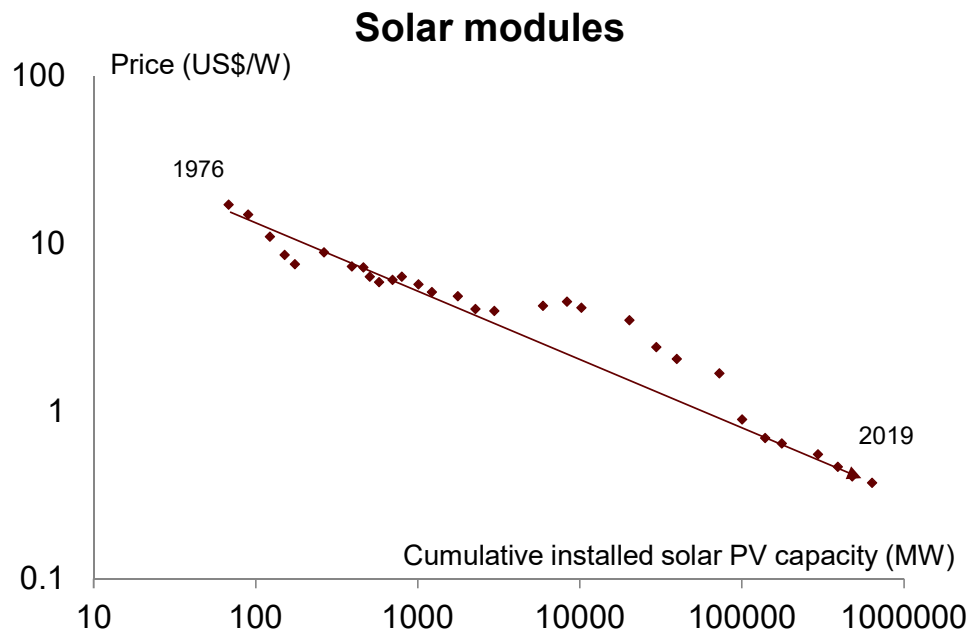


Source: BNEF, provincial development and reform commissions, CICC Global Institute. Note: The data for solar PV is the LCOE of fixed-axis PV systems, the LCOE per kWh of solar power and onshore wind power is the national average, and the benchmark coal-fired power tariff is the median of various provinces.



**Economies of scale drive China's  
green premium down**

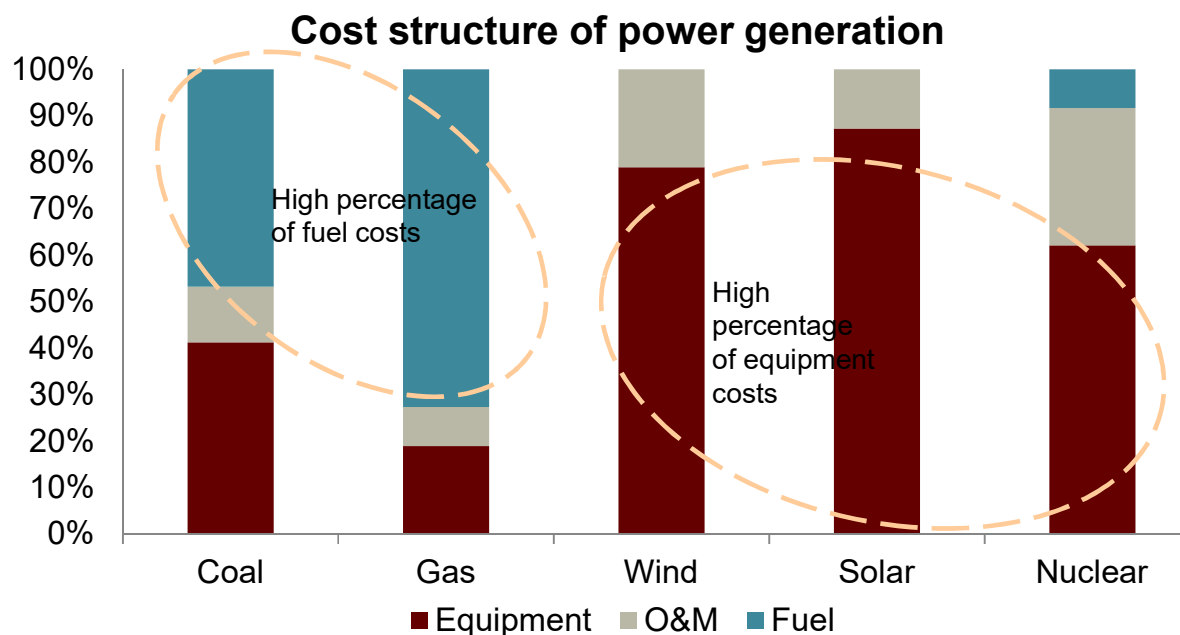
# The new energy industry exhibits economies of scale similar to the manufacturing industry





