ESG Update

The next phase of cleantech: Growth, localization and differentiation

Key insights from S&P Global Energy's webinar '*Who wins the cleantech race?*'

This week, S&P Global Energy hosted a webinar on the evolving competitive landscape for solar, wind and energy storage suppliers. The discussion reinforced expectations for strong clean energy technologies growth, with ~9TW of new capacity projected through 2035, roughly 3x the previous decade's additions. Key takeaways include: **(i)** robust long-term demand driven by electrification, energy security and rising flexibility needs; **(ii)** solar, wind and storage are at different stages of their industry cycles; and **(iii)** localization and service offerings are emerging as key differentiators in an increasingly competitive market.

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Cleantech additions are set to triple by 2035. S&P Global expects ~9TW of solar, wind and BESS capacity through 2035, ~3x the previous decade's additions (Figure 01), mainly driven by: **(i)** transport and industrial electrification, alongside rising data-center demand; **(ii)** energy security concerns; **(iii)** declining technology costs; and **(iv)** growing grid-flexibility needs as renewable penetration rises (Figure 02). Solar is likely to account for around 2/3 of the total (~6TW), while wind and BESS should jointly represent the remaining ~3TW, with storage growing the fastest.

Three technologies, three different industry cycles.

(i) Solar expansion faces persistent margin pressure. *Global module manufacturing capacity is roughly twice the volume of new solar capacity expected to be installed in 2026, leaving the industry with substantial excess supply. A projected 34% decline in installations in China this year has further weakened demand and pushed module prices lower. As a result, many manufacturers are selling at or below production cost, with most Chinese Tier 1 suppliers reporting negative margins in 1H26. Non-Chinese peers have remained profitable by focusing on protected markets[1], where trade barriers and incentives limit Chinese competition.*

(ii) Wind is recovering, although unevenly. *Wind additions are set to grow, supported by rising renewable-energy demand, although the pace of expansion varies across markets. Average supplier margins returned to positive territory in 2024 as the industry recovered from inflation, supply-chain disruptions and legacy low-price contracts. However, some manufacturers are still working through less-profitable backlogs. Chinese OEMs are using their cost advantage to expand internationally, while Western manufacturers are prioritizing value over volume by focusing on more profitable markets and recurring service revenues.*

(iii) Storage remains the strongest growth story, but supply is scaling fast. *As the least mature of the three markets, storage capacity is expected to increase eightfold between 2025 and 2035, while battery factories can already produce around 50% more than current output, allowing manufacturers to respond quickly as demand grows. According to S&P, this growing supply base, combined with falling system prices and increasing competition, has compressed average supplier margins from ~6% in 2023 to ~2% in 2026. With 85% of battery systems assembled in China and 60% of shipments exported, localization is becoming increasingly important as suppliers seek to preserve market access amid rising trade barriers.*

Looking ahead, localization and services emerge as key differentiators. Despite differing growth trajectories, these industries share a common feature: highly concentrated supply chains, with China accounting for >70% of manufacturing capacity across key components (Figure 03). Against this backdrop, suppliers are pursuing similar strategies, including margin protection, localization and technological differentiation. While reshoring is likely to remain gradual, services, integration and long-term support should become key drivers of profitability.

The next phase of cleantech

Key charts

Figure 01: Solar, wind and BESS installed capacity (TW)

