

## Red and Green? State-Owned Enterprise Leaders and China's Low-Carbon Transition

Wendy Leutert<sup>1</sup> and Mengye Zhu<sup>2,3,\*</sup>

<sup>1</sup> East Asian Languages and Cultures Department, Hamilton Lugar School of Global and International Studies, Indiana University

<sup>2</sup> Natural Capital Alliance, Doerr School of Sustainability, Stanford University

<sup>3</sup> Center for Global Sustainability, University of Maryland

\*Corresponding author

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Authors are listed in alphabetical order. Wendy Leutert, Associate Professor, East Asian Languages and Cultures Department, Hamilton Lugar School of Global and International Studies, Indiana University, [wleutert@iu.edu](mailto:wleutert@iu.edu); Mengye Zhu, Senior Scientist and Social Science Research Scholar, Natural Capital Alliance, Doerr School of Sustainability, Stanford University, [zmengye@stanford.edu](mailto:zmengye@stanford.edu). Mengye Zhu's work on this project was conducted through the Center for Global Sustainability at the University of Maryland, where she was previously affiliated. The authors thank the Power Transformation Lab at the University of California, San Diego for generously supporting this research. They are grateful to Yingtong Li, Davis Di, and Xinzhao Cheng for excellent research assistance.

### Abstract

State-owned enterprises (SOEs) are critical to achieving low-carbon transition in China. SOEs account for half of the country's CO<sub>2</sub> emissions and dominate sectors including coal, petrochemicals, steel, and electricity. The Chinese state and its ruling Chinese Communist Party (CCP) appoints and assesses their leaders, who are both businesspeople and bureaucrats, through the cadre management system. How are the leaders of SOEs owned by China's central government (central SOEs) in sectors vital to the low-carbon transition governed? What policy mandates for low-carbon transition exist for these companies, and what actions have these SOEs and their leaders taken? This paper uses an original dataset with nearly 600 leader-year observations to analyze the backgrounds and career trajectories of the top leaders of 20 central SOEs in the power sector between 2003-2022. In addition, it uses case studies drawing on field research in China to highlight how SOE leaders can function variously as champions, skeptics, and mediators in low-carbon transition efforts. It concludes by

critically assessing the degree to which China's institutional and policy environment aligns incentives with decarbonization goals for central SOEs in the power sector.

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## Introduction

“Developing green energy is an important measure to address climate change,” stated Lu Qizhou, the former general manager and Party secretary of China Power Investment Corporation (CPI Group). “Actively responding to climate change is not something others ask us to do, but our own choice.”<sup>1</sup> Leaders like Lu serving as the board chairmen, Party secretaries, and/or general managers of state-owned enterprises (SOEs) are important yet under-examined actors in China’s low-carbon transition. Who are the leaders of SOEs in the power sector owned by China’s central government (central SOEs), and how are they governed through the Chinese Communist Party’s cadre management system? What low-carbon policy mandates exist for these companies, and in what ways have their leaders responded? To what degree does China’s institutional and policy environment incentivize low-carbon transition efforts by central SOEs and their leaders?

This paper analyzes the leaders of China’s power sector SOEs, how the cadre management system governs them, and their varied approaches to policy mandates for central SOEs’ low-carbon transition. As businessmen, these individuals exercise primary responsibility for formulating corporate strategy, making decisions about major projects, allocating resources, and restructuring their companies internally. As officials, Chinese SOE leaders are managed under the cadre management system—the mechanism through which the Chinese Communist Party (CCP) appoints, evaluates, transfers, and removes individuals in top positions across China’s political, economic, and social institutions. While SOE leaders are not formally part of the civil service (公务员), their equivalent bureaucratic rank allows them to move among SOE and government positions at both central and local levels.

