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The Chinese road to decarbonisation: China's party-state capitalism in the political economy of fossil energy phase-out

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ABSTRACT

While blind spots around climate change and China in the literature are now being plugged, there remains an imbalance between emphases placed on green energy build-out versus fossil energy phase-out in the political economy of global energy transition. China's paradoxical energy economy raises the puzzle as to whether the structures of China's party-state capitalism render it capable of successfully confronting the fossil fuel industry, just as it has scaled green technologies. This article historicises China's fossil economy, identifying a unique potentiality for fossil energy phase-out arising from its idiosyncratic post-revolutionary development trajectory. The prominence of the CCP in China's party-state capitalism contrasts with the West's basis in profit-seeking market forces. This divergence underpins distinct power resources to dominate carbon-intensive industries and ideational resources to legitimate the social upheavals of energy transition. In practice, fossil energy phase-out is far from pre-determined as the potentiality rests in an ongoing struggle between corporate and political objectives within the regime as well as the uncertain responses of domestic populations and international actors. Regardless, scholars and practitioners alike should now understand China as standing alone in the world system as a geopolitically ascendent, continent-sized, post-revolutionary party-state with unique capacities to lead global energy transition.

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Introduction

Two phenomena have grown in importance to contemporary debates in international political economy (IPE) over recent decades. The climate

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crisis rages as the most urgent and existential challenge to capitalism, while the rise of China reconfigures the contours of global markets and geopolitics. The two have come together more clearly of late as China outstrips the West on the build-out of green energy technologies (Davidson et al., 2022; Helveston & Nahm, 2019), but this is just one side of the decarbonisation coin. No major state has yet delivered the fossil energy phase-out necessary to address the root cause of climate change: carbon emissions. As time to avoid catastrophic climate change shortens, we are left to ask whether China's green energy success can translate to the challenge of overcoming fossil fuels' enduring dominance.

Since Paterson (2021) identified climate change as a key blind spot for IPE, there has been a relative proliferation of contributions considering the political economy of energy transition (see Maechler, 2023; Newell & Simms, 2021; Quitzow & Thielges, 2022). However, there remains an inconsistent treatment of China's party state capitalism (Pearson et al., 2021) in the debate. Many contributions neglect its place in forging a paradoxical energy economy where China is both the largest national producer of fossil fuels and renewable energy (while also expanding nuclear energy production) (Park & Chung, 2022). While China has been recognised as an important and unique national actor (Meckling et al., 2015; Svartzman & Althouse, 2022), these distinctive conditions should impel scholars to treat China as more than just one case for comparison. China has been noted for its example of rapid investment in green energies (Albert, 2022; Bell, 2020; Kim, 2019; Shen & Xie, 2018) and geopolitical rivalry with the United States (US) (Kuzemko et al., 2019; Quitzow & Thielges, 2022). It must now both be placed at the heart of any study on global energy transition as theoretically significant to debates about global capitalist production relations.

Where China is considered more prominently, there is an imbalance between attention paid to green energy build-out versus the challenge of fossil energy phase-out. For example, while Gabor and Braun (2025) have acknowledged China's targets around reducing fossil fuel consumption, their characterisation of China as a 'big green state' provokes the question of how 'green' the world's largest fossil fuel producer can really be. Larsen (2023a, 2023b), Ban and Hasselbalch (2025) and Beck and Larsen (2025) have all highlighted China's achievements on green finance but do not substantively relate these to fossil energy phase-out. Where the power of fossil fuel interests is considered, it is generally in relation to their disruptive influence on green energy build-out. While there is obviously a relationship between the two, contributions too often assume that green energy build-out alone can organically crowd out fossil fuels. The latter does not necessarily follow from the former, and certainly not on the urgent timescale required to limit warming. Fossil energy phase-out is a

distinct process requiring political-economic transformation to dislodge the fossil fuel industry from the core of capitalist production processes.

The party-state leadership of China's political economy is the basis of its distinction with other regimes, including its novel potentialities for phase-out. States in general possess a unique ability to instigate transformation due to their disciplinary and fiscal powers, although individual states' development trajectories produce different institutional configurations with different capacities. Comparative political economy has mapped these differences into 'types' (Gabor & Braun, 2025), 'varieties' (Becker, 2013; Nölke et al., 2015; Schedelik et al., 2021) or 'growth models' (Nahm, 2022). However, while these typological approaches consider diversity within capitalism, they neglect the extent of the relational distinctions underpinning China's party-state capitalism. As such, while there are many elements of state capacity which China shares (more or less) with other regimes, this paper uses a framework of 'power resources' and 'ideational resources' to capture the Chinese Communist Party's (CCP) unique capacities for navigating the interplay between accumulation and legitimation imperatives (Paterson, 2016). The alignment between the CCP's disciplinary capacity to control markets and its ideological justification for climate transition, both arising from its idiosyncratic post-revolutionary development history, forms the basis of China's superior potentiality for fossil energy phase-out.

The article proceeds with three further sections. First, it elucidates the key puzzle: whether China can phase-out fossil energy through the same political-economy structures that have produced its world-leading green energy build-out. Next, it discusses China's power and ideational resources that form the basis of potentiality for fossil energy phase-out. Finally, it considers the implication of this for both the theoretical and practical politics of global energy transition.

China's energy paradox

The interplay between green energy expansion and fossil energy phase-out is core to global energy transition (Christophers, 2022; Gabor & Braun, 2025). Without fossil energy phase-out, decarbonisation is self-evidently impossible. The growth of green energy capacity alone only constitutes an injection of more energy into the mix while emissions continue to rise. Smil (2010) has argued in this vein that new energy sources have generally expanded energy production in general without supplanting existing sources. Despite this, there is a relative imbalance in discussions of China within the IPE of transition literature. China's impressive investments in green energy are emphasised, while the challenges associated with enduring fossil energy production have been underplayed (Bell,

2020; Lachapelle et al., 2017; Larsen, 2023a, 2023b; Nahm, 2022; Newell & Simms, 2021). For a full understanding of the possibilities of global energy transition, both green energy build-out and fossil energy phase-out must be considered as related but also distinct processes. We can learn about China's political-economic capacities from the former while remembering the latter requires economic transformation of a scale and urgency without historical precedent.

