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How China's Growth Model Fosters Green Industrial Dominance

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Abstract: What explains China's global dominance of green industries? Here, I show that China's politics determine its growth model, and the growth model fosters clean tech development. First, China's authoritarian politics entail a growth-security trade-off, a preference for investment and exports, the elimination of powerful industrial coalitions, and a high degree of state capacity. Second, clean industries fit all of these four dimensions: 1) They reduce reliance on energy imports and allow China to keep green supply chains within its control. 2) They provide new drivers of investment and exports as real estate and low-skilled manufacturing lose their ability to drive growth. 3) No incumbent industrial coalition can resist their expansion, as the same state-owned companies often own both clean and dirty assets. 4) Finally, without electoral or legal constraints, the party-state supports them through supply-side, demand-side, and macro-structural policies. Consequently, China has achieved green growth by decoupling emissions from growth. However, emission-intensive industries also fit the growth model, meaning the shift to clean technologies is, so far, proportional rather than nominal. Further progress requires either political and economic reform, which is unlikely, or technological progress that lets clean technologies outcompete fossil alternatives.

Keywords: China, political economy, clean tech, green transition, climate change

Introduction: Approaching China's Green Industry Development Through Growth

Model Theory

China is the world leader in the most central green technologies: The country is both the largest producer and user of renewables, batteries, and electric vehicles (IEA, 2024a, 2024b). China is also a world leader in using the state to support these green technologies (DiPippo et al., 2022). As part of China's state-dominated political economy model, green industries receive direct support across a broad range of policy tools (Naughton, 2021). This includes common industrial policy tools such as tax rebates, R&D spending, land grants, state investment, concessional loans, and much more. It also entails policies at the broadest structure of the economy, such as a repressed exchange rate, repressed wages, and financial repression of retail savers. These policies and the green industry dominance they have entailed are no coincidence. They are the direct product of a conscious choice and of the successful pursuit of a deliberate growth strategy. With

its focus on how politics shapes economic structures, Growth Model (GM) theory can approach the reasons behind why this choice was made and how the ambition was pursued. Thereby, I apply the theory to provide an account of the way in which the country's growth model fostered its green industrial dominance.

The GM framework is a political economy theory concerned with how different sources of demand constitute the drivers of growth in an economy (Baccaro et al., 2022). With the exhaustion of wage-led growth due to inflation and increasing globalization in the 1970s, countries have moved to profit-led growth by means of consumption, export, or investment. The theory argues that national growth models are shaped by political coalitions of business, workers, and other actors with shared interests in either a given growth model or in economic sectors dependent on a growth model. Since such coalitions shape political priorities, policies across the state apparatus support the growth model through monetary, fiscal, trade, and other policies. Through an international political economy lens, the theory highlights how export-led growth models are only feasible if consumption-led models exist elsewhere, tying together different countries' growth models via global imbalances. GM theory relates to environmental sustainability in several ways, as captured by the propositions presented in the introduction of this book (Baccaro, Blyth, & Driscoll, this volume). The first set of propositions concerns how growth models across consumption, exports, and investment can be more or less carbon-intensive, such as a real-estate-dependent investment model. The second set of propositions addresses the political dimensions of GM theory, accounting for how political, social, and economic coalitions get to dominate political decisions of choosing growth models and the technologies and industries within them.

Here, I show how GM theory explains why China has become a clean tech leader. The argument is based on a simple two-step logic: China's politics determine the growth model, and the growth model fosters clean tech development. First, China's authoritarian politics entail a growth-security trade-off, a preference for investment and exports, the elimination of powerful industrial coalitions, and a high degree of state capacity. Second, the nature of clean technologies and their industries fit well across these four dimensions of China's growth model and therefore receive large-scale and effective state support. Consequently, scaling up clean industries is a natural part of China's growth model. Green industries provide a source of growth within China's existing growth model and, thereby, allow for the growth model to be maintained. The development of the solar industry exemplifies the fit between a clean technology and the growth model: The industry supports energy security goals by reducing imports, it drives growth through exports as well as domestic investment, it faces no incumbent obstructionist interests, and it is, therefore, heavily supported through a high state capacity.

From the Authoritarian Politics of China's Growth Model to the Effective Support for Green Industries

For China as well as for any other country, the political dimension of GM theory is a critical outset to account for when explaining how a growth model may or may not be conducive to developing green industries. For the purpose here, this is particularly important to lay out, as limited work in GM scholarship has approached the political dimension of the case of China. From this outset, as a first step, the analysis that follows this section, as a second step, can account for how China's growth model entails support for green industries.

In essence, the political dimension of GM theory is built on three central principles (Baccaro et al., 2022): First, the basic point of departure for GM theory is that economic growth is the single most important political priority for any government, without which the legitimacy of capitalism will be challenged, given the unequal returns that it generates. Second, such governments are supported by dominant political coalitions. They are composed of alliances of businesses, workers, and governing elites with a shared interest in the local growth model. According to the framework, dominant coalitions consist of industries and workers able to 'sell' the growth model to gain an electoral majority. Third, this dominant coalition influences the government to actively direct the growth model. This is done through macroeconomic policymaking that takes place under electoral, legal, normative, and other constraints.