Central SOE leaders in China’s power sector are both similar to and distinct from other Chinese officials. Like central SOE leaders in other sectors, as well as other central- and local-level Chinese officials, they are virtually all male, in their mid- to upper-50s in age, and increasingly well-educated, with more attaining advanced degrees over time. However, they also exhibit distinct traits, including longer average leadership tenures, fewer joint appointments combining top managerial and CCP roles, and a higher incidence of serving past mandatory retirement ages. Since 2012, transfers of central SOE power sector leaders to other SOEs have increased significantly, indicating that China’s leaders are using a more proactive governance approach. These transfers serve various strategic purposes, from facilitating mergers to aligning firm leadership with evolving political and industry goals. Yet despite the power sector’s growing strategic importance, SOE leaders in the industry remain underrepresented in top political bodies, indicating their still peripheral role in elite decision-making, though recent trends suggest a gradual rise in their political relevance.

Both political and economic incentives drive central SOEs’ behavior, together generating a complex—and at times contradictory—incentive structure. Put simply, central SOEs are

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<sup>1</sup> 陆启洲 [Lu Qizhou]: 《中国光伏、风电等行业已与全球超 100 个国家开展合作》 [China’s Solar, Wind Power and Other Industries Have Cooperated with More than 100 Countries Around the World], 北极星太阳能光伏网 [Solar Energy Network], August 7, 2020.

considered most successful when they support the government's political goals while simultaneously fulfilling economic performance objectives.<sup>2</sup> Central SOEs are expected to fulfill a range of strategic aims, ranging from the development of priority industries and technologies to urban employment to social welfare provision. Central SOE assessment is nominally guided by the "Performance Evaluation of Central SOE Leaders" guidelines issued by China's government ownership agency, the State-owned Assets Supervision and Administration Commission (SASAC), which combines dual economic and political mandates.<sup>3</sup>

Power sector SOEs and their leaders face policy mandates in three areas relevant to low-carbon transition. The first is energy conservation and emissions reduction, a long-standing priority in China's energy and environmental policy agenda, specifically emphasizing energy efficiency and pollution control. The second is climate change mitigation, which has gained prominence across industries following the announcement of China's dual carbon targets: peaking carbon emissions before 2030 and achieving carbon neutrality by 2060. The third is social responsibility, reflecting a broader global trend in which corporations, including SOEs, are increasingly expected to report non-economic contributions and at least formally demonstrate accountability through mechanisms such as ESG (environmental, social, and governance) disclosures. Together, these three areas generate a multifaceted set of incentives for central SOE executives navigating toward low-carbon transitions in their firms.

SOE leaders can play varied roles through their responses to policy mandates. "Champions" advocate for low-carbon transition development and goals, often with evident entrepreneurship, such as expanding renewable energy deployment, pursuing innovative initiatives, or proactively adopting metrics to enhance energy efficiency and emissions reduction. "Mediators" help to coordinate renewable energy deployment and may seek to replicate successful practices (复制成功经验) across firms. "Skeptics" may acknowledge low-carbon policy goals, but in practice they prioritize other objectives, like traditional fossil fuel-based development, and they may delay or even block the implementation of low-carbon policies and targets.

This paper proceeds as follows. The following section introduces China's state-owned economy and central SOEs in the power sector specifically, explaining their importance in the country's political and economic systems and its low-carbon transition efforts. Next, the paper outlines the cadre management system in China, how it governs central SOE leaders, and how these individuals can affect low-carbon transition efforts at the firm level. The subsequent sections introduce this study's data and methods, then summarize key findings from the data analysis, including industry trends, firm-level patterns, and the individual attributes of power sector SOE leaders. Next, the paper examines the policy mandates for central SOEs' low-carbon transition,

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<sup>2</sup> While SASAC's economic performance assessment system has evolved since 2003, maximization of operational profits (经营利润最大化原则) was foremost among the principles on which it was originally based. SASAC also charges central SOEs with preserving and increasing the value of state-owned assets (国有资产保值增值). 国资委：《中央企业经营业绩考核暂行办法辅导讲座》 [Guiding Lectures on Temporary Measures for Performance Evaluation of Central Enterprises] (Beijing: Jingji kexue chubanshe, 2003).