Green energy build-out

Literature on the political economy of energy transition has highlighted China's global leadership on scaling up investment in green energy production. Most notably, China has emerged as the world leader in the production of electric vehicles (Gabor & Braun, 2025) and green energy technologies (Albert, 2022; Bell, 2020; Kim, 2019; Park & Chung, 2022), including producing the majority of lithium-ion batteries (Davidson et al., 2022) and solar panels globally (Helverston & Nahm, 2019). China has also now overtaken France as the second largest producer of nuclear energy in the world (behind the US) (Ayhan et al., 2024). These achievements have been substantially motivated by geopolitical and security interests but are increasingly justified in terms of climate action, too (Yang et al., 2023).

Scholars have offered a series of broadly compatible explanations for China's unexpected rise as a green energy powerhouse in this context. Nahm (2022) has paired China with Germany as both have remained committed to export-led growth models where domestic industrial capacity has been directed towards the production of low-carbon energy technologies to serve growing international demand. Of course, China and Germany are not the world's only export-led economies, so others have gone further to highlight the institutional features of China's party-state capitalist political economy. Ban and Hasselbalch (2025) have emphasised the productive tension between decentralisation and centralisation in China's regime of green economic planning where the most successful decisions are taken by provincial or city-level government but underpinned by the ample and patient investment provided by state-owned financial institutions. Beck and Larsen (2025) have reflected a similar dynamic where a proliferation of green funds has arisen from state-led financialisation but are predominantly initiated by provincial-level government.

Crucially, there is an important role for the CCP in creating these particularly favourable financial conditions for green investment. Larsen (2023a) has detailed how China's green finance policy is dictated by China's State Council, driven by expertise and organised through party

structures. For example, China's green bonds are mostly issued by government-backed institutions including commercial banks, policy banks, state-owned enterprises (SOEs) and local governments with the aim of mobilising global investment to supplement domestic public investment (Ma, 2017). The bonds are used to finance green projects including clean energy, transport construction, and waste management according to the definitions of the People's Bank of China and National Development and Reform Commission. In this way, top-down direction has steered financial markets to support the prioritisation of green industrial strategy in general.

Gabor and Braun (2025) have further emphasised the advantages of China's model, which they conceptualise as a 'big green state' in their typology of green macrofinancial regimes. China is the only major example of a state fulfilling both criteria for potentially successful decarbonisation: disciplining capital and large-scale green public spending. China's top-down party-state affords it a policy repertoire ranging from muscular regulation to market incentives to autocratic repression. Western states cannot draw on such policies to the same extent, instead seeking to steward capital and/or raise funds through derisking strategies. Gabor and Braun (2025) recognition of China's capacity to *discipline* capital is the crucial insight here around the importance of unique power resources in the accumulation processes of party-state capitalist political economy model. China's remarkable green energy build-out is therefore substantially down to capacity for long-term strategic planning, including cutting-edge institutional innovations in finance realised through an interplay between dynamic decentralisation and centralised political authority.

The fossil fuel problem

China's green energy build-out is an undoubtedly astounding achievement. However, scaling up green energy is just one side of the decarbonisation coin. The other is phasing out fossil energy, necessarily confronting the emissions-intensive industries which drive climate change. Following other states, China has adopted targets to reduce fossil fuel consumption, pledging to achieve net-zero emissions by 2060 (Xie, 2020). So far, its record is mixed with the beginnings of a trajectory away from the fossil energy production that has been at the basis of its extraordinary development, but at an uncertain pace.

Domestically, investment in green technology is yet to fully displace the dominance of fossil energy (Gare, 2021; Weatherley & Bauer, 2021) as China's economy continues to be underpinned by energy-intensive industrialisation, urbanisation, motorisation and large-scale agriculture (Johnson, 2016). In particular, a post-COVID surge of investment in coal power, coal-based iron and steel making underlines the contingency of phase-out

trajectories on wider political-economic events (CREA, 2021). Since then, coal as a proportion of energy consumption hit 53% in 2024—although in the context of an overall rise in energy use (Myllyvirta, 2024)—down from 64% in 2015 (Li & Sun, 2018). Analysts have suggested that coal consumption has now passed its peak and continues to decline (Zhang & Chen, 2022). However, given the unprecedented scale and pace of phase-out, scepticism around the continuation and rate of this trajectory is reasonable. It will be challenging for China to continue an absolute terms decrease in coal generation as energy consumption fluctuates and it comes closer to dealing with the 'hard-to-decarbonise' sectors like steel production (Baer, 2012). For all the optimism of analysts' projections, coal phase-out remains an ongoing and uncertain process.

Internationally, the outwardness and global scope of China's fossil economy in President Xi Jinping's 'new era' present further challenges for prospects of global energy transition (Flint & Zhu, 2019; Lin, 2015). China's Belt and Road Initiative (BRI) is Xi's flagship vehicle for international investment in interregional connectivity (Zeng, 2019). Coal infrastructure has dominated its project financing (Ascensão et al., 2018), accounting for the majority of capital spending with US$160 billion (bn) committed to 240 projects in 25 countries (Lin & Bega, 2021; Peng et al., 2017) spanning Asia, Europe, Latin America and Africa (Zhexin, 2018). However, in 2021, China announced an end to support for new coal projects internationally, driven in part by the weakness of global coal markets and the importance of climate change in international diplomacy (Wang et al., 2024). As with domestic trends, the international realm therefore represents a promising trajectory while remaining contingent on uncertain global markets and geopolitics.

Furthermore, the fossil economy is not limited to just energy production. China's economy includes several particularly strategically important but carbon-intensive sectors which continue to grow. As such, these are also key players in fossil energy phase-out. China's steel sector is the world's largest domestic market (Zhang et al., 2023) accounting for between 13 and 15% of China's carbon emissions (Yu & Tan, 2022; Zhang et al., 2021); China represents 52% of global cement production (Lu et al., 2024), which is the second largest sector for carbon emissions (Lu et al., 2024); and China represents 50% of global petrochemical industry growth which further escalates existing commitments to fossil fuel production, thus exacerbating 'carbon lock-in', as well as accounting for further emissions (Larsen & Tilsted, 2024; Tilsted & Newell, 2025).

