

# Will Europe's new economy be Made in China?

BY HENRY STOREY



# Contents

<b>INTRODUCTION</b>	<b>3</b>
<b>PRICE WARS BATTER CHINA AT HOME</b>	<b>4</b>
<b>EUROPE’S MARKET ALLURE FOR CHINA</b>	<b>6</b>
<b>EUROPE TRIES TO SET TERMS AS CHINA CIRCLES</b>	<b>7</b>
<b>BERLIN HAS SECOND THOUGHTS</b>	<b>9</b>
<b>CHINESE COMPANIES LEARN A NEW DANCE</b>	<b>10</b>
<b>CONCLUSIONS</b>	<b>13</b>
<b>RESEARCHER BIO AND ENDNOTES</b>	<b>14</b>

# Introduction

Europe is becoming a focal point in the struggle for the commanding heights of the global sustainable economy supply chain.

The continent's size, climate policy, trade openness, and single-minded efforts to wean itself off Russian energy have made it the primary target of a renewed Chinese push to amp up its export machine for renewable energy. Market fundamentals combined with strategic imperatives are prompting a renewed Chinese green export push. Europe is naturally a prime target.

China's campaign is driven by flagging demand at home and a strategic imperative by the US to break growing efforts to isolate the Asian giant. Yet China's inroads into Europe have already caused growing unease within the European Union over its dependence on China. "Our dependence on China for our green transition strategy is currently higher than our dependence on fossil fuels from Russia," the EU's foreign affairs and security policy chief Josep Borrell said in November.<sup>1</sup>

Europe is actively rekindling industrial policy to reverse dependency on China. To overcome these obstacles, Chinese companies are adjusting their strategies on European investment as well as the Belt and Road (BRI) plan for global geoeconomic domination.

The stakes are high for both sides. In Europe, policy leaders must tread a fine line between courting enough cost-competitive Chinese technology to supply its sustainability ambitions and opening too much leeway for Chinese producers to decimate Europe's domestic industry. For China, the allure of market share in Europe and global leadership of green supply chains is set against the need to assuage European political sensitivities amid rising anti-China sentiment globally.

# Price wars batter China at home

Green technologies including solar panels, wind turbines, and more recently, electric vehicles and batteries, are viewed in Beijing as a core part of the country's quest to achieve "high-quality development." This is code for growth that is less carbon-intensive, more technologically advanced, and higher value-added than its traditional construction-led economic drivers.<sup>2</sup>

The manufacture of components for the renewable energy industry has added to energy security and economic growth especially in poorer regions of China. Emerging green industries have been a focus of Chinese industrial policy for more than a decade. A range of direct and indirect subsidies have aided these industries including direct cash transfers, purchasing credits, and concessional rates for tax, finance, land, and electricity.

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Yet China's solar manufacturing industry has posted only sluggish profitability.<sup>3</sup> Subsidies, low labor costs, and protectionist "Buy Chinese" public procurement policies created huge economies of scale. These factors made Chinese photovoltaic (PV) production costs at least 10% lower than India's and 20% lower than in the US and Europe.<sup>4</sup> From 2009 to 2021, US\$15 billion in EV purchasing subsidies was provided to Chinese consumers conditional on the purchase of Chinese-made cars with Chinese-made batteries. Chinese battery giant CATL,