First, in China, growth is not always the dominant state priority, as it coexists with frequently conflicting political security concerns. Political security here is simply defined as the ability to resist any challenge to the incumbent party's power. While interrelated and to some degree mutually supporting, the consensus of scholars working on China now argues that political security has become the topic of priority for the CCP in recent years (Blanchette, 2024; Kroeber, 2024; Naughton & Boland, 2023; Pearson et al., 2023; Perry, 2024; Tsang & Cheung, 2022). As indicative of a gradual and relative deprioritization of growth, 'GDP growth' was by 2020 mentioned only half as frequently in strategic policy documents and state media as when Xi came to power in 2012 (Wallace, 2022). Rudd dubs this as a shift to the 'Marxist Left,' breaking with the previous growth-at-all-costs model (Rudd, 2024). Recent scholarship has proposed terms such as 'party-state capitalism' (Pearson et al., 2023) and 'CCP Inc.' (Blanchette, 2020; Naughton & Boland, 2023) to capture how China's political economy model and economic governance uphold the political security interests of the CCP as the central priority rather than through the promotion of GDP growth in and of itself. In relation to a green transition, this puts emphasis on technologies that reduce reliance on energy imports and on securing external supplies when self-reliance is not possible.

The prioritization of political security alongside growth is compatible with a growth model based on investment and exports rather than consumption. This is because the prior two

are more directly controllable by the state and because citizens as consumers are repressed for the sake of social and political control. Regarding investments, the Chinese state plays a central role in directing investments. Financing for investments comes from a state-dominated financial system with a dependent central bank, and a significant part of investments is carried out by state-owned enterprises and local governments. This places investment flows directly within the control of the government, allowing it to increase or decrease investments at will, even in the short term. As such, the central Chinese state actively uses this ability to steer financing in its pursuit of industrial policy (Naughton, 2020). Furthermore, as the private sector relies predominantly on domestic banks for its activities, state-owned financial institutions have become the gatekeepers of the private sector's economic activity (Liu, 2023).

Regarding exports, while vulnerable to short-term fluctuations beyond the control of the party-state, global consumption has steadily increased in the past and is projected to continue to increase alongside global GDP at about 3% per year (OECD, 2024). This means exports are a medium to long-term stable growth driver. However, a problem arises because China intends for its exports to grow faster than global demand. Thereby, China's export growth comes at the expense of other countries' exports and manufacturing, creating political tension through the risk of deindustrialization. For example, increasing restrictions on exports to the US have led the share of exports to the US to decline from 19% in 2019 to 14.7% today (Leahy et al., 2025). But since China is not backing down from its export focus, total exports continue to grow. From 2020 to 2025, Chinese exports grew 30% while the economy as a whole grew 25% (World Bank, 2025). With limited domestic consumption, this has led China's trade surplus to exceed USD1 trillion for the first time in 2024, up from less than USD 400 billion as recently as 2019 (Leahy et al., 2025). As noted by Tan and Conran (2022), by intentionally relying on both investment and exports, China is able to flexibly scale one or the other, up or down, depending on circumstances, providing a way to continuously control both growth rates and its composition. When overseas demand for Chinese exports is temporarily down, it can be offset by greater domestic investment, such as after the global financial crisis.

Consumption, on the other hand, is far more difficult for the state to control as it depends on citizens' individual activities, which can only be indirectly influenced. Allowing households to capture a large part of economic output may be growth-enhancing, but it is politically risky as it would lower state control of the economy by relying on citizens' consumption, which would empower citizens through their economic power relative to the party-state. Higher consumption would come at the expense of the state and other key sectors. As summarised by Pettis (2024, p. 5), 'The problem is that an increase in the household share [of the economy] implies a reduction in the share of some other sectors: the business sector, local governments, or Beijing.' Simultaneously, the oppression of labour is beneficial to exports as it keeps wages low, creating an even greater incentive for continued repression to boost exports further still.¹ The broader need

for political control, however, also discourages consumption. Labour is suppressed as a result of broader measures to control the population, which translates into suppressed domestic demand. When it comes to a green transition, this reliance on investment and exports over consumption entails a prioritization of sectors that can be new drivers of growth by both allowing for large-scale domestic investment and by meeting increasing global demand for a given product. The preference for an investment and export-based growth model is, thereby, an additional dimension of China's growth model that relates to the development of green industries.

Second, rather than coalescing around different constellations of private interests, competing growth coalitions emerge in and around the Chinese Communist Party (CCP) and state apparatus. Today, the growth model is based on the interests of the dominant political coalition around Xi Jinping, made up of high-level central government state bureaucrats, managers of centrally owned SOEs, and the CCP's Central Committee. These interests include maximizing their own economic gain, increasing the economic power of the country, and continuously upholding political control. While powerful alternative coalitions have existed in the past, their influence is smaller today. The downfall of these coalitions is personified by Jack Ma representing private sector interests, Bo Xilai representing local governments, and Hu Jintao representing another intra-party faction. This means that China's economic policy is designed to specifically serve the political and economic interests of this central political coalition, with little ability of certain regions or industries to oppose economic policies. Regarding a green transition, these coalitional dynamics mean that no competing non-green industry is able to resist change, and no incumbent green companies are able to ensure that a change is designed to specifically benefit them.