<sup>3</sup> 国资委 [SASAC]: 《中央企业负责人经营业绩考核办法》 [Measures for the Performance Evaluation of Central SOE Leaders], June 5, 2019, <http://www.sasac.gov.cn/n2588035/c11424862/content.html>.

as well as the incentives driving their actions. It develops a typology of SOE leader roles—as champions, skeptics, or mediators—and illustrates each with a case study. The paper concludes by critically considering the extent to which China's existing institutional and policy environment aligns incentives with decarbonization goals.

### Central SOEs in the Power Sector

SOEs continue to play a crucial role in China's economy. SOEs contribute approximately one-quarter of national GDP in the world's second largest economy—and have done so for nearly 25 years.<sup>4</sup> State firms channel investment to critical industries in China, providing over three quarters of domestic investment in infrastructure and half of investment in coal and oil.<sup>5</sup> They dominate Chinese equity markets, accounting for approximately 40% of total market capitalization and 50% of company revenues for the Shanghai and Shenzhen stock exchanges.<sup>6</sup> For top leader Xi Jinping, like his predecessors, SOEs “constitute an important pillar of the national economy and play a role as pillars of the economic foundation of the CCP's rule and China's socialist state power.”<sup>7</sup>

Yet Chinese SOE performance continues to significantly lag that of private firms. State firms frequently act as “asset maximizers,” rather than as “profit maximizers”.<sup>8</sup> Although SOEs account for nearly a third of China's industrial assets, they contribute less than a fifth of total industrial profits. Return on assets (ROA), a standard measure of how efficiently a company generates profits from its assets, was only 3.0% for SOEs compared with 6.7% for private firms in China as of the second quarter of 2020.<sup>9</sup> Approximately one quarter (by assets) or more than one third (by number) of Chinese SOEs are loss-making.<sup>10</sup> SOE debt as a percentage of GDP

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<sup>4</sup> For estimates of SOEs' contribution to China's GDP, see Andrew Batson, “The State Never Retreats,” Gavekal Dragonomics, October 2020 and Chunlin Zhang, “How Much Do SOEs Contribute to China's GDP and Employment?” (Washington DC: World Bank, 2019).

<sup>5</sup> Fiscal Monitor – April 2020,” Online Annex 3.1. “China: State-Owned Enterprises Remain Key Players,” International Monetary Fund (IMF), April 2020, <https://www.imf.org/en/Publications/FM/Issues/2020/04/06/fiscalmonitor-april-2020#Chapter%203>.

<sup>6</sup> Daniel H. Rosen, Wendy Leutert, and Shan Guo, Missing Link: Corporate Governance in China's State Sector (San Francisco: Asia Society, 2018), 9.

<sup>7</sup> 《习近平主持召开中央全面深化改革领导小组第四次会议》 [Xi Jinping Presided over the Fourth Meeting of the Central Leading Group for Comprehensively Deepening Reform], Xinhua, August 18, 2014.

<sup>8</sup> Nicholas R. Lardy, *The State Strikes Back: The End of Economic Reform in China?* (Washington D.C.: Peterson Institute for International Economics, 2019).

<sup>9</sup> Rhodium Group and Asia Society Policy Institute, “China Dashboard: State-Owned Enterprise Policy Reform,” Winter 2021, <https://chinadashboard.gist.asiasociety.org/winter-2021/page/state-owned-enterprise>.

<sup>10</sup> “Fiscal Monitor – April 2020,” Online Annex 3.1. “China: State-Owned Enterprises Remain Key Players,” International Monetary Fund (IMF), April 2020, <https://www.imf.org/en/Publications/FM/Issues/2020/04/06/fiscalmonitor-april-2020#Chapter%203>.

soared to a record high of more than 142% in 2020.<sup>11</sup> SOEs' large role in China's development model thus entails high economic costs in terms of efficiency and profitability.

China's leadership remains firmly committed to SOEs because they serve numerous strategic functions for the state. SOEs support stability by providing urban employment and social welfare, and by maintaining low prices for key inputs. They serve a redistributive function sub-nationally by channeling investment to develop infrastructure in poorer interior provinces.<sup>12</sup> China's government routinely leverages SOEs to respond to economic, political, and social crises like stock market volatility, protests, pandemics, and natural disasters.<sup>13</sup> In addition, SOEs advance Chinese industrial policy by directing capital to develop targeted technologies like Ultra-High Voltage (UHV) power grids and sectors like aerospace. SOEs also play a leading role in domestic and international initiatives, such as the domestic anti-poverty campaign and the Belt and Road Initiative (BRI).