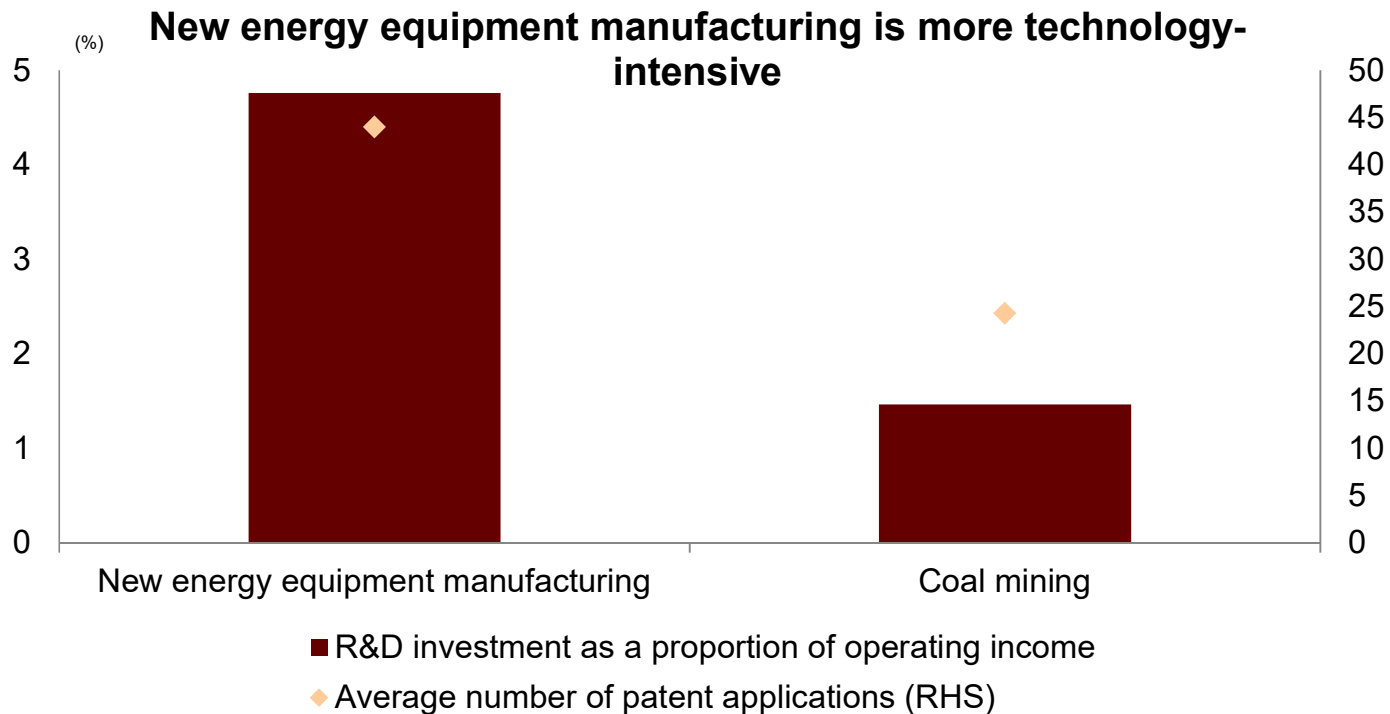
# Reason 1: High equipment investment costs

- The share of equipment costs in total expenses is higher in the new energy industry than that in the fossil fuel industry