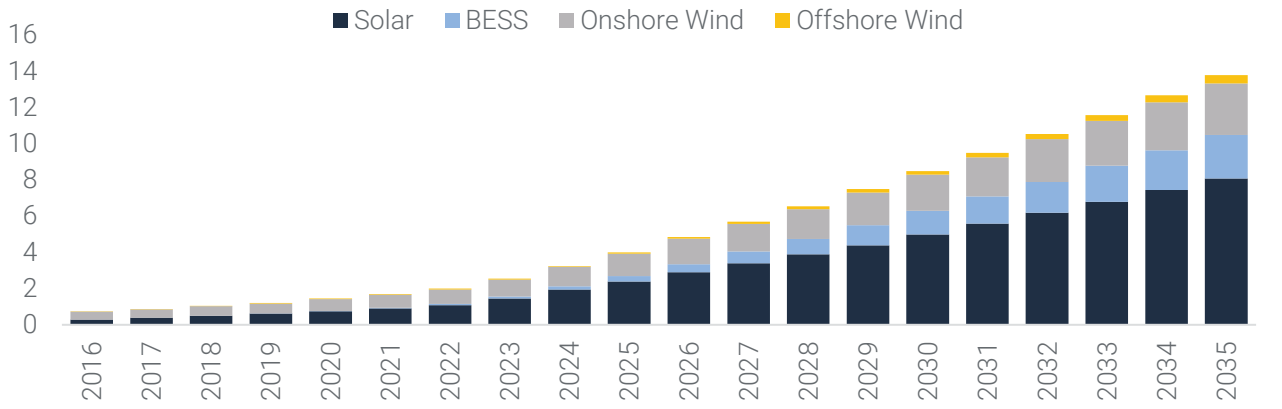


Figure 02: Value levers around core equipment, by technology

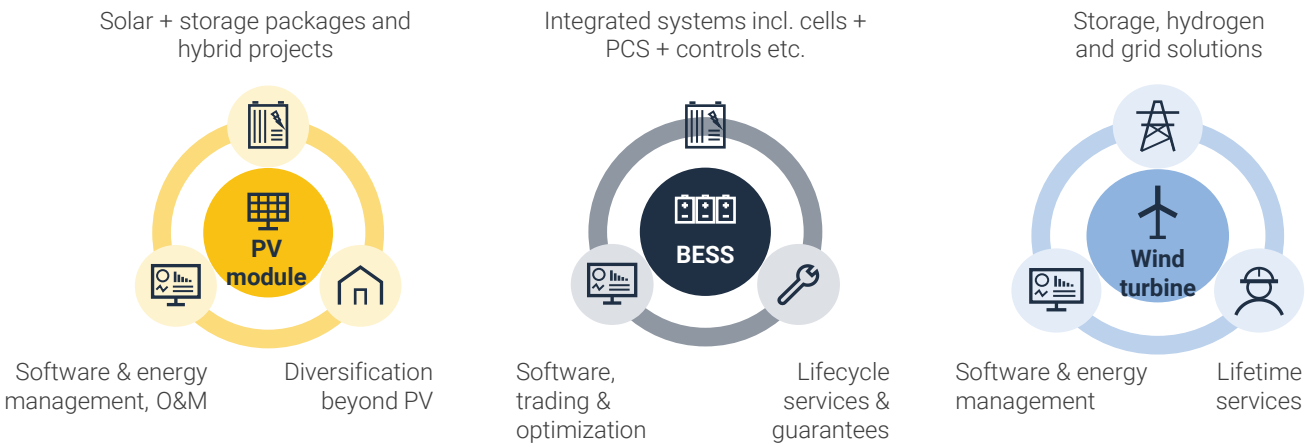
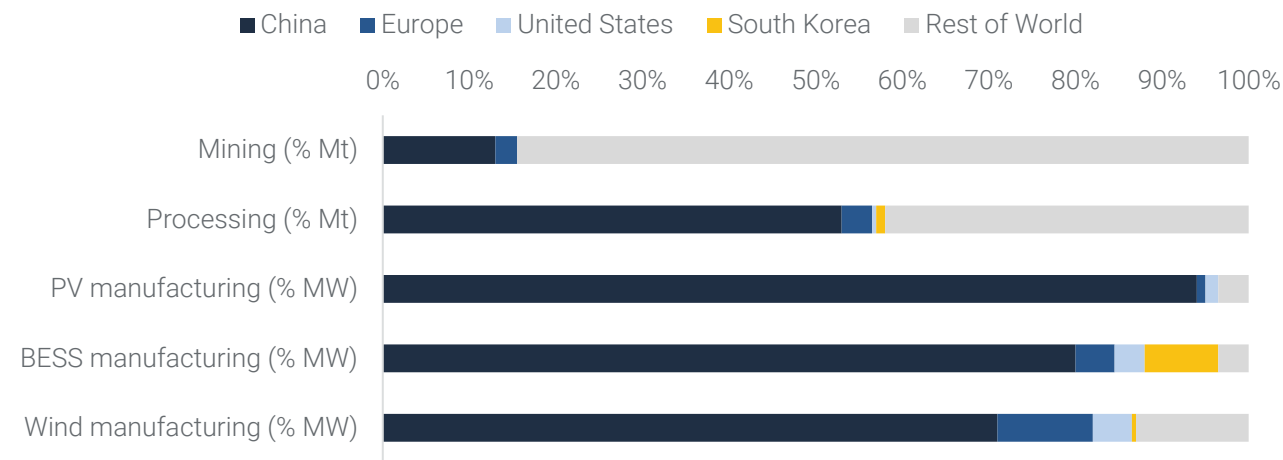


Figure 03: Regional share of 2025 cleantech mining, processing and manufacturing



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