SOEs also play a crucial role in China's low-carbon transition trajectory. On the one hand, China is the world's largest national producer and consumer of coal and the biggest emitter of greenhouse gases. SOEs, which are responsible for roughly half of the country's CO<sub>2</sub> emissions, drive carbon-intensive sectors such as fossil fuels, petrochemicals, steel, and electricity.<sup>14</sup> On the other hand, China is the world's largest and fastest-growing investor in renewable energy.<sup>15</sup> Among these, the power sector—which central SOEs dominate—is both the largest contributor to China's energy-related CO<sub>2</sub> emissions as well as the primary driver of renewable energy development. As a result, central SOEs in the power sector are the most critical actors on the front lines of the country's transition efforts.

Among China's SOEs, central SOEs are the largest and most strategically important. SASAC, as a special commission of the State Council, administers a portfolio of 100 non-financial firms.<sup>16</sup> These central SOEs include both "core" firms (重要骨干国有企业)—the biggest and most strategically important companies, which often operate in protected sectors, and whose

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<sup>11</sup> Karen Yeung, "China Debt: Highly-Leveraged State Firms Could Threaten 'Efficient Growth,' Private Investment Post-Pandemic," *South China Morning Post*, February 8, 2021.

<sup>12</sup> Andrew Batson, "The State of the State Sector," *Gavekal Dragonomics*, March 2017.

<sup>13</sup> 《国有资产监督管理委员会》[SASAC]: 《国资委采取有力措施维护股票市场稳定》[SASAC Takes Effective Measures to Safeguard Stock Market Stability], 8 July 2015; Keith Zhai, "Exclusive: China Prods State Firms to Boost Investment in Crisis-Hit Hong Kong – Sources," *Reuters*, September 12, 2019; 《国有资产监督管理委员会》[SASAC]: 《央企战疫图鉴》[Illustrated Compendium of Central SOEs' War Against the Epidemic], April 24, 2020.