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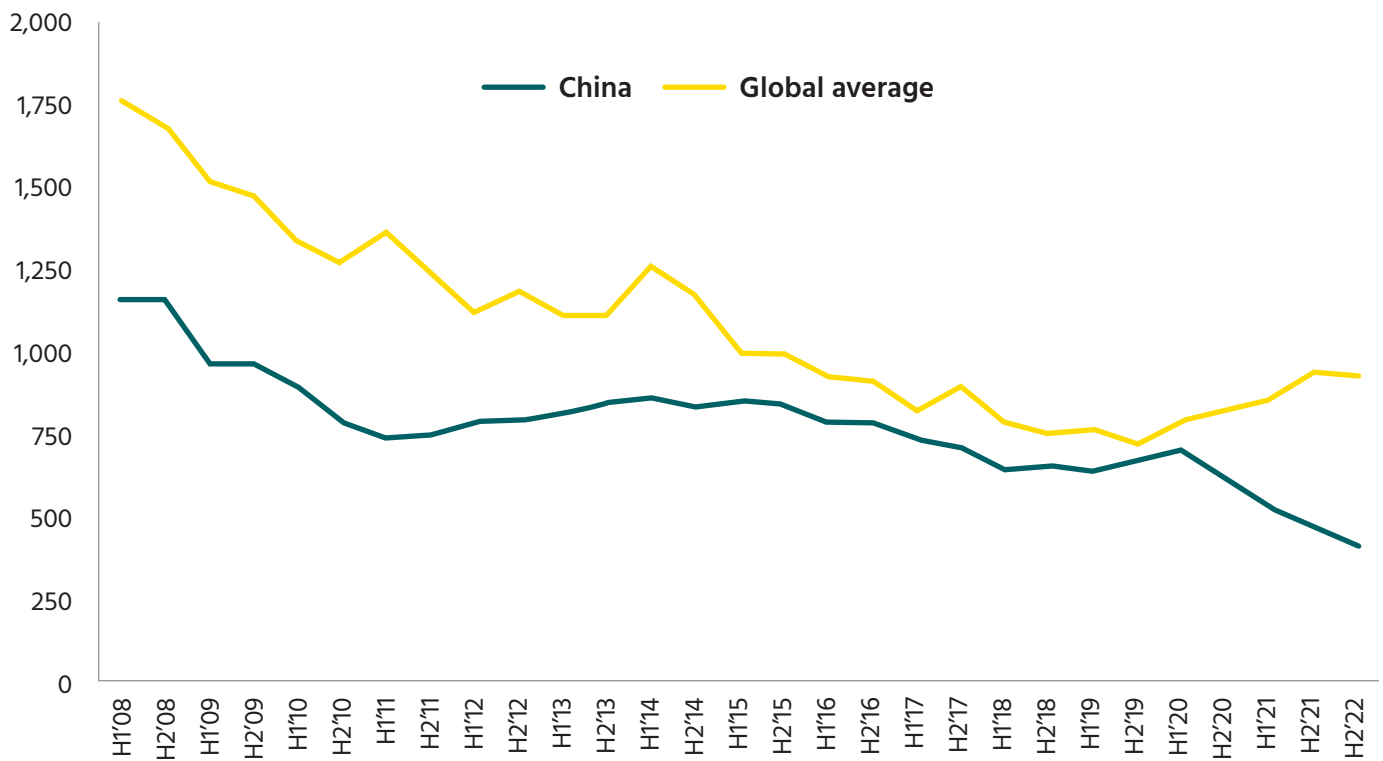
The subsidized production and overcapacity have led to price wars at home. Surging wind power installation since 2020 reinvigorated smaller producers, taking market share away from leading producers MingYang, Goldwind, and Envision.

which has a 36% global market share by sales, has benefited from direct subsidies, receiving US\$230 million in 2021, 2.6 times what it received in 2018.<sup>5</sup> So too have its local peers such as CALB.<sup>6</sup>

But subsidies have also produced industry saturation and overcapacity. EV factory utilization rates are currently around 58% in China, and analysts estimate they will likely fall below 50% by 2025 on current trends.<sup>7</sup> Turbine manufacturing has seen bouts of overcapacity since at least 2015. Between January 2020 and August 2022, China’s solar manufacturers added 890 gigawatts of new PV material manufacturing capacity – as much as the total generation capacity installed in the rest of the world to date.<sup>8</sup>

The subsidized production and overcapacity have led to price wars at home. Surging wind power installation since 2020 reinvigorated smaller producers, taking market share away from leading producers MingYang, Goldwind, and Envision. The response of these larger players has been to initiate price wars, which led to dramatic price decreases from US\$700,000 a megawatt (MW) in early 2020 to approximately US\$370,000 per MW in April this year. The price competition eroded profit margins at Chinese turbine manufacturers. Despite strong domestic sales, Goldwind reported a 5% profit decline in the year to July 2022.

**Figure 1 – Chinese wind turbine prices well below global average (\$000/MW)**



Source: S&P

# Europe's market allure for China

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These market conditions have naturally made Chinese renewables exports highly price-competitive and strategically attractive. Beijing's dominant position in the green economy notably serves to insulate China from any serious decoupling efforts. Any would-be globally viable alternatives to Chinese green manufacturers would find capturing a sizable European market share very difficult.