Third, through China's authoritarian political institutions, the dominant growth coalition can use the state to actively direct the growth model through macroeconomic policy-making. This can be contrasted to democracies, where electoral politics means that 'there is no guarantee that the dominant growth coalition will also be the dominant electoral coalition' (Baccaro & Pontusson, 2022, p. 210). Furthermore, in democracies, the dominant electoral coalition does not control all dimensions of macroeconomic policy due to, for example, the existence of independent central banks and fiscal rules. Both aspects differ in China. The separation between growth coalitions and electoral coalitions does not exist, and no legal and constitutional constraints are imposed on the party-state. Thereby, through the centralised political power of the dominant growth coalition, the Chinese government is able to steer the country's growth model. This allows China to use macroeconomic tools that would be difficult or impossible to use elsewhere, such as financial repression, a closed capital account, and using monetary policy towards non-orthodox goals. In the context of a green transition, this high level of state capacity allows the state to conduct ambitious industrial policy towards chosen sectors.

Together, these three dynamics – the growth-security trade-off, the elite nature of coalitional politics, and the high degree of state capacity – mean that China’s authoritarian politics can effectively preclude consumption-led growth and effectively allow it to rely on investment and export-led growth for primarily political reasons. This is reflected clearly in economic statistics: The household consumption share of GDP at 37% is one of the world’s lowest and is substantially lower than in other export-led countries, such as Germany. At about twice the level of the OECD average, China’s saving rate of 44% means that 28% of global savings are to be found in China (Wolf, 2024). Investment makes up 44% of China’s GDP compared to a global average of 25% (Pettis, 2023). China is the world’s largest exporter at 20% of global value, making up 19% of China’s GDP (Statista, 2024). Manufacturing for both domestic use and exports makes up 27% compared to a global average of 16%. Highlighting the reliance on exports and investment in China’s growth model, the country makes up 18% of global GDP but 13% of consumption, 32% of manufacturing, and 32% of investment (Leahy et al., 2025; Pettis, 2023).

How China’s Growth Model Fosters Green Industries

The fit between growth drivers and clean technologies

GM theory’s explanation for why China dominates green industries is that these sectors and technologies fit with the prioritization of growth alongside security, the preference for investment and export-led growth, the lack of rivaling coalitions, and the high level of state capacity. This includes, most centrally, solar, wind, batteries, electric vehicles, and electric rail transport. At a smaller but growing scale, it also includes nuclear power and green hydrogen. In essence, these clean industries can create growth in investment and exports and further meet the political security requirements embedded in China’s growth model. Therefore, they have become a core industry in China’s growth model. Considering the case of China compared to other countries, it may be the country where green technologies are the most prominent part of a growth model. To lay out more specifically why and how these sectors are developed, consider each of the four dimensions of China’s growth model in turn:

First, clean industries fit with China’s international security needs. This is both in terms of reducing the need to import fossil fuels and to avoid dependence on other countries for green goods (Grünberg, 2024). Regarding the first, China’s reliance on energy imports has been a concern for decades. China today imports 80% of its oil through the Malacca Strait, rising from 60% two decades ago. Back then, President Hu Jintao declared that energy imports through the Malacca Strait were a vulnerability for China and that “certain major powers” were insistent on controlling the strait (Lanteigne, 2008). He then stated that China needed to develop new strategies to mitigate this vulnerability. This situation became known as China’s “Malacca

Dilemma” (Storey, 2006). At the time, the state-owned newspaper China Youth Daily (Shi, 2004) declared that “It is no exaggeration to say that whoever controls the Strait of Malacca will also have a stranglehold on the energy route of China.”

This concern continues today, with Xi Jinping stating that energy security is “one of the most important security issues for the country’s development” (Xi, 2023). While the development of green industries has reduced the reliance, the country still imports one-fifth of its energy needs (World Bank, 2026) and 70-75% of oil consumption (Downs, 2026). Consequently, it has been estimated that China’s economy would shrink 17% if all seaborne oil and gas imports were obstructed (Dabbar, 2023). The shift to clean energy, in itself, reduces reliance on energy imports, but the way the clean industries are developed also reflects security concerns. This concern is explicitly stated by Xi Jinping (2020) as the policy approach:

In order to safeguard China’s industrial security and national security, we must focus on building production chains and supply chains that are independently controllable... We must sustain and enhance our superiority across the entire production chain... We must tighten international production chains’ dependence on China, forming powerful countermeasures and deterrent capabilities based on artificially cutting off supply to foreigners.