Decarbonisation of these industries is in part downstream of the energy sector as coal and electricity are major inputs. However, it also requires technical interventions in their specific production processes. For example, the steel sector requires development of a low-carbon reducing agent (Zhang et al., 2021), the introduction of carbon capture and storage (CCS)

technologies (Yu & Tan, 2022) and energy saving technologies (Ren at al., 2021); in the cement industry, technologies such as fuel switching and CCS will play a significant role in combination with material and circular economy practices (Lu et al., 2024). As competitive actors in global markets, these sectors will invariably express their own interests in strategic plans around transformations in their own production processes and energy generation in general.

The ongoing challenge of fossil fuels is not entirely neglected within the literature. Nahm (2022) has highlighted a contradiction within export-led economies where they are simultaneously comprised of vested interests that oppose climate policy (e.g., fossil fuel industries) and the industrial capabilities to develop new green technologies. However, the literature is limited by its tendency to treat fossil fuel interests as a malign influence frustrating green energy build-out rather than a sector which must be phased out to eliminate emissions. Nahm's (2019) critique is focused on blockages to new green energy in China as the fossil fuel industry and pro-fossil energy factions of local government frustrate plans to bring new nuclear energy online. Furthermore, Larsen and Oehler (2023) have highlighted that China's overseas investments remain dominated by fossil fuels because Chinese financial institutions favour SOEs (which dominate the fossil fuel sector) over privately owned firms (which dominate green energy).

Neutralising the negative influence of fossil fuel interests on green energy build-out is a related but distinct problem to phasing out fossil energy production itself. While the former may help speed up bringing green energy online, the latter is vital for reducing emissions. An implicit assumption underlying many of these accounts of China's energy politics is that adequate green energy build-out will organically crowd out the fossil fuel industry. We see this as decarbonisation is framed as competition between green and polluting sectors (Nahm, 2022) and in implications that fairer access to finance would redress the imbalance (Larsen & Oehler, 2023), including with the notion that state support is a crucial lifeline for China's coal sector (Nahm & Urpelainen, 2021). However, this assumption does not recognise that, unlike the productive process of green energy build-out, fossil energy phase-out is a destructive process which implies considerable resistance from those invested in its endurance (Holgersen & Warlenius, 2016). As such, fossil energy phase-out requires state powers to discipline capital that are not implied by fiscal capacities to steward investment.

Phase-out

There is, therefore, a qualitative distinction between investing to create a new (profitable) industry and taking action to phase-out an established

(profitable) industry that is central to capitalist production in general as well as China's development model thus far. Like green energy build-out, fossil energy phase-out must therefore be deliberate and planned, not left to market dynamics which prioritise profitability (Christophers, 2022), including a significant political confrontation with an intransigent fraction of capital. This requires state resources beyond the fiscal and industrial capacities that other states share with China's party-state capitalism. The capacity to discipline capital must be extended to the political power to destroy or repurpose the industrial basis of the dominant mode of energy. The scale of this challenge is underlined by the limited number of historical analogues. The abolition of the slave trade is one example of political abolition that might approximate the international scale of the fossil energy industry. However, the endurance of modern day slavery in many countries, including the most developed, highlights the difficulty in completely eliminating such profitable industries (Han et al., 2024).

Recently, there has been considerable progress in coal phase-out in European countries with high rates of coal production and consumption, including Germany (Heilmann & Popp, 2020). We might be optimistic that the EU and member states possess the fiscal and regulatory capacities to drive energy transition given the historical entrenchment of coal in European economies. However, European coal phase-out is not analogous or representative of fossil energy phase-out. Firstly, coal phase-out does not necessitate and equivalent reduction in fossil energy. While clean energy has sometimes replaced domestic coal, it has also been substituted by other fossil fuels including natural gas or even more competitive coal imports (when it becomes cheaper vis-à-vis alternatives) (Rentier et al., 2019). Coal imports may not endure as coal-fired power plants are phased out (Vögele et al., 2023), but the European experience does demonstrate that the technical task of fossil energy phase-out in general is far more challenging.

Secondly, the political-economic task of phasing out an increasingly uncompetitive coal industry is of a qualitatively different character to phasing out enduringly profitable fossil energy in general. A combination of factors has underpinned long-term trends of coal's declining competitiveness including the rise of renewable energy (Heilmann & Popp, 2020) and emissions requirements (Alves Dias et al., 2018). These present challenges for fossil energy in general, but coal has been particularly effected by falling wholesale energy prices, low gas prices, competitive foreign coal and ageing infrastructure (Brauers et al., 2020). EU mines are closing due to a poor competitive position with the EU providing financial support for poorer countries (Mišík & Prachárová, 2023) and mandating the closure of mines dependent on state aid (Alves Dias et al., 2018). Crucially, this approach to coal phase-out represents an affirmation of market logics as it combines the EU's priorities of emissions reduction with promoting

competition in the single market. As such, the experience of European coal phase-out does not reflect the need to confront enduringly profitable fossil energy production which continues regardless of its attendant emissions.

A successful and complete fossil energy phase-out therefore appears to be an unprecedented task requiring unprecedented state disciplining of capital. Such an undertaking must be buttressed by an ideological framework that justifies such drastic action in a way that legitimates rather than undermines the ruling elite amid such political-economic upheavals. The presence of such power resources within the accumulation process in addition to legitimating ideational resources is therefore crucial for determining possibilities of green transition. Gabor and Braun (2025, p.2) have posed the simple but compelling question: 'What actions are societies capable of?'. They, among others, have shown that China's contemporary political economy—characterised by centralised party-state authority and industrial capacity—is capable of pioneering a rapid scale-up of green energy investment and manufacturing. Given this, their question can now be applied to the other side of the decarbonisation coin, which must come next. Do China's party-state capitalist structures mean it is capable of phasing out fossil energy, too?