In contrast, the US has tariffs on Chinese solar panels, EVs, and wind turbine-related products. The 2022 Inflation Reduction Act (IRA) will eventually preclude any EV with material Chinese content share from receiving purchasing subsidies and provides US "clean energy manufacturers" with US\$10 billion in tax credits.<sup>9</sup> The EU has complained that the US measures are discriminatory and is mulling its own subsidies, though Europe's public finances and policy positions limit the likelihood of such implementation.<sup>10</sup> The EU has only a 10% levy on Chinese vehicle imports. All trade restrictions on Chinese PV modules were removed in 2018.

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The EU is consequently far more exposed to Chinese competition. The EU already imports around 80% of its solar panels from China, shipping more than 42 gigawatt (GW) of PV panels in the first half of 2022, an 137% year-on-year increase. China wants to emulate this success in other renewables sectors.

Europe absorbed nearly half of the 500,000 EVs that China exported in 2021, though many of these were made by Tesla or European brands. Chinese EV sales are nonetheless growing quickly in Europe from a low base, achieving a 5.2% market share in Western Europe in the first half of 2022, up from 3.8% from a year earlier.

Even the turbine market, long dominated by European makers, is now in the sights of Chinese players. Analyst predictions, as far back as 2015, that overcapacity would lead to a flood of Chinese exports to Europe were more likely premature than wrong.<sup>11</sup>

In 2022, MingYang became the first Chinese player to ship offshore wind turbines to Europe, delivering ten 3MW turbines to the Taranto wind farm in Italy. Both MingYang and Goldwind have publicly stated plans to heavily target the European offshore wind market.<sup>12</sup> MingYang's triumphant incursion into Fortress Europe followed Goldwind's winning of several orders in the Greek and Italian onshore markets and Shanghai Electric's winning bid in central Croatia.

# Europe tries to set terms as China circles

China's western region of Xinjiang, the epicenter of Chinese efforts to control a restive Uyghur minority, currently produces around 45% of the world's polysilicon capacity, giving the province an outsized role in global solar supply chains.

China's inroads into Europe coincide with growing unease in the EU over its energy dependence on China, at a time when the continent's dependence on Russian gas is being sorely tested. A white paper recently released by Siemens Gamesa bluntly warned that "Europe is now facing the very real possibility that the EU energy transition will be created by China."<sup>13</sup>

These concerns are actively if belatedly shaping EU policy. The 2022 EU Solar Energy Strategy calls for rebuilding Europe's once globally competitive solar industry, which it acknowledges is struggling to achieve "large-scale production and build economies of scale."<sup>14</sup> To meet the target of an annual manufacturing capacity equivalent to 20GW, financing has been made available through funds like the €25 billion (US\$26 billion) EU Innovation Fund. Although China is not explicitly named in the strategy, it is undoubtedly the target as the fund strategy calls out the "quasi-monopolistic role of one country."

The development of 20GW annual PV manufacturing capacity by 2025 is a modest target. But it may prove more effective as an instrument in an EU campaign to ban the import of products manufactured using forced labor.<sup>15</sup> China's western region of Xinjiang, the epicenter of Chinese efforts to control a restive Uyghur minority, currently produces around 45% of the world's polysilicon capacity, giving the province an outsized role in global solar supply chains. Any ban using such language will put sand in the gears of China's solar export machine.



Europe's re-embrace of industrial policy is a dynamic process, with scope to increase as concerns over reliance on China intensify.

Solar is just one of several industries in the crosshairs of efforts by Brussels to on-shore supply chains and lift sustainability targets. The European Commission has set an ambitious target for Europe to be 90% self-sufficient in battery production by 2030.<sup>16</sup> Efforts to update the 2006 EU's Batteries Directive will see the imposition of maximum "lifecycle carbon footprints" for batteries – an accounting of greenhouse gas emissions at each stage of a renewable fuel's production and use – which will likely disadvantage Chinese exports.<sup>17</sup>

Industrial policy support for turbine manufacturers is less explicit, though Europe does have meticulous standards around technology, quality specifications, grid compatibility, and reliability.

Industrial policy support for turbine manufacturers is less explicit, though Europe does have meticulous standards around technology, quality specifications, grid compatibility, and reliability. These standards complicate the already tortuous project approval process for developers seeking to use Chinese technology.<sup>18</sup> At a late 2022 industry event, one senior MingYang company representative observed that "some mature European markets look highly lucrative on the surface but are not so."<sup>19</sup>

The road for China will not be clear of European competition. In a white paper, Siemens Gamesa advocates for European subsidies, compensating local manufacturers for inflation, and for the establishment "of a level playing field." Specific policy prescriptions for the latter include changing tender rules to favor European manufacturers and a rigorous Carbon Border Adjustment Mechanism (CBAM), a policy designed to discourage offshored carbon-intensive production from exporting back to Europe.<sup>20</sup>

Two other EU policies seek to "level the playing field": the recently adopted Foreign Subsidies Instrument (FSI) and the International Procurement Instrument (IPI). Both instruments will ultimately allow European authorities to block tenders from foreign companies benefiting from distortionary subsidies or protectionist public procurement policies.