## Reason 2: Large R&D investments

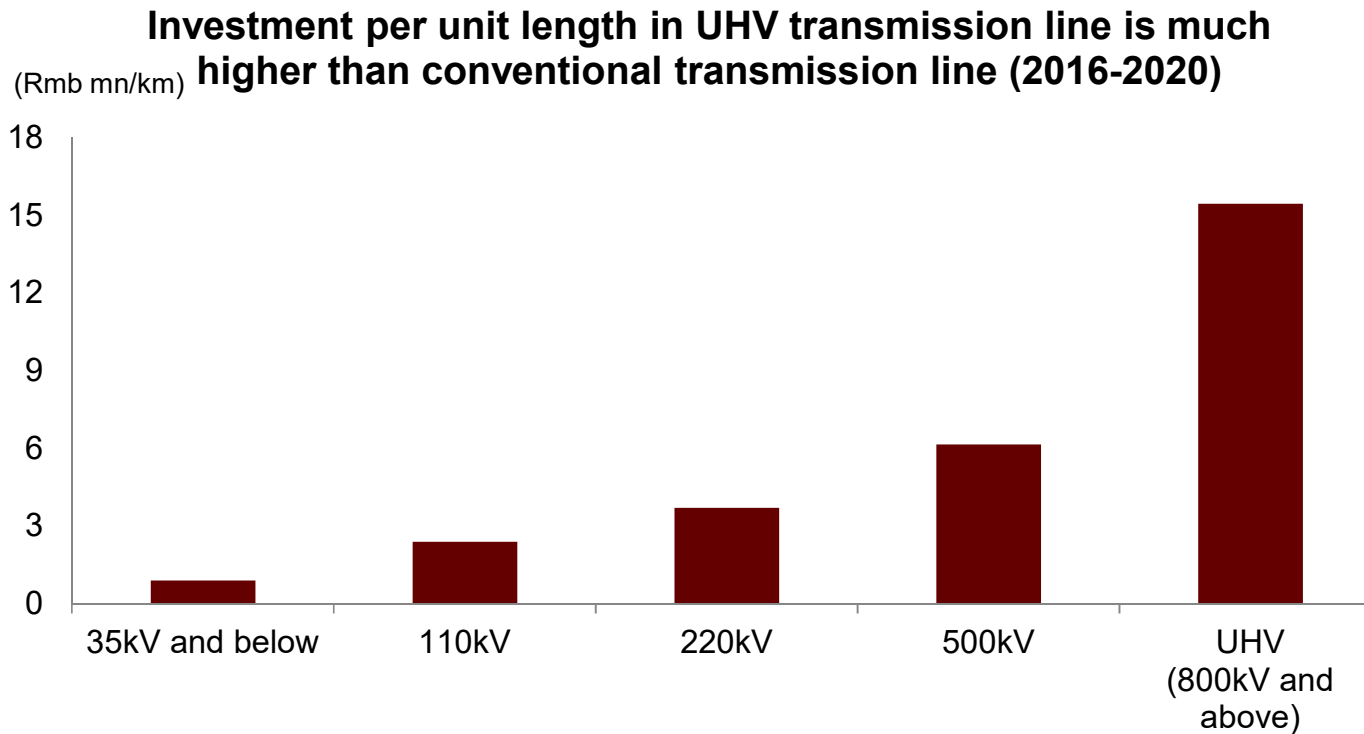
- New energy industry has shorter technologies iteration cycle, higher percentage of R&D investments, and more patent applications



Source: iFinD, China National Intellectual Property Administration, CICC Global Institute. Note: New energy equipment includes wind power equipment, photovoltaic equipment and lithium batteries. Data is based on A-share listed companies in 2022.

# Reason 3: Dependence on infrastructure

- New energy industry has high requirements for long-distance transmission capacity and the quality of short-distance power grids