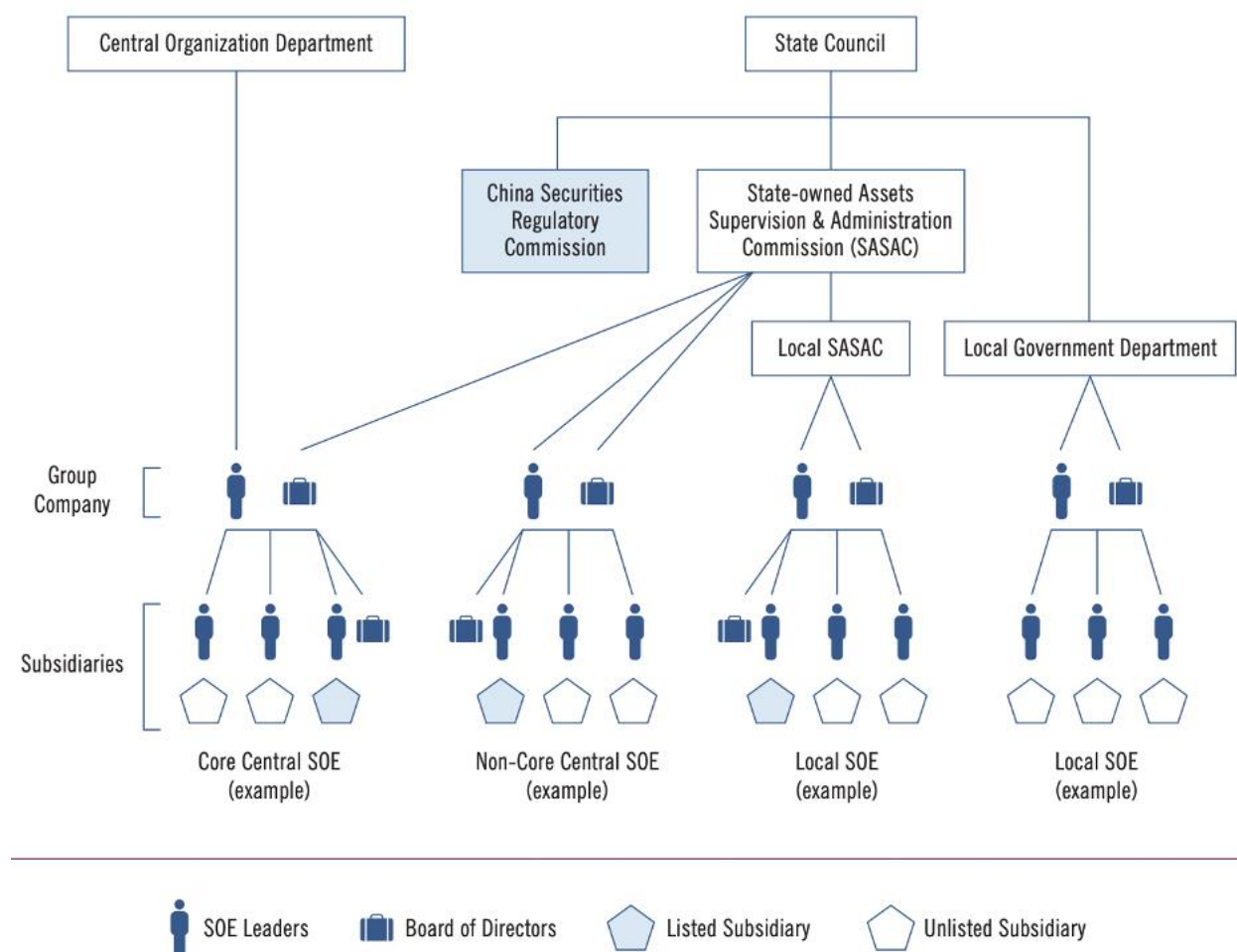
<sup>14</sup> Alex Clark and Philippe Benoit, "Greenhouse Gas Emissions from State-Owned Enterprises: A Preliminary Inventory," (2022), <https://www.energypolicy.columbia.edu/publications/greenhouse-gas-emissions-state-owned-enterprises-preliminary-inventory/>.

<sup>15</sup> Renewable Energy Progress Tracker (IEA, 2025), <https://www.iea.org/data-and-statistics/data-tools/renewable-energy-progress-tracker>

<sup>16</sup> 《国务院国有资产监督管理委员会》[SASAC], 《央企名录》[Central SOE List], July 29, 2025, <http://www.sasac.gov.cn/n2588045/n27271785/n27271792/index.html>.

leaders have vice-ministerial level rank (副部级) equivalent.<sup>17</sup> Core central SOEs include some of China's best-known companies, such as State Grid, Sinopec, and China Mobile. The other type of central SOEs are "non-core" firms with department-level rank (正厅级) equivalent, and which vary in size and level of industry competition. The Central Organization Department (COD) exercises personnel authority for the leaders of core central SOEs, together with higher-level Party bodies; SASAC has personnel authority for the leaders of non-core central SOEs (see Figure 1).

**Figure 1: Personnel Authority over SOE Leaders in China's Administrative Hierarchy**



Source: Daniel H. Rosen, Wendy Leutert, and Shan Guo, *Missing Link: Corporate Governance in China's State Sector* (San Francisco: Asia Society, 2018)

Central SOEs are typically structured as large, partially-privatized enterprise groups (企业集团). At the apex of each enterprise group is a group company (集团公司), an administrative entity

<sup>17</sup> A few such leaders hold a higher rank by virtue of their previous positions, but such cases are rare. Wendy Leutert, "The Political Mobility of China's Central State-Owned Enterprise Leaders," *The China Quarterly* 233 (2018): 5.