Potentialities for fossil energy phase-out

Green energy build-out is demonstrably compatible with capitalist production processes as new markets for green technologies continue to grow profitably. Conversely, scholars have contended that fossil energy phase-out is not possible within the capitalist mode of production. Some have argued that the enduring dominance of fossil fuels indicates that capitalist production is fundamentally dependent on their input (Huber, 2022; Malm, 2016a; Pineault, 2018). This implies that fossil energy phase-out requires a more decisive confrontation with capitalism and shift towards a new mode of production. As such, this section locates China's party-state capitalism in the general history of capitalist development to identify China's unique capacity for transformation.

Fossil history

Malm's (2016a) theory of fossil capital provides a rich account of the mutual history of capitalist development and intensifying climate change, including a key role for China in generalising the process. This is significant because Malm's theory has become an important touchstone for many critical scholars contributing to the IPE literature on energy transition (Christophers, 2022; Gunderson & Fyock, 2022; Paterson, 2021;

Pearse, 2021; Svartzman & Althouse, 2022). Malm has argued that China's accession to the World Trade Organisation (WTO) in 2001 (and the attendant explosion of emissions) represented the final global spread of a political economy model characterised by the entanglement of capitalist growth and fossil fuel production. Post-Mao economic reforms signified the defeat of the last major holdout against capitalist globalisation and with it a 'decisive capitalist victory' with the 'rush towards catastrophic global warming' its victory lap as economies converged on one accumulation regime (Malm, 2016a, p. 353).

This argument is complicated, however, by subsequent counter-reforms under Xi Jinping's leadership from 2012 onwards. The shift from 'state capitalism' (where the state retained a strong role in a mixed economy) towards 'party-state capitalism' represented a return to the CCP prioritising political objectives over pure profit-seeking (Pearson et al., 2021). China's fossil economy continues to expand in this context but according to an apparently unique configuration of relations between the state and markets. The relatively subordinate role of profit in driving growth in China's political economy provokes questions as to whether fossil fuel production is always an essential component of the capitalist production process in general. Malm (2016a) has equated China's post-Mao fossil economy with those of Western capitalism because they share a basis in fossil energy, but this neglects the relational differences underpinning this similarity (Moore, 2015). This critique should not lead us to throw out Malm's crucial empirical and theoretical contributions, but they do impel us to look deeper into China's history and contemporary political economy to investigate whether these differences represent distinct potentialities for fossil energy phase-out.

General histories of fossil economy development tend to begin in early-1800s Britain with capitalist growth animated by industrialisation (Fouquet & Pearson, 2012; Johnson, 2016) and imperialism (Malm, 2016b). The blip of two world wars and the Great Depression (Smil, 2017) was subsequently overcome with the shift in hegemonic power from Britain to the US (Pineault, 2021). By contrast, China's fossil economy emerged much later as invasion and occupation (Newsinger, 1997), and persistent conflict in the first half of the twentieth century (Smil, 2018) were disruptive of development. The communist revolution in 1949 meant that China could finally sustain serious fossil economy development as the basis of wider economic modernisation after overcoming the devastation of a war-exhausted country (Thomson, 2003). This revolutionary context came to define the unique nature of China's development.

China's fossil economy developed erratically as oscillations between industrial centralisation and decentralisation caused shifts between periods of growth and contraction (Nahm, 2019). Throughout the turbulence,

the party-state always retained control of the energy sector through party-political planning and state ownership as price controls eschewed profits to enable the expansion of wider industry (Smil, 2004; Thomson, 2003). On the one hand, command-and-control economic planning facilitated periods of rapid economic development (Pirani, 2018; Smil, 2004). On the other hand, politically-motivated social upheavals and economic reorganisations conceived at the top-level (i.e., the Great Leap Forward and Cultural Revolution) (Shapiro, 2001; Thomson, 2003) backfired by disrupting growth (Shen et al., 2012; Smil, 2004). Although with changing consequences, the Mao era was aways defined by party leadership in the energy sector.

China's economy swung back towards growth following Mao's death and the end of the Cultural Revolution in 1976, but this time its development was animated by party-led market reforms. Deng Xiaoping became China's paramount leader and initiated the policy of reform and opening-up as a reaction against the perceived failures of Maoism (Thomson, 2003). Despite Deng's reputation as a liberaliser, the CCP retained its role as 'supreme organiser' of economic planning by directing market reforms from the top-down (Smith, 1993, p. 58). The coal industry grew rapidly and retained its dominance (Smil, 2018) as profit-seeking was introduced (Shen et al., 2012) and autonomy to raise funds for electrification was devolved to local government, with market pricing facilitating investment planning (Peng & Pan, 2006; Pirani, 2018). However, while output from state owned firms dropped from 80% to 53% by 1991, state ownership remained high relative to the rest of the economy (Smith, 1993). The coal industry was not opened up to foreign investment and prices increased only gradually, remaining relatively low (Thomson, 2003; Pirani, 2018). Market reforms were therefore the product of cautious experimentation, always contingent on the political will of the CCP, rather than the hardline pro-market ideological conviction that motivated the shock therapy imposed in post-Soviet states (Weber, 2021).

Crucially, the CCP has exercised party-state control over China's fossil economy from the birth of the People's Republic (PRC) with Mao's revolution right the way through Deng's reform era. In a general history, fossil economy development is propelled by the fossil fuel industry and private finance: relatively autonomous fractions of capital, singularly motivated by profit-seeking, reproducing themselves by exerting considerable influence over government and society (Malm, 2016a). By contrast, China's fossil fuel and financial industries do not operate according to an internal market logic of capital accumulation but are instead subordinated to the party-state. China's fossil economy is therefore propelled by the decision-making of the CCP, making the dominance of fossil fuels in China a contingent factor of party-state development strategy. The

question, then, is whether this distinct party-state relation in China's political economy of fossil energy contains within it the capacities to achieve fossil energy phase-out.

Power resources

Historicising China's energy economy provides a clearer view of how its idiosyncrasies are not just contingent factors in contemporary political economy but fundamental to a unique pattern of historical development. China's state ownership of energy is not unique as states continue to rise as global owners and investors particularly in oil and gas reserves (Babić & Dixon, 2023). State-run national energy companies are key components of political-economies as diverse as Saudi Arabia, Russia, Norway, Brazil, India and Mexico (Buck, 2021). However, China is significant for the prominence of energy and other carbon-intensive industries, as well as finance, within the state sector at a time when its SOEs' total assets are higher than ever (Lin et al., 2020). SOEs' position in both the domestic economy and global markets mean they are central to prospects of energy transition in China and internationally over the coming decades.