Based on this policy, China has ensured that the supply of raw materials to green industries is firmly within China’s control. This has been done through direct asset ownership and political ties with countries exporting raw materials (Driscoll et al., 2026). This includes cobalt from Congo, Nickel from Indonesia, and Lithium from Chile. Simultaneously, while China is moving certain downstream parts of supply chains to access markets, the most advanced and potentially vulnerable parts are kept inside the country (X. Xue & Larsen, 2025). The security concern can be seen when comparing with the counterfactual: If both growth and green transition were the priority, China would allow for larger parts of the value chain to be based overseas, as was the case in the past (Nahm, 2021a). This security concern, thereby, has made green industries a key part of China’s growth strategy. This prioritization has already reduced Chinese oil consumption in transport as EVs occupy an increasing market share (Healy et al., 2025). As EVs and renewable energy technologies have become mature, the Chinese government has shifted its support towards green hydrogen. This fuel can, for example, replace gas for fertilizer, oil for aviation fuel and, ultimately, coal for industry. China’s National Energy Administration explicitly lists energy security as the first of several motivations for developing green hydrogen (NEA, 2026).

Second, through the prioritization of security alongside growth, clean technologies fit with a growth model based on investment and exports rather than consumption. This is the case both in terms of providing new high-tech and productive drivers of growth as well as being suited

for domestic needs for investment and global demand for green technologies. Regarding the first, clean technologies are part of high-tech upgrading of the economy by moving up value chains, which can increase overall productivity and spark growth (Pan, 2024). As summarized by Alim & Smith (2024) ‘Beijing has long fought against the “Japanification” of its economy, and has made huge investments in its high-tech, green and electric vehicle sectors with the goal of boosting long-term growth.’

Furthermore, clean technologies are in increasing global demand, while some of China’s previously dominant types of exports and investment face exhausting or at least stagnant global demand. For example, within consumer goods such as clothing, furniture, and home appliances, China has been losing competitiveness to countries with lower wage levels, such as Vietnam, Cambodia, and Bangladesh, resulting in a gradual reduction of exports in these sectors (LaRocco, 2022). The development of green technologies is then partly a response to this.

On the investment side, infrastructure and real estate have led to increasing debt levels over the last decade. With lower productivity gains from these investments, it becomes difficult for China to grow its way out of the problem by continuing investment in these sectors (Pettis, 2023). With both central and local governments seeking to meet GDP growth targets, they are to identify sectors with high productivity of investments. To reach China’s 2035 goal of becoming a ‘moderately developed economy,’ the country has to deliver 4.5% growth on average per year, so the government is actively looking for things to invest in (Pettis, 2025). This situation was similar during the global financial crisis, when reduced global demand led China to massively scale up investments in infrastructure and real estate, which still had high productivity gains at that point (Tan & Conran, 2022). In fact, in 2009, the Chinese government included electric vehicles and high-speed rail in the stimulus plans (Bradsher, 2025). Today, a broad suite of clean technologies (now excluding high-speed rail) provides such an opportunity at a far greater scale. For example, renewables can generate massive investments in manufacturing and installation, which is critical both for local governments looking for investment opportunities and construction companies looking for project opportunities, both to compensate for the real-estate slump (Chan, 2024; Zhao & Fan, 2024). For example, in addition to renewables themselves, China has plans to spend USD 800 billion on the electricity grid, which, in itself, creates growth (Ding & White, 2024). Here, the higher up-front costs of renewables compared to fossil fuels might even be an advantage, as it shows up as higher growth.

Third, regarding political coalitions, no competing non-green industry is able to resist change, and no incumbent green companies are able to ensure that a change is designed to specifically benefit them. Contrary to the reasons behind other countries’ support for green industries (Meckling & Nahm, 2022), China does not support such industries because of a politically powerful coalition around these industries. Indeed, China’s support for these industries began prior to any such coalition forming, and the selection of industries is often attributed to

technical decisions by bureaucrats attempting to identify technologies that could work as long-term growth drivers. An example of this industry selection from above, rather than industry coalitions, is the Indigenous Innovation policy of 2006 and the Strategic Emerging Industries policy of 2010, which includes green technologies alongside other sectors, such as information technology and biotech. In fact, it is often the same companies that own the clean and dirty assets. For example, state-owned power generation companies own the majority of China's renewables and coal-fired power plants (SASAC, 2021). Simultaneously, the power market is organized by the state so that these companies are technology agnostic and instead compete with each other for market share (Seligsohn, 2021).

Fourth, without the formal and informal policy restrictions faced in Western countries, China faces neither electoral nor institutional-legal constraints, such as independent central banks or 'golden rules' on the use of macroeconomic policies. Thereby, China has a high level of state capacity to pursue its growth strategy. Based on the pursuit of the mentioned motives that make clean industries fit with China's growth model, the government uses the state apparatus to conduct industrial policy that steers the development of the industries (Larsen, 2025). This is reflected in policies on the supply-side, demand-side, and macro-structural levels.