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Europe's re-embrace of industrial policy is a dynamic process, with scope to increase as concerns over reliance on China intensify. Acute dependence on Russian gas and close economic linkages with China mean that Germany is ground zero for these efforts. Germany's almost exclusive dependency on China for processed lithium, battery precursors, solar panels, polysilicon, and wafers were highlighted by German Foreign Minister Annalena Baerbock in a wide-ranging speech in September 2022.<sup>21</sup> Set to be unveiled in early 2023, Germany's new China strategy will likely contain measures to support import diversification, at least if the German Greens get their way.

Similar dynamics are underway in Europe's second heavyweight, France. In October 2022, President Macron called for a "Buy European Act" for EVs in response to both the IRA and Chinese industrial policy.<sup>22</sup>



# Berlin has second thoughts

Chancellor Olaf Scholz, whose Social Democratic Party is a partner in the ruling coalition with Baerbock's Greens, has been accused of being unduly receptive to the interests of German companies that have made China a central pillar of their strategies.

The trend toward amplifying industrial policy and defensive trade measures appears inexorable, particularly as the US institutes similar measures. Nonetheless, deciding what form European policy ultimately takes will be an intensely political process involving competing sectoral and national interests.

Germany provides an example. The push by Baerbock and her Green Party colleagues to actively reduce import (and indeed export) dependencies on China is perceived as being at loggerheads with the profitability of Germany Inc.

Chancellor Olaf Scholz, whose Social Democratic Party is a partner in the ruling coalition with Baerbock's Greens, has been accused of being unduly receptive to the interests of German companies that have made China a central pillar of their strategies.<sup>23</sup> The Chancellery has strongly opposed proposals by the Greens to limit investment guarantees for German companies in China and give the government new powers to screen outbound investments.

There are concerns that even if these measures are eventually included in Germany's China Strategy in some form, they will be meaningless without buy-in from Scholz and his Social Democrats. Scholz has sought a more even-handed gambit with China, approving Chinese shipper Cosco's investment in the Port of Hamburg even as Berlin blocked the sale of German chip manufacturer Silex to China's Sai Microelectronics.

Scholz's policy reflects reluctance in some parts of the world to track the US into a heavily polarized global economy. European Council President Charles Michel visited China a month after Scholz's November trip to Beijing. China has been swift to reward the courtship, signaling its willingness to revive long-stalled dialogue with Europe on issues from investment rules to human rights.

Europe also finds itself in the invidious position of having to make choices between easing reliance on Russia, avoiding overreliance on China, expediting the energy transition, and protecting local industry.

Without German buy-in, Macron's call for a Buy European EV act will be a tough sell. Unlike their American peers who enjoy a tariff wall, European (and particularly German) automakers have made major investments in China's EV sector. Volkswagen, BMW, and Mercedes-Benz see China as both an export base and a critical market for their global competitiveness.<sup>24</sup> These highly influential companies could stand to lose in any Buy European Act mandating local manufacturing. This dynamic will not be lost on Beijing.

Europe also finds itself in the invidious position of having to make choices between easing reliance on Russia, avoiding overreliance on China, expediting the energy transition, and protecting local industry. Going all out on industrial policy could slow the energy transition in Europe or at least make it more costly, pitting local manufacturing jobs against renewables expansion. US curbs on Chinese solar panels, for example, cost at least 40,000 jobs in the renewables installation sector.<sup>25</sup>