Energy companies account for China's top three SOEs by revenue (Sinopec, State Grid, China National Petroleum) and for five of the top ten (Grünberg, 2021). Oil, gas and coal production as a whole is almost entirely dominated by SOEs. In the coal sector, producers have become vertically integrated into biggest energy companies. For example, China Shenhua Energy is China's largest coal company and since 2017 is owned by China Energy Investment Corporation, which is China's largest power producer. This context means that private producers are so non-competitive domestically that they can only operate internationally (Springer et al., 2022). Crucially, energy firms are almost always majority owned, giving the state a controlling stake (e.g., PetroChina is 86.7% state-owned) (Babić & Dixon, 2023). Oil production companies have exclusive rights to exploit energy resources. For example, PetroChina is 86.7% state-owned and has 77% of all exploitation rights in the upstream sector (Chen & Chen, 2021). In other carbon-intensive sectors, SOEs account for about 50% of both the steel (Brandt et al., 2022) and cement (Lu et al., 2024) sectors. Although the proportion of state-ownership is less in these sectors compared to energy, SOEs still enjoy better access to capital, technology, inputs, and human resources as they operate the largest facilities and pursue political objectives in addition to profit-seeking (Brandt et al., 2022).

The role of China's SOEs in the regime is twofold. On the one hand, China's integration into global markets has afforded SOEs a corporate dimension where they generate profits in domestic and international markets which flow into state budgets (Stone et al., 2022). On the other hand,

the productivity and profitability of China's SOEs are notoriously low (and in decline). This reflects their role in driving China's economic development (Lo, 2020; Weber, 2021) and advancing the CCP's strategic objectives including advancing industrial policy, redistributing resources between China's regions, and managing economic and political crises (Leutert, 2020). While some SOEs are mandated to prioritise profit-maximisation, the energy sector is identified as a strategic industry and so prioritises the national economy over profitability (Jin et al., 2022). SOEs have developed according to an interplay between profit-seeking autonomy in the market and residual state control directing strategic objectives (Chen & Chen, 2021; Jin et al., 2022; Jones & Zou, 2017). This interplay is reflected in the CCP's new corporate governance approach which combines Western corporate governance with party-state management (Beck & Brødsgaard, 2022).

The crux of the debate in the literature on the status of SOEs in China is whether they or the party exerts greater power over the other. Of course, China is embedded in global markets and, although China's energy exports are relatively limited, for example, it remains dependent on international markets for importing around 70% of its oil from a range of regions (Zhao et al., 2020). Furthermore, in China, as in the West, there is a mutual dependence between state and fossil fuel industry as the former benefits from the development afforded by the latter, and the latter benefits from favourable legal environments and economic support. However, the distinction is one of emphasis around the relative power of each actor in directing fossil economy development.

Jones and Zou (2017) have argued that party-state control over SOEs has diminished as they have been afforded growing autonomy to operate in the market according to their own profit-seeking interests. In this argument, the CCP still exerts some influence by issuing guidelines, but this is a shift away from command-and-control direction such that the party no longer issues 'orders' pertaining to a grand national strategy. By contrast, more recent contributions to the debate have enjoyed the advantage of considering developments across a greater portion of Xi's leadership. There is more agreement that the CCP does in fact retain relatively strong control over SOEs, including directing them to prioritise strategic development objectives over pure profit-seeking (Jin et al., 2022).

Scholars have identified several dimensions by which the CCP exerts power over SOEs. First, Jones and Zou (2017) themselves have highlighted the enduring power of the party over the macroeconomic conditions in which SOEs operate by controlling exchange rates, taxes, licenses and credit. Over the course of Xi's new era, these capacities have been developed to include more direct intervention in SOEs themselves. As such, second, the CCP has reasserted a strong role in the governance of SOEs

through the administration of State-owned Assets Supervision and Administration Commission (SASAC) under the State Council (Jin et al., 2022; Leutert, 2020). This means that SOEs and corporate organs in SOEs are regulated not only by laws and formal state regulations but also by internal CCP regulations (Beck & Brødsgaard, 2022).

Third, the CCP has institutionalised party leadership in SOEs by requiring the revision of articles of association to incorporate party-building work into corporate charters, including institutionalising the leadership roles of party organisations (Jin et al., 2022; Leutert & Eaton, 2021). For example, SOEs must form party committees to discuss 'major decisions' before they go to the board of directors (Beck & Brødsgaard, 2022; Leutert, 2020). Fourth, the CCP has asserted greater control over managing and appointing senior personnel in SOEs (Beck & Brødsgaard, 2022). This has been achieved, for example, through 'joint appointments' where individuals serve simultaneously in executive and party leadership roles (shortening the chain of command between the Party-state and central SOEs) (Leutert, 2020), producing a revolving door between SOEs and government agencies (Springer et al., 2022).

These reforms indicate a greater versatility of CCP control even if SOEs enjoy more autonomy to act in the market at the same time (Chen & Chen, 2021). So far, the CCP's involvement has facilitated a reconciliation of SOEs' corporate and political objectives such that they generate limited profits (Lin & Bega, 2021) while prioritising the CCP's strategic objectives of maintaining supply for customers, providing energy below market-prices for industry, and guaranteeing workers' welfare (Caldecott et al., 2017; Chen & Naughton, 2017). However, the relative power of the CCP over SOEs should not completely obscure the power of the latter. The consolidation of SOEs, exclusive licensing, growth in markets and the position of senior personnel in CCP structures all confer greater economic and political power within the regime.