Supply-side support takes the form of research and development funding, free land for building, tax rebates on manufacturing, investment by state-owned funds and enterprises, and preferential lending terms, all to ensure global price competitiveness. For example, while central banks are obstructed from taking meaningful climate action by different sources of independence (Best et al., 2025), the Chinese central bank is not independent and is, instead, directly instructed to take measures to support green industries. Therefore, the Chinese central bank launched a green targeted longer-term re-lending operation (TLTRO), allowing banks to lend at a highly subsidized interest rate of 1.75% compared to the approximate 3.65%. As of the latest available data released mid-2024, the lending window has reached USD 153 billion since 2021 (Y. Xue, 2024).

On the demand side, while 50% of solar equipment is exported (Maguire, 2024), the remainder is deployed domestically through state-created demand. Demand-side support for solar power covers both retail-level incentives and large-scale deployment through state-owned energy companies, by state-owned construction companies, with financing from state-owned commercial and policy banks. For example, Chinese state-owned power companies were required by regulation to reach 50% renewables in power generation capacity by 2025, constituting the single largest source of solar equipment investment and, hence, demand (SASAC, 2021). Such state-supported investment in domestic deployment is also a way to realize the economies of scale, which, in turn, improve export competitiveness.

At the even broader macro level, China's state capacity is used to support investments and exports. This includes a closed capital that allows for a controlled exchange rate and financial repression. China's exchange rate has been systematically repressed over several decades to

support the competitiveness of Chinese goods for exports. As of late 2025, it is undervalued by as much as 30% (Setser & Sobel, 2025). In addition, the closed capital account facilitates financial repression in the form of artificially low interest rates on citizens' deposits, which allows the state-dominated banking sector to lend cheaply to support investment and manufacturing (Pettis & Hogan, 2024). Finally, wages are repressed to lower labor costs, such as through the banning of unions and strikes. This lowers the costs of investments for construction in infrastructure, real estate, and manufacturing, and increases the competitiveness of exports.

Achieving Green Growth

Because of how green industries fit China's growth model, these industries have become increasingly central to China's long-term development plans since the early 2000's (Jackson & Larsen, 2026b). These come in the form of development concepts that tie together the development of green industries with environmental protection. In that regard, China does not consider green transition and economic growth as conflicting goals, which makes it possible to prioritize both simultaneously. Instead, the concepts are based on the idea that the country's development can advance in balance and harmony with the national and global climate and environment. At the strategic policy level, this includes the introduction of green concepts over the last two decades and an increasing emphasis on these ideas in recent years. These include "ecological civilization," "two mountains theory," and the "new development concept," to mention a few among many.² Most recently and of importance throughout China, we saw climate policy linked to the goal of foremost importance to the Chinese government, namely, "national rejuvenation" (State Council, 2021).

This is a clear difference from how the relationship between nature and society was approached previously. In the Mao Zedong era, the environment was considered a resource and even an obstacle to the country's development. This approach is conceptualized in the campaigns named "man can conquer nature" and "wage war on nature."³ With that approach, China lost about one-third of its forest cover from 1949 to 1976 (Shapiro, 2001). Since the death of Mao, the country's economic reforms sparked rapid growth that came with a massive environmental toll. Therefore, the rhetoric changed away from Mao's approach while Deng Xiaoping was in power, with the approach continuing under Jiang Zemin and Hu Jintao. While environmental protection was rhetorically mentioned through these three leaders, enforcement was limited as the clear priority was economic growth at any price (Huang, 2020). Because of the awareness of the problems arising from this environmental harm, pure GDP growth has been deprioritized in recent years. The rampant air pollution that accelerated since the early 2000s became a large public concern a decade later. In particular, the 2013 north China "Airpocalypse" generated pressure on

the government to act. After that, in a clear reversal of the campaign from the Mao era, the government “declared war on pollution” in 2014 (Tianjie, 2025).

As part of a gradual, relative deprioritization of GDP growth, the term has been mentioned less frequently in strategic policy documents in recent years, giving room for other priorities such as the environment and security issues (Wallace, 2022). In a break with a seven-decade-long tradition, China’s 14th five-year plan does not include specific mandatory GDP growth targets while increasing the number of mandatory environmental targets. From that, China integrates green priorities into important areas that are unique to China’s governance model, such as sector and regional level five-year plans, cadre evaluation systems, and mandatory ideology study sessions (Wu & Cao, 2021).

Thereby, because of how China’s growth model fosters the development of green industries, the country is moving towards what might qualify as ‘green growth.’ This can be defined as decouple greenhouse gas emissions from economic growth. As China’s growth model is conducive to green industrial development, this means that clean technologies drive growth. From official rhetoric, China very explicitly takes a green growth approach. This is, for example, expressed by the Director General of the People’s Bank of China’s Research Bureau, Wang Xin (2022): “In the medium and long term, decarbonizing the economy can drive growth by supporting employment and investment while advancing technology and increasing productivity.”