# Chinese companies learn a new dance

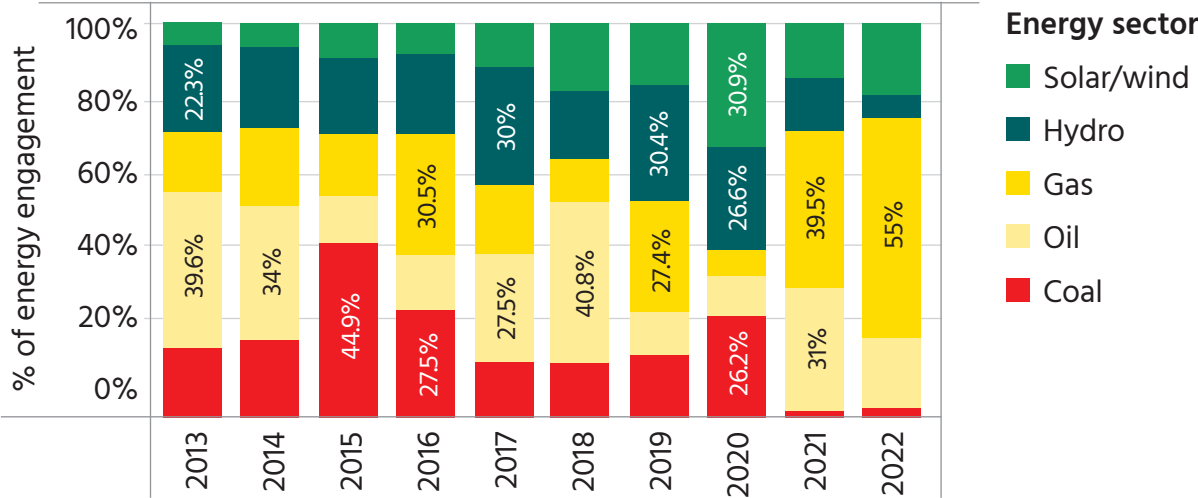
For Chinese companies struggling with overcapacity and low profit margins at home, global markets – not least advanced European economies – provide powerful motivation to diversify away from both domestic political risk and US hostility.

Data shows that Chinese companies have already sought to boost exports particularly to economies that have signed memoranda to join China’s BRI infrastructure development strategy, including 18 of the 27 EU members mostly from Central and Eastern Europe.

The Chinese need to revive and sustain external trade and investment if their economy is to avoid a middle-income trap. Chinese outbound investment has sputtered since its capital meltdown in 2016, compounded by setbacks to its key BRI projects worldwide, falling domestic consumption due to Covid lockdowns, a tech crackdown, and a real estate collapse at home.

Just as Chinese companies ramped up the offshoring of coal and hydropower plants after overcapacity mired its domestic market, so too have renewables followed. Released earlier this year by Beijing, the “Opinions on Jointly Promoting Green Development of the Belt and Road” explicitly calls for the alignment of the BRI with the Paris Agreement. A 2030 target was set for a green BRI to be “basically formed.”<sup>26</sup> Whilst non-binding, such guidance influences state-owned enterprises and state-controlled policy banks. Both have played an outsized role in the BRI.

**Figure 2 – BRI energy engagement by technology/sector**



Source: GreenFDC

China's leading renewables manufacturers are cashing in on this new wave of "going out", which includes exports, construction, and project operation.

In some ways, policy is simply catching up to the reality on the ground. In 2020, for the first time, renewables including hydro comprised more than 50% of the BRI's energy investments. Energy has typically been the BRI's largest outbound investment. Notably, renewables or nuclear account for approximately 60% of the 53GW of power capacity identified in Boston University's comprehensive China Global Power Database with commissioning dates in 2022 or later.<sup>27</sup>

China's leading renewables manufacturers are cashing in on this new wave of "going out", which includes exports, construction, and project operation. In 2020 and 2021, Vietnam and Brazil were the second and third largest markets for Chinese PV module exports after the EU, taking in 6.4 and 11GW, respectively.<sup>28</sup>

Chinese turbine manufacturers have filled order books in Asia, the Middle East, Latin America, and are making headway in Europe. Of the 2.7GW currently under order from Goldwind, 1.1GW was for Asia and 628MW for South America. Goldwind announced in September that it had been selected to supply turbines to Uzbekistan's Zarafshan wind farm. The breakthrough came after Goldwind's earlier success in supplying three Kazakh projects.<sup>29</sup>

Where Chinese turbine manufacturers have had success in Europe, there has been a strong BRI flavor. Greece, Croatia, and Italy are all BRI members.

European and US markets are too lucrative for Chinese companies to ignore. Amid rising geopolitical tensions, Chinese companies have sought to localize production including in Europe. In some cases, this has helped them circumvent tariff and human rights-related sanctions aimed at Chinese production.