which is typically wholly owned by SASAC or a local SASAC or government body. Below the group company are hundreds of subsidiaries, including publicly listed firms, joint venture firms, finance companies, and research and design institutes. This corporate structure is not atypical for multinational corporations of similar size and scope; however, the rapid growth of Chinese state-owned enterprise groups is notable. The average number of central SOE group subsidiaries more than doubled from 82 in 2003 to 191 in 2010<sup>18</sup>, then doubled again to 408 in 2016.<sup>19</sup> Each of these subsidiary entities may in turn have additional subsidiaries or hold shares in other such subsidiary entities.<sup>20</sup>

China's power sector policies aim at low-carbon transition while simultaneously attempting to reconcile energy security, economic efficiency, and political control objectives. In the most recent round of reform, the CCP Central Committee and the State Council issued a top-level directive in 2015 to tackle the sector's growing challenges of overcapacity, dispatch inefficiencies, and renewable energy integration.<sup>21</sup> This marked a shift from earlier structural reforms—such as mergers and ownership changes of state-owned assets—toward Party-led, performance-based improvements focused on governance, incentives, and regulatory capacity. The National Development and Reform Commission (NDRC) and the National Energy Administration issued a series of implementing documents promoting renewable energy priority dispatch, interprovincial power trading, electricity spot market pilots, and green power trading.<sup>22</sup> However, policy implementation has remained uneven because of local protectionism, some SOE resistance, and conflicting market and political objectives.<sup>23</sup>

Central SOEs dominate the power sector and are active in power generation, transmission, and construction. The largest central SOEs in power generation are commonly referred to as the “Big Five” and the “Small Four.”<sup>24</sup> In addition, several other central SOEs maintain substantial

<sup>18</sup> Chang-Tai Hsieh and Zheng (Michael) Song, “Grasp the Large, Let Go of the Small: The Transformation of the State Sector in China,” *Brookings Papers on Economic Activity* (Washington, DC: Brookings Institution, 2015): 340.

<sup>19</sup> Kasper Ingeman Beck, “Party-Led Financialised Governance: A New Governance System in the Chinese State-Owned Sector.” Working paper (2022), available at: [https://www.researchgate.net/publication/367656096\\_Party-Led\\_Financialised\\_Governance\\_A\\_new\\_governance\\_system\\_in\\_the\\_Chinese\\_state-owned\\_sector](https://www.researchgate.net/publication/367656096_Party-Led_Financialised_Governance_A_new_governance_system_in_the_Chinese_state-owned_sector)

<sup>20</sup> Li-wen Lin and Curtis J. Milhaupt, “We Are the (National) Champions: Understanding the Mechanisms of State Capitalism in China,” *Stanford Law Review* 65, no. 4 (2013): 697–759.

<sup>21</sup> 中共中央办公厅、国务院 [General Office of the CCP Central Committee & State Council]. (2015年3月15日). 《中共中央、国务院关于进一步深化电力体制改革的若干意见》 [Opinions on Further Deepening the Reform of the Power System] (中发〔2015〕9号).

<sup>22</sup> 国家发展改革委、国家能源局 [National Development and Reform Commission & National Energy Administration]. (2015年11月30日). 《关于印发电力体制改革配套文件的通知》 [Notice on Issuing Supporting Documents for Power Sector Reform] (发改经体〔2015〕2752号).

<sup>23</sup> For example, dispatch priority for renewables is inconsistently enforced, especially in areas where coal remains dominant or to deliver energy security goals. Yi-chong Xu, “Reforming China's Electricity Industry: National Aspiration, Bureaucratic Empires, Local Interests,” in Jean-Michel Glachant and Paul L. Joskow, eds., *Handbook on Electricity Regulation* (Cheltenham: Edward Elgar Publishing, 2021), 289-303.