Following the trends of post-revolutionary Chinese history, the balance of power may continue to ebb and flow in tandem with wider political-economic developments. As time to achieve the CCP's high-level energy policies (Davidson, 2024) shortens, the contradictions between SOE's corporate and political objectives are likely to heighten. In particular, the enduring profitability of fossil energy production will conflict with the CCP's plan for energy transition. As such, the potentiality for fossil energy phase-out in China lies in the struggle between these two roles. The CCP has a track record through history of contracting the fossil fuel industry as part of politically determined economic strategy (Thomson, 2003) which is reflected in its power over energy and carbon-intensive sectors through SOE control today. This combines with the CCP's demonstrable capacity for rapid economic mobilisation in times of crisis, for

example the zero-COVID strategy during the COVID-19 pandemic (Serikbayeva et al., 2021). Whether fossil energy phase-out is realised will come down to whether the CCP is willing and able to extend these powers to SOEs to lead a significant transformation to its mode of energy (Springer et al., 2022).

Ideational resources

These power resources in the accumulation process are a necessary but insufficient condition for the CCP to instigate fossil energy phase-out which is likely to be influenced by the response of the domestic population. Paterson (2016) has highlighted environmental states' dual imperatives of accumulation and legitimation in climate politics. While China's party-state capitalism contains a weaker imperative for accumulation, the need for legitimation remains strong as the CCP seeks to secure its authority. In China, pro-climate initiatives have had a technocratic character and generally come from the top-level considering its relatively climate-apathetic public (Liu & Leiserowitz, 2009). Therefore, it is uncertain if and how the population will respond to fossil energy phase-out. The CCP has demonstrated a responsiveness to popular pressure (Dickson, 2021), including around the end of Xi's flagship zero-COVID policy following a month of protests (Keng et al., 2024). The CCP may be concerned by the possibility of a similar reaction against the social disruptions of transition, or even identify an opportunity to mobilise China's culture of pro-environmental protest (Steinhardt & Wu, 2016) in support. Either way, the CCP requires a set of ideational resources to legitimate such a monumental upheaval while buttressing its own authority.

The differences between the political economies of energy in China and the West are reflected in the competing ideological frameworks that underpin the politics of energy in both political economies. In the West, 'green capitalism' represents the dominant ideological response to climate and ecological crises (Alami et al., 2024). Carroll, 2020; It is a necessarily diffuse system of ideas propagated by corporate and political elites simultaneously concerned by the threats of climate shocks to profitability (Wallis, 2010) and committed to affirming the existing system as far as possible (Carroll, 2020). Buller (2022, p. 12) has identified the two key pillars of green capitalism as, firstly, 'the effort to preserve existing capitalist systems and relations' and, secondly, 'ensuring new domains for accumulation in transition to a decarbonized and ecologically sustainable economy'. As such, fossil energy phase-out is supposedly achieved through either market-based 'solutions' like carbon-pricing (Buller, 2022) or limited fiscal and/or regulatory intervention through weak or robust

'derisking' (Gabor & Braun, 2025). According to this vision, the existing system of capitalist production is preserved by maintaining everything except for replacing the fossil fuel industry with green capital (Carroll, 2020).

This 'anti-fossil fuel' green capitalism may come closest to reckoning with the necessary fate of the fossil fuel industry, but it does not adequately account for its staying power. The industry remains intransigent against both political and market-based efforts to supplant it, already propagating its own 'solutions'. Most prominent among these is unproven CCS technologies (Bosch & Schmidt, 2019; Peters, 2012). While central to most modelled pathways for climate mitigation, the promise of CCS allows for continued extraction by delaying the devaluation of fossil fuel capital (Carton, 2019). Furthermore, fossil fuel firms have diversified into (still polluting) petrochemical production to capitalise on the sector's growth as demand for plastics increases and 'lock-in' general industrial reliance on fossil fuel extraction as petroleum is the primary input (Hanieh, 2021; Larsen & Tilsted, 2024; Tilsted & Newell, 2025). Without an account of how to seriously confront entrenched interests in the enduring profitability of fossil fuels, green capitalism appears at best a naïve attempt to save capitalism from its itself and at worst an ideological cover for ongoing fossil energy production.

The EU's green economy vision—detailed in the 7th and 8th Environmental Action Programmes (EAP)—represents one of the strongest in the West (Domenech & Bahn-Walkowiak, 2019). Its principles of a circular economy include systemic changes to create a regenerative system (Grdic et al., 2020), and a commitment to low-carbon growth (Deselnicu et al., 2018) and climate adaptation (Pindaru et al., 2023). However, despite this ambition, it remains indicative of the pitfalls of green capitalism. Firstly, the vision's technological optimism excludes political concern over questions of ownership and distribution (Domenech & Bahn-Walkowiak, 2019). As such, it lacks an account of entrenched oppositional interests in markets and institutions, and how to overcome them. In practice, then, the vision has not confronted the status quo of linear business-models (Friant et al., 2021). Secondly, the vision affirms markets by prioritising the maintenance of value through regeneration, without accounting for the value that must be lost in transition away from polluting practices (Mhatre et al., 2021). The EU's green economy vision may represent the strong edge of green capitalist ideas, but this only underlines their general inadequacy. The enduring commitment to profitability elides the necessarily destructive element of transition and the power interests that oppose it.

China's concept of 'ecological civilisation' represents an important contrast with the West, particularly in its account of power relations

underpinning the politics of transition. Adapted from Soviet origins, ecological civilisation has been developed to become a core pillar of 'Xi Jinping Thought', most notably with its ratification into the PRC's Constitution in 2018 (Goron, 2018). The concept articulates the centrality of ecological stability to the CCP's wider doctrine and strategy for socialist modernisation (Gare, 2021; Goron, 2018). In this context, ecological civilisation represents an approach to ecology and energy transition rooted in economic transformation (Huan, 2021). Against the grain of China's material-intensive approach to development, ecological civilisation codifies the ambition to achieve global energy transition (Goron, 2018; Xie, 2020; Zhou, 2021) by moving beyond the environmental degradations of industrial capitalism (Weatherley & Bauer, 2021) and towards a circular economy model (Gare, 2021). Similar as they may appear, ecological civilisation goes further than the EU's vision by committing to prioritise environmental protection over economic development (Weatherley & Bauer, 2021; Zhou, 2021). Ecological civilisation therefore confronts the contradiction between ecology and the market whereas green capitalism must insist on their compatibility.