This intention is gradually materializing. As expressed by the Chinese Vice-Minister of Environment and Ecology, Li Gao (2025), clean technologies contributed 10% to China’s GDP in 2024. Independent estimates confirm this, such as showing that green sectors contributed \$1.6tn to China’s economy in 2023, making up 40% of the growth within that year (Myllyvirta, 2024a). Emphasizing the role of these green technologies in exports, Xi Jinping (2024) describes solar panels, batteries, and electric vehicles as the ‘new three’ replacing the ‘old three’ of clothing, furniture, and home appliances. These new three grew from 1.5% of exports in 2020 to 4.5% in 2023 (The Economist, 2024).

This has made China the world leader in the most central green technologies: The country is both the largest producer and user of renewables, batteries, and electric vehicles (IEA, 2024a, 2024b). As a key example of progress towards a green transition, renewables have grown rapidly, both in terms of capacity in GW and as a share of annual additions in power generation capacity, as shown in Figure 1. Similarly, the uptake of electric vehicles has accelerated rapidly, as shown in Figure 2. 2025 was the first year where EVs (full electric and hybrid electric) sales surpassed combustion engine vehicles, with the proportion reaching 59% in December 2025 (Reuters, 2026).

Beyond its own borders, China’s development of green industries has reduced the price of clean technologies and made them price-competitive with fossil fuel alternatives (Jackson &

Larsen, 2026a). While the US and Europe played key roles in developing the technologies, it was China's ability to scale and commercialize that has driven down the price (Nahm, 2021b). As China continues to use the state apparatus to massively support clean technologies, this drives down prices and is, indirectly, equal to subsidizing a global green transition by making clean tech cheaper across the world (Jackson & Larsen, 2026a). In that regard, some countries simply import Chinese goods, while others invite China to invest or insist on using domestic companies to manufacture the goods.

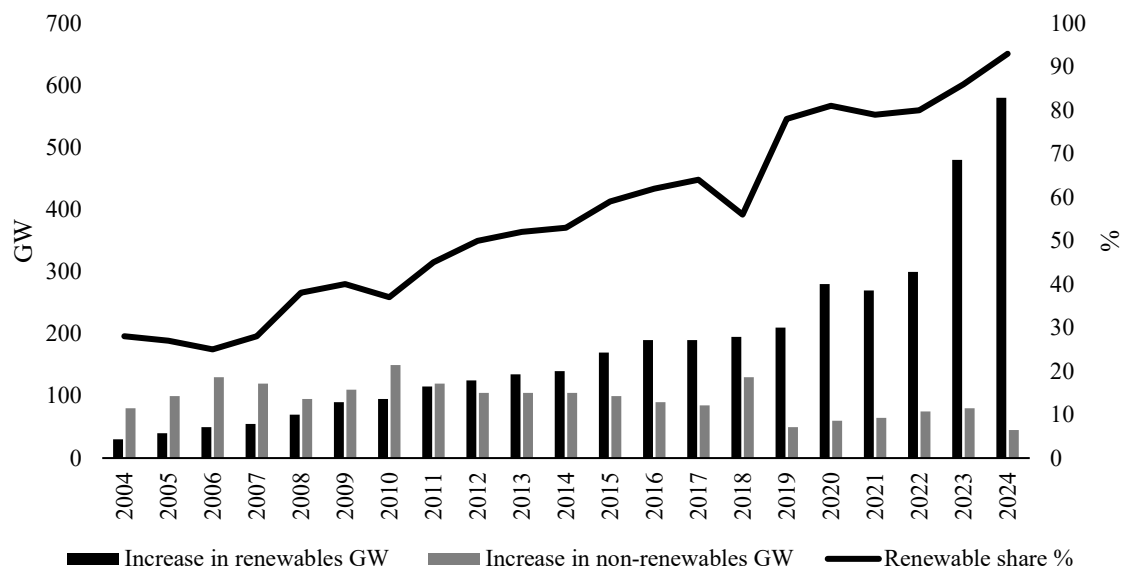


Figure 1. Chinese annual installations of renewables and non-renewables in capacity and percentage (IRENA, 2025).