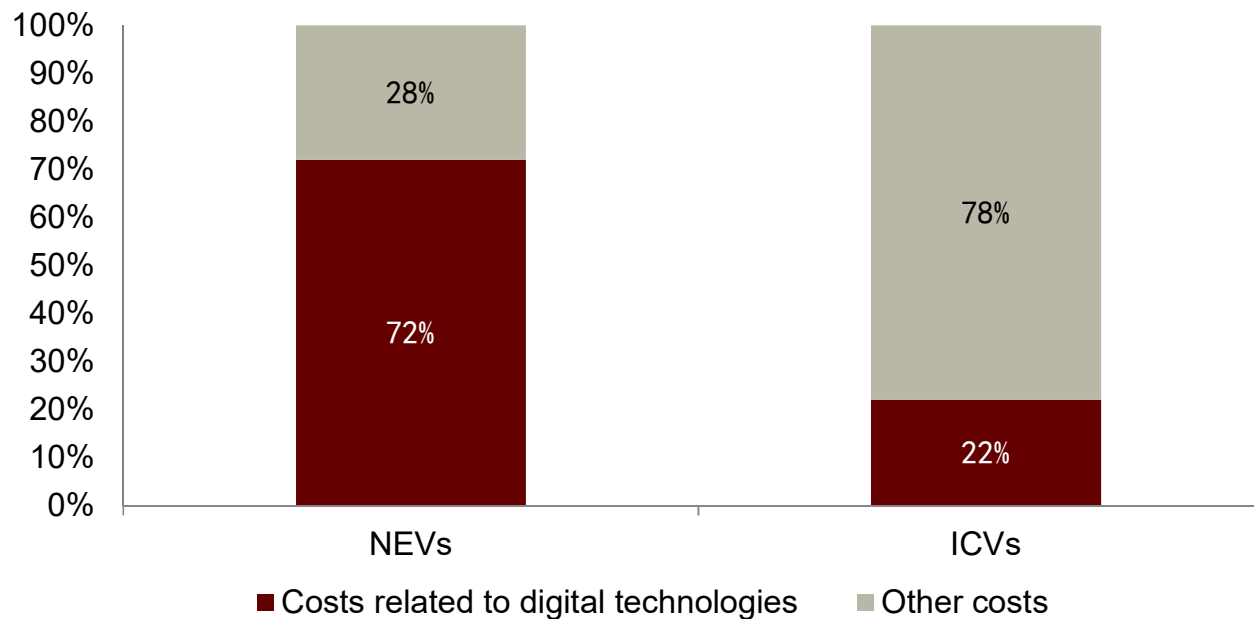


Source: China Electricity Council, State Grid Corporation of China, CICC Global Institute. Note: Data spans from 2016 to 2020.

# Digital economy amplifies economies of scale

- Data as a factor of production can contribute to lowering the marginal cost of green products and enhancing their service attributes (e.g., auto driving)

Costs related to digital technologies in NEVs and ICVs

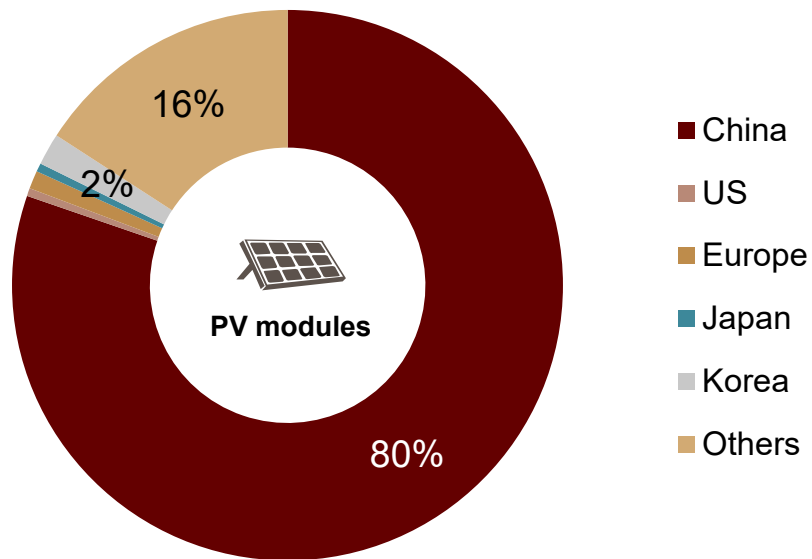




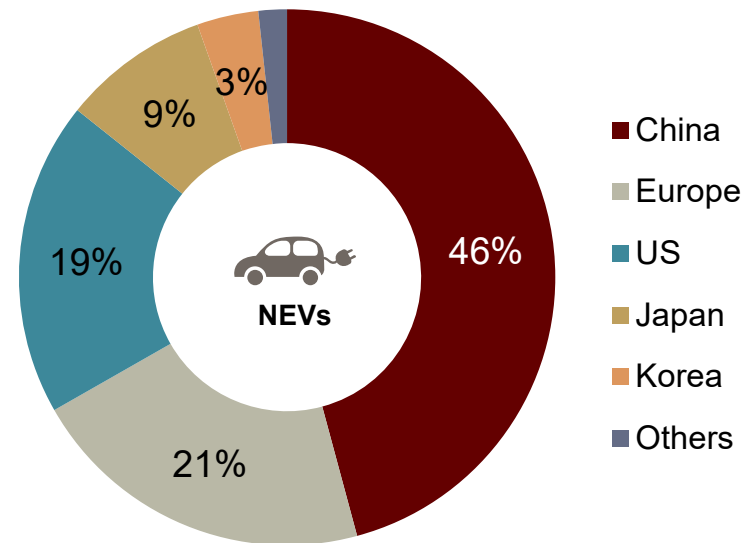
# Opportunities and challenges

# Economy of scale helps green transition, but may increase protectionism with global implications

China's PV modules production capacity accounts for 80% of the world



China's NEVs production accounts for nearly 50% of the world



Source: BNEF, CICC Global Institute. Note: Data is from 2022.

Source: EV Volumes, CICC Global Institute. Note: Data is the cumulative value from 2010 to 2019.



# Thank you!



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