This key distinction between the two ideas further reflects differences in the power relations in China and the West. At best, green capitalism seeks to transform the composition of the ruling class while preserving market relations. By contrast, ecological civilisation proposes to transform the economy to move beyond industrial capitalism, but in doing so seeks to preserve the power of the CCP in the current regime (Engel-Di Mauro & Huan, 2021). Promoting ecological civilisation as part of a centrally defined 'grand national strategy' (Huan, 2021; Weatherley & Bauer, 2021), the CCP justifies a paternalistic role for itself in taking 'responsibility for future generations' and promoting a 'development trend of human civilisation' in general (Greenfield & Ni, 2021). Reforms to environmental management have consolidated the power of the party in this realm by delineating rights and responsibilities, introducing controls and regulations, and making requirements to consider environmental protection (Goron, 2018; Xie, 2020). This appears to be the ecological dimension of Xi's 'counter-reformation' against the liberalisations of the reform era, where the power of the party is reasserted across politics and the economy (Cheek, 2021). Legitimation of the CCP's unique power resources is therefore woven through the broader vision for a green economy.

The strength of ecological civilisation comes as it combines Marxist insights around strategising political-economic transformation and 'green' insights about circularity and the limits of industrial capitalism. As such, it provides a roadmap for economic transformation beyond the dominance of fossil energy and towards a new settlement rooted in ecological stability (Engel-Di Mauro & Huan, 2021). In doing so, it represents a

necessary departure from the instrumentalism and hubris of Mao's approach to nature (Shapiro, 2001) while providing a strong alternative to compete with visions of green capitalism prominent in the West. Ecological civilisation's alignment with the CCP's unique power resources in China's accumulation regime affords it a particular potency as it legitimates and is in turn legitimated by its basis in the authority of the party-state. Nevertheless, it is important to recognise that the strength of ecological civilisation as an ideational resource in China's party-state capitalism does not absolve it from the contradictions of pursuing transformation from within capitalism. The pursuit of ecological civilisation would have to effectively mobilise social forces from the top and the bottom to overcome the trade-offs arising from the contradictions between imperatives for growth and ecological stability.

Implications for transition: theory and practice

Fossil fuels remain the dominant source of energy in China as in the West, which in both cases is reflected in an expansion of fossil energy production internationally. However, underlying these shared symptoms are relational differences that themselves produce divergent potentialities for fossil energy phase-out. In addition to the fiscal and disciplinary capacities that have enabled green energy build-out (Gabor & Braun, 2025), China's party-state driven fossil economy contains the power resources in the accumulation process to confront fossil fuel interests and the ideational resources to legitimate such a strategy. Crucially, these resources form the basis only of *potentiality*. China's party-state capitalism contains latent qualities that allow for the possibility of fossil energy phase-out, but this is far from pre-determined. By returning firstly to consider the implications of this argument for key theoretical perspectives on China in world capitalism, we can move to secondly discuss what different political contingencies mean for the possibility of China's party-state capitalism leading fossil energy phase-out domestically and globally.

Implications for theory

The unique party-state relations underlying China's fossil economy call into question the salience of typological approaches generally used in the literature for comparing national models, including around their approach to energy transition. Nahm (2022) has identified two major growth models (export-led or import-driven) which contain different capacities for pursuing green industrial strategy based on pre-existing industrial capacity. Gabor and Braun (2025) have proposed a typology of green

macrofinancial regimes, in which China constitutes a 'big green state'. More generally, a series of new typologies developing the 'varieties of capitalism' (VOC) literature has usually presented China as the ideal of some kind of 'statist' type, whether 'state-permeated capitalism' (Schedelik et al., 2021), 'state-permeated market economy' (Nölke et al., 2015) or simply a 'statist type' of capitalism (Becker, 2013). These frameworks emphasise different institutional arrangements between states but treat capitalism as static and relationally homogenous as the structural imperative to accumulate underpins all variations in development (Alami & Dixon, 2023).

This kind of approach has certainly been useful for understanding national differences in approaching global climate politics. However, its simplifying function does not adequately explain China's unique place in world capitalism (Bruff, 2011). The significance of China's role in global fossil energy phase-out is therefore obscured. In the new VOCs, China sits uncomfortably alongside electoral democracies like India and Brazil (Nölke et al., 2015) in the statist type as the focus on the shared prominence of states in markets obscures the importance of the CCP across China's political economy. Neither does carving out a further 'party-statist' type of capitalism seem appropriate. Others that may join China there lack the scale (e.g., Vietnam, Laos) and/or the integration into world capitalism (e.g., Cuba, North Korea) that in combination afford China its unique importance in the politics of global energy transition. Instead, we should understand China as standing alone in the world system as a geopolitically ascendent, continent-sized party-state with unique capacities for transformation.

In typologies of 'green macrofinancial regimes' (Gabor & Braun, 2025) and growth models (Nahm, 2022), China is one variation among several models providing scholars with an example to point to as they prescribe stronger states and new industrial strategies for Western nations. By emphasising institutional differences, these approaches neglect the relational differences that underly them. In doing so, they treat China as one case of interest among many and neglect its unique position in world history. Western states will find it extraordinarily difficult to imitate China's capacities to achieve a comparable green energy build-out or potentiality for fossil energy phase-out, because of their basis in an idiosyncratic post-revolutionary development history. Such an imitation would require substantial transformation of material political economy structures, including state-ownership and political control over key fractions of capital (e.g., finance) which underpin many of China's capacities. This, in turn, would need to be underpinned by a radical shift in dominant political ideas to legitimate, which may transpire amid the effects of climate catastrophe but is not immediately forthcoming.

China, by contrast, occupies a unique position in world capitalism today precisely because it develops with institutional continuity from its

twentieth-century revolution. This is significant for debates on the relationship between fossil fuels and capitalism, usually conducted beyond the disciplinary boundaries of IPE. In particular, it is a challenge to Malm's (2016a) conception of fossil capital as a necessarily totalising and homogenous relation universalised by China's integration into world capitalism. If China does demonstrate the capacity to phase-out fossil energy within its model of party-state capitalism, this would represent a source of divergence within capitalism's energy relations. This in turn would cast doubt on arguments that capitalist production has come to be essentially entangled with fossil energy production (Huber, 2022; Malm, 2016a; Pineault, 2018).