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This has been particularly pronounced in the solar industry. Chinese manufacturers have long realized that "Made in Vietnam" sounds much better to Western consumers than "Made in China." As an initial response to President Obama's tariffs on Chinese solar panels and concomitant European anti-dumping probes in 2011, Chinese manufacturers rushed to invest in Southeast Asia. In the first quarter of 2022, Vietnam, Malaysia, Thailand, and Cambodia collectively accounted for 85% of US solar imports, with Vietnam (36.6%) and Malaysia (25.8%) leading the way.<sup>30</sup>

Often, these countries essentially serve as an assembly site for a supply chain otherwise dominated by Chinese investment and raw materials. Vietnam's two largest solar firms, Trina Solar Vietnam and JA Solar, are 100% funded by Chinese parent companies. Upstream components like polysilicon, ingots, and wafers are almost all imported from China.<sup>31</sup>

This approach is unsustainable. The US Commerce Department has persistently investigated allegations that Chinese manufactures are using Southeast Asia to bypass US tariffs. In December 2022, the Commerce Department made a preliminary decision – subject to finalization in 2023 – to impose tariffs on panels shipped from Southeast Asia by companies including Trina Solar and Longi.

Xinjiang's outsized role in global polysilicon manufacturing has potential reverberations further up the supply chain. More than 1,000 solar panel shipments suspected of having been made using Xinjiang labor have been seized at US ports since the passage of the US Uyghur Forced Labor Prevention Act, despite direct Chinese solar exports to the US being negligible.<sup>32</sup> This suggests that panels assembled in Southeast Asia are being seized because of suspicions of heavy Xinjiang content.

Planned Chinese battery investments in Europe are so large that, on current trends, Europe will rely on Chinese investment to meet its 2030 targets for European battery production.

Solar manufacturing companies, heavily invested in production in China, are striving to offshore their risk. To deal “with [Western] challenges to gain market access” Canadian Solar has opened plants in three Southeast Asian countries and Brazil.<sup>33</sup> Canadian Solar in 2021 came under fire for operating a solar farm in Xinjiang near an alleged Uyghur internment camp.

Some of these investments are starting to take place farther upstream. In June 2021, Chinese solar maker Risen Energy announced a US\$10 billion investment in Malaysia citing the need to “avoid” Western obstacles.<sup>34</sup> Both ET Solar and JinkoSolar recently announced plans for a 5GW and 7GW plants respectively in Vietnam.

Chinese firms are increasingly turning toward direct manufacturing investments in Europe. Planned Chinese battery investments in Europe are so large that, on current trends, Europe will rely on Chinese investment to meet its 2030 targets for European battery production. CATL is targeting capacity of 180 gigawatt-hour (GWh) of battery production by 2031 in Europe, the largest of any company. Between them, Chinese battery makers Envision AESC, SVOLT, and Eve have 150GWh of capacity under development in Europe.

Unlike European battery start-ups, Chinese players have the advantage of pre-existing offtake agreements and a proven track record, making them a much safer bet for financiers and customers.

Notably, the largest of these planned facilities is CATL’s 100GWh plant in Hungary – a BRI member.<sup>35</sup> Unlike European battery start-ups, Chinese players have the advantage of pre-existing offtake agreements and a proven track record, making them a much safer bet for financiers and customers. More plants are likely on the way.

This is part of a broader global trend where Chinese manufacturers are adroitly tailoring their strategies to meet local demands. In response to Indonesia, Thailand, and Vietnam’s plan to develop local capacity in the EV and battery manufacturing sectors. This year, key Chinese players including CATL, BYD, and Gotion have announced sizeable manufacturing investments in these Southeast Asian countries.

In turbines, a sector traditionally dominated by European production, MingYang announced in late 2021 plans for turbine factories in the UK and southern Germany.

# Conclusion

It will be prohibitively costly for the EU to decarbonize without a significant level of Chinese capital, know-how, and technology.

The EU finds itself at a critical policy juncture. It will be prohibitively costly for the EU to decarbonize without a significant level of Chinese capital, know-how, and technology. At the same time, clinging to traditional precepts of trade openness has the potential to decimate European industry, creating new and unpalatable dependencies. It would also place Chinese companies in a position to truly dominate global supply chains in sectors beyond solar.

Brussels and European industry thus face the difficult task of threading the needle. They are struggling to find the optimum balance that preserves sovereign European manufacturing capacity without unduly slowing the transition. There is no blueprint for this entirely novel challenge.



Brussels and European industry face the difficult task of finding the optimum balance that preserves sovereign European manufacturing capacity without unduly slowing the green transition.

# Researcher bio and endnotes

## About the author

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