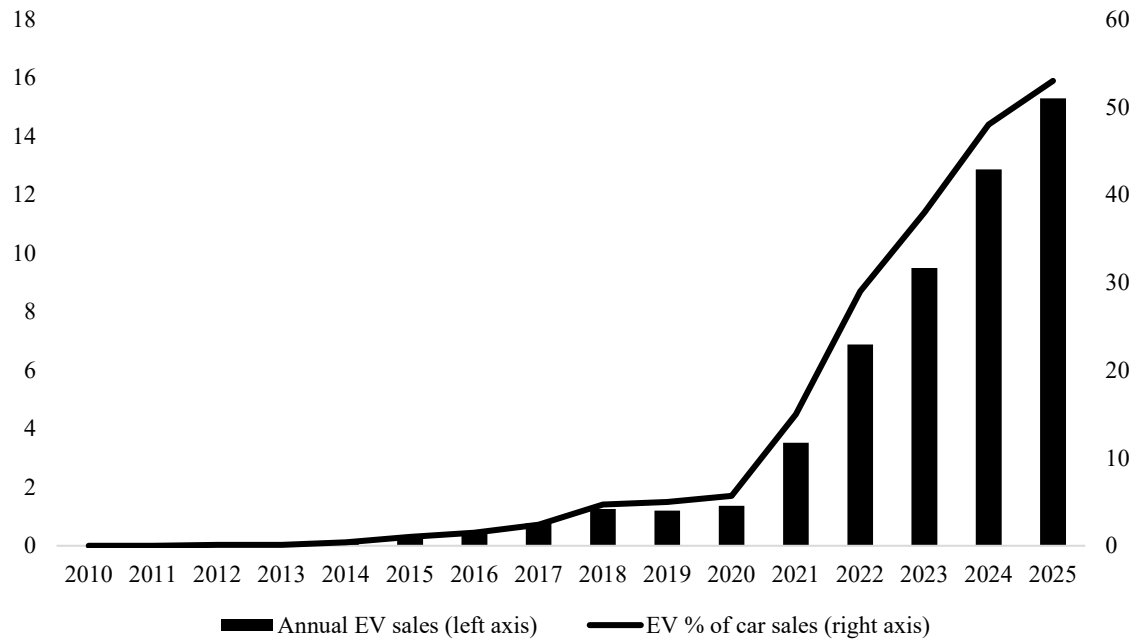


Figure 2. Chinese electric vehicle sales and proportion of total car sales (IEA, 2025; Reuters, 2026).

Due to this development of green industries, while the economy has continued to grow over the last few years, Chinese emissions have stagnated for two years (Myllyvirta, 2026). By the simple logic that green growth merely entails decoupling growth and emissions, China has achieved green growth. But nominally reducing emissions requires more than supporting green industries. In fact, China also supports emission-intensive industries as these also fit the country's growth model. For example, China dominates much of the global heavy industry, producing more than half the world's steel, aluminum, cement, and petrochemical products (Chan, 2024). The large industrial sector itself accounts for 60-70% of China's direct and indirect emissions (S. Wang & Ramachandran, 2025) and 40% of the country's GDP (Chan, 2024). In terms of external demand, heavy industry remains a far larger component of Chinese exports than clean industries. While the 'new three' clean exports amount to \$138bn and 4,5% of China's annual exports, high-emission exports, such as metals, amount to \$296bn, with chemicals at \$213bn, plastic & rubbers at \$189bn, and mineral products at \$75bn (OEC, 2024). Highlighting this contrast, these numbers add up to \$138bn in clean exports and \$773bn in emission-intensive exports.

From Green Growth to Decarbonization: The Current Emissions Pathway and the Changing Fit of Renewables and Fossil Fuels

As a result of these four ways in which China's growth model entails support for green industries, these industries have become key to China's growth. From that, the strength of the GM argument

can be tested through the case of China's gradual, ongoing, and proposed switch from fossil fuels to renewables. The question is, if China's support for green industries is not a product of a concern with climate change and if fossil fuels fit the growth model, then why is China scaling up renewables? The answer lies in the relative fit of coal compared to renewables with the growth model. My argument is that while the growth model remains the same, the *comparative* fit of coal and renewables has changed on several dimensions. This gradual change of 'fit' can allow for decarbonization to take place while the growth model is maintained. As the GM framework is concerned with profit-led growth and as the CCP, as China's dominant coalition, prioritizes political security, the changing relative profitability and security of renewables and fossil fuels induce the proportional switch. It is, of course, not only the fit of these energy technologies that changes over time. The changing fit of low-skilled manufacturing like clothing, furniture, and home appliances means that while these industries received large-scale state support in the past, their lower profitability and ability to drive growth mean that support is being phased out.

The fit of renewable and fossil fuel technologies is changing on several dimensions: First, renewables' costs are approximately on par with coal, providing a for-profit incentive in many cases. Second, renewable and storage technologies make it possible to solve intermittency problems and run the energy system entirely on renewables. Third, through economies of scale, exports of renewables become more competitive through domestic installation. Fourth, shifting to renewables reduced reliance on imports of oil, gas, and even coal, which is increasingly imperative for the CCP. Fifth, in extension, Chinese coal reserves will not last indefinitely. Finally, about 1 million people die each year in China from air pollution, with coal consumption as the main culprit.

These factors cumulatively present the possibility to incrementally shift towards renewables. The problem is that a proportional shift to green technologies may not entail a nominal reduction in high-emission industries. With clean industries increasing proportionally without carbon-intensive industries decreasing nominally, we thereby see a gradual change in sectors, but still within the same growth model. It should be noted here that coal capacity is increasing and consumption is stagnating, which means that it decreases as a proportion without falling nominally. It is exactly because both renewables and coal fit China's growth model that they both get state support and expand. We have therefore seen a continued increase and potentially now a stagnation in China's emissions despite the proportion of renewables increasing (Myllyvirta, 2026). Given the global need for rapid emission reductions, the gradual decarbonization that could be possible within China's growth model is incompatible with high climate ambitions.