<sup>24</sup> “五大四小”. The original “Big Five” included China Huaneng Group (华能集团), China Datang Corporation (大唐集团), China Huadian Corporation (华电集团), China Guodian Corporation (国电集团), State Power Investment Corporation (国家电投). In 2017, China Guodian Corporation merged with Shenhua Group (神华集团) - the leading coal producer in China - to form China Energy (国家能源集团). This new entity replaced China Guodian Corporation

power generation businesses, including China National Nuclear Corporation, China Energy Conservation and Environmental Protection Group (CECEP), and Power Construction Corporation of China (PowerChina).<sup>25</sup> Most of these companies also rank among the largest coal power producers in China and globally. China Three Gorges Corporation is the country's largest hydropower company, while China General Nuclear Power Corporation (CGN) and China National Nuclear Corporation are the leading nuclear power companies. In addition, two central SOEs, State Grid and the China Southern Power Grid Company, control the majority of power transmission nationally. PowerChina and China Energy Engineering Corporation are the leading central SOEs in power infrastructure construction.<sup>26</sup>

Although power generation central SOEs lead coal power investment in China, they are also the largest investors in renewable energy, both domestically and globally. Central SOEs have led China's rapid renewable energy growth, dominating wind power deployment for the past two decades and increasingly expanding into the solar power market. Twelve central SOEs, including the "Big Five" and "Small Four" firms, have driven the country's renewable energy investment, collectively owning 50% of the country's total wind and solar installed capacity in 2022 (Figure 2). The other three central SOEs shown below have also been pioneers and key players in wind and solar power development.

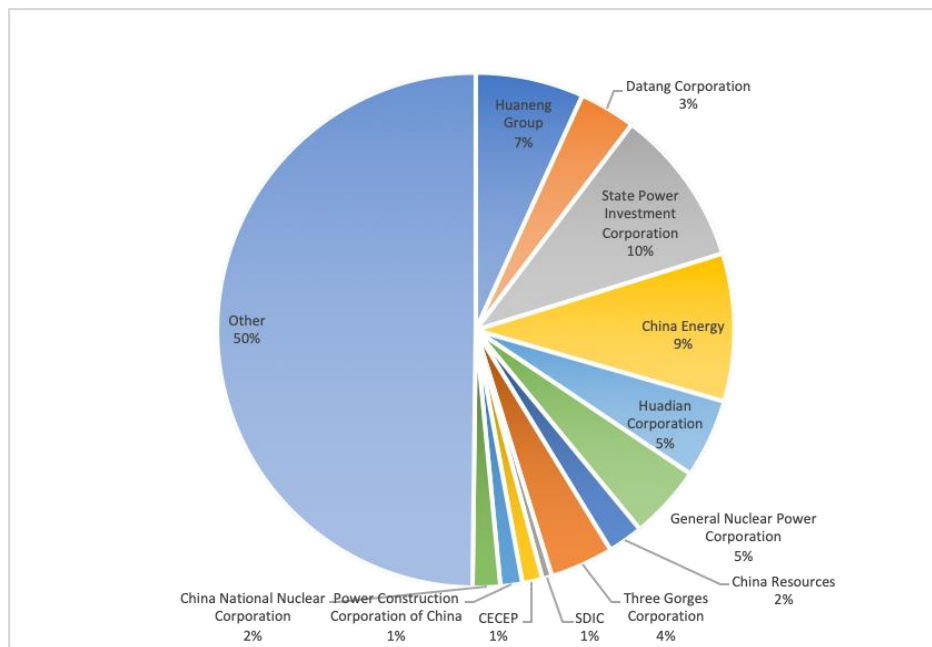
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as one of the new 'Big Five' and became the largest power company in China. The "Small Four" usually refer to China Resources (华润集团), State Development and Investment Corporation (SDIC) (国家开发投资集团), China General Nuclear Power Corporation (CGN) (中广核), China Three Gorges Corporation (三峡集团).

<sup>25</sup> China Energy Conservation and Environmental Protection Group (CECEP) (中节能); China National Nuclear Corporation (中核集团); Power Construction Corporation of China (中国电建).

<sup>26</sup> State Grid (国家电网); China Southern Power Grid Company (中国南方电网); Power Construction Corporation of China (中国电建); China Energy Engineering Corporation (中能建).

**Figure 2: Market Share of the Major Power Central SOEs in Wind and Solar Installed Capacity, 2022**



\*CECEP = China Energy Conservation and Environmental Protection Group