China's synthesis of domestic party-state leadership and integration into world markets brings the contingency of the CCP's strategic decisions into scope as an important variable in the future development of capitalism's mode of energy. Powerful as the market-logic of maximising accumulation remains in the global political economy, the CCP's domestic power endures as China continues to grow in international stature. The combination of the CCP's unique power resources in its accumulation regime and legitimating ideational resources (ecological civilisation) is the basis of China's disruptive position in world capitalism, harbouring potential to incite a break within capitalism towards a new mode of energy. Already, China has demonstrated an unrivalled capacity to scale up green energy. The question now is whether its potentiality for fossil energy phase-out can be realised in practice.

Implications for practice

The theoretical contribution that China's party-state capitalism political economy mode contains the potentiality to realise fossil energy phase-out is significant for debates about global energy transition. However, such a transition is far from pre-determined as its practical realisation depends on a series of uncertain political-economic contingencies. Unfortunately, it is especially difficult to make predictive claims about which will be the most prominent in the coming decades, particularly given the novelties of contemporary China as an actor and climate change as a crisis. It is useful to finish, though, with a brief sketch of the contours of such contingencies in the hope that they may provoke further inquiry into the practicalities of fossil energy phase-out in China.

First, do we treat the CCP's ambitions for fossil energy phase-out as sincere? The CCP may possess the power and ideational resources to instigate fossil energy phase-out, but it is important to note that it has agency over whether (and how) to deploy them. The CCP's power is exercised as an expression of collective top-level decisions in the context of domestic Chinese politics. The CCP has stated aims for achieving net-zero emissions by 2060 and constructing ecological civilisation, but critics may

treat such statements with cynicism. It may well be that these ambitions are not realised because either they were never intended to be acted upon or future developments cause a shift in strategy. That said, the CCP has a strong track record on delivering on ambitions around green energy build-out (Albert, 2022; Bell, 2020; Kim, 2019; Shen & Xie, 2018) which reflects its material interests dominating green energy supply chains internationally and the centrality of the energy transition to its ambitions for geopolitical power (Smith, 2023). Applying the same logic to fossil energy phase-out, it appears worthwhile to work on the assumption that the CCP will continue to pursue energy transition.

Second, what domestic interests will affect fossil energy phase-out? There is natural uncertainty about how various domestic interests will respond to such an economic upheaval. It is likely that domestic fossil fuel interests will provide a source of internal resistance, particularly as there remain powerful incentives to continue fossil energy production including fossil fuel availability, reliability and power, and China's sunk costs in existing infrastructure (Hao et al., 2019). Furthermore, it is certainly possible that fossil energy phase-out could incite worker organising and protests, especially considering the rise of worker action against poor conditions (Butollo & ten Brink, 2012; Chan, 2021; Chen, 2020). In such instances, the CCP may possess the power resources to discipline such oppositions but would have to make a choice about the broader expediency of such a repressive approach. Conversely, domestic ecological movements may push the CCP to go further by mobilising in support of fossil energy phase-out. Ecological movements in China have thus far not focused on climate change as an issue, instead prioritising harms to nature like pollution (Liu & Leiserowitz, 2009), but it seems plausible that the intensifying effects of climate change might inspire existing organisations to shift focus or for new movements to form.

Third, what international interests will affect fossil energy phase-out? It is obvious from its entwinement in international markets that China is not acting alone in the global energy transition. As with any other state, China is subject to the pressures and constraints of global markets, institutions and geopolitical relationships. As China seeks to engage more constructively in multilateral institutions while projecting its own power in markets, the CCP would have to consider how key actors might respond to its instigation of fossil energy phase-out. For example, if this was perceived a disruptive move, China could be targeted with formal or informal economic or political sanctions. This possibility has become particularly pertinent following the flurry of tariffs announced in the first period of Donald Trump's second US Presidency.

The bottom-line is that each of these contingencies spells uncertainty for the practical politics of fossil energy phase-out in China. We simply

do not know the CCP's current intentions and how they will interact with uncertain domestic and international political developments. However, this article's conviction is that potentiality alone is enough to impel scholars and practitioners alike to treat China as a uniquely capable actor in the political economy of global energy transition. If China were to be even relatively successful in instigating fossil energy phase-out, it could reconfigure potentialities for transition globally if it incentivises economies within its sphere of influence and sets new standards in global energy markets. At the very least, we should take China seriously as a source of potential disruption in the global political economy of energy in the coming decades. At most, we might be optimistic that it provides the best chance of inciting global energy transition in the most crucial years for climate action.

Conclusion

This paper's starting point is a recognition of the unavoidable entanglement of climate politics and Chinese politics in the international political economy of global energy transition. It builds on the recent work of scholars who have responded to both climate and China blind spots by further identifying an imbalance in the treatment of green energy build-out and fossil energy phase-out in this emergent literature. The paradox of China's energy economy includes the basis of its impressive scale up of green energy technologies while fossil energy production continues to expand. The key question is whether the structures of party-state capitalism that have enabled the former can be directed to achieve the latter.

The study investigates China's development history and contemporary fossil economy. In doing so, it demonstrates China's idiosyncratic post-revolutionary development trajectory. Political continuity from the Mao era through to Xi's new era has produced a qualitatively distinct set of state-market relations as the enduring primacy of the CCP means that the party-state is the animating force of development. This relational context affords China unique power resources in the accumulation process, legitimated by unique ideational resources as the CCP's concept of ecological civilisation concept charts a transformative path beyond industrial capitalism. Together these represent a strong potentiality for achieving fossil energy phase-out over the coming decades. However, such a transition is far from pre-determined. Whether or not this potentiality is realised depends on the ongoing struggle between corporate and political objectives within the party-state, particularly the SOE sector which dominates carbon-intensive industries. Regardless of the outcome, this potentiality raises important provocations for scholars and practitioners. Most fundamentally, we should now understand China as a uniquely capable actor in the global political

economy provoking important questions for actors in the West around the extent of transformation necessary to achieve energy transition.

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