Possibilities for Faster Decarbonization Pathways

What does this tell us about the future of decarbonization in China? Despite the talk of encouraging domestic consumption, the Chinese party-state has doubled down on its current growth model since the COVID-19 outbreak, putting additional pressure on already slowing growth rates. Increasing support for manufacturing and investment led to emissions increasing 13% from 2020-23, blowing past China's commitments to the Paris Agreement (Myllyvirta, 2024b), and increasing the country's share in global CO₂ emissions to 35% (IEA, 2024c). Is it impossible for China to carry out a Paris-aligned decarbonization? The two possible pathways are both implausible.

First, China could change its growth model so that green-powered domestic consumption replaces investment and exports in carbon-intensive industries. This entails a compromise on China's political security. Under this pathway, China would allow a greater share of production to be captured by labor, increasing wages and domestic consumption. This reduces export competitiveness and hence its proportion in the economy. Simultaneously, increase consumptions allows for a scale down of high-emission industrial sectors without harming growth.

Second, staying within the current growth model, China could make the short-term economic sacrifice entailed by shifting to green technologies for all exports and investments. This would be the same growth model, but would entail a compromise on China's economic development. As the political security of the CCP is closely tied to economic development, this, in itself, would compromise political security. While renewables are price-competitive for electricity, many heavy industries do not currently have cheap substitutes, and the technological breakthroughs required are not scalable in the near future. This pathway would therefore require massive investment in costly green technologies, which would reduce the competitiveness of Chinese exports and require financing difficult to obtain under current debt levels and slowing growth.

So, will China decarbonize at an adequate pace? China has little room for either a political or economic compromise, meaning that the political compromise entailed by the first pathway and the economic compromise (and indirect political compromise) entailed by the second pathway are both unlikely. Two more uncertain and speculative decarbonization pathways can be imagined. One is where substantial political change in China allows for a change in the growth model. Another is where green technological breakthroughs mean that low-carbon technologies become price-competitive in the short term, even for hard-to-abate sectors. Given the seriousness of the climate crisis and the accompanying precautionary principle, these two pathways should not be counted on as a solution.

Conclusion: China and Green Growth Models

What explains China's global dominance of green industries? The answer to this question can be found in the country's growth model. China's politics determine the growth model, and the growth model fosters clean tech development. The logic goes as follows: First, China's authoritarian politics entail a growth-security trade-off, a preference for investment and exports, the elimination of powerful industrial coalitions, and a high degree of state capacity. Second, clean industries fit well across these four dimensions of China's growth model and therefore receive large-scale and effective state support. Consequently, scaling up clean industries is a natural part of China's growth model. Beyond the case of China, these findings speak to ideas around greening growth models. Such insights can be interpreted through the key propositions put forward in the introduction of the book (Baccaro, Blyth, & Driscoll, this volume).

Regarding the propositions around the greening of different types of growth models, China does not fit neatly into the fossil-based or green-critical commodity type of exports since the country is the largest exporter of both types of goods. While fossil based and emission intensive exports are six times greater than green exports, the latter is growing faster. Furthermore, while China is an outlier in terms of the share of investment as a share of GDP, the country, nonetheless, suggests that investment-led growth provides direct potential for decarbonization. This is because of the large investment needed for a green transition. In fact, to meet global investment needs, consumption needs to be reduced as a share of global GDP. At the cost of consumption, investment needs to increase by 1-2% of GDP in the global North and 3-5% in the global South (Bhattacharya et al., 2024; Stern, 2021). The ramification of this for GM theory is that a green transition requires a change in the overall composition of global GDP away from consumption towards investment.

Regarding the propositions around the politics of green growth, China's authoritarian politics provide insights into how politics work where industrial coalitions have less political power. Specifically, disempowered industry coalitions imply that decarbonizability is less important. Most centrally, as opposed to Western countries, political resistance is much less of a concern in a Chinese context. While China differs from other countries in terms of industrial power, the country confirms the propositions regarding the importance of industrial policy, state capacity, and monetary policy. From that, China raises the question of how authoritarian politics might enhance a country's ability to pursue such policies by eliminating formal and informal constraints on state power.

Notes

- ¹ Liu (2024, p. 160) goes as far as to claim that ‘as the party sees it, consumption is an individualistic distraction that threatens to divert resources away from China’s core economic strength: its industrial base.’
- ² Ecological civilization (生态文明) refers to harmony between human development and nature preservation. It was introduced by Hu Jintao in 2007 and written into the country’s constitution in 2017. Two Mountains Theory (两山理论) was introduced by Xi Jinping in 2005 though only gaining prominence in recent years. It refers to the value of nature as “clean water and green mountains are as valuable as mountains of gold and silver (绿水青山就是金山银山).’ The New Development Concept (新发展理念) was introduced by Xi Jinping in 2015 and lists characteristics of the desired form of development, which includes green.
- ³ “Man can conquer nature” (人定胜天) is an idiom from the pre-Mao era that was picked up and used again. “Wage war on nature” (向自然界开战) was a slogan prevalent during the Great Leap Forward (1958-1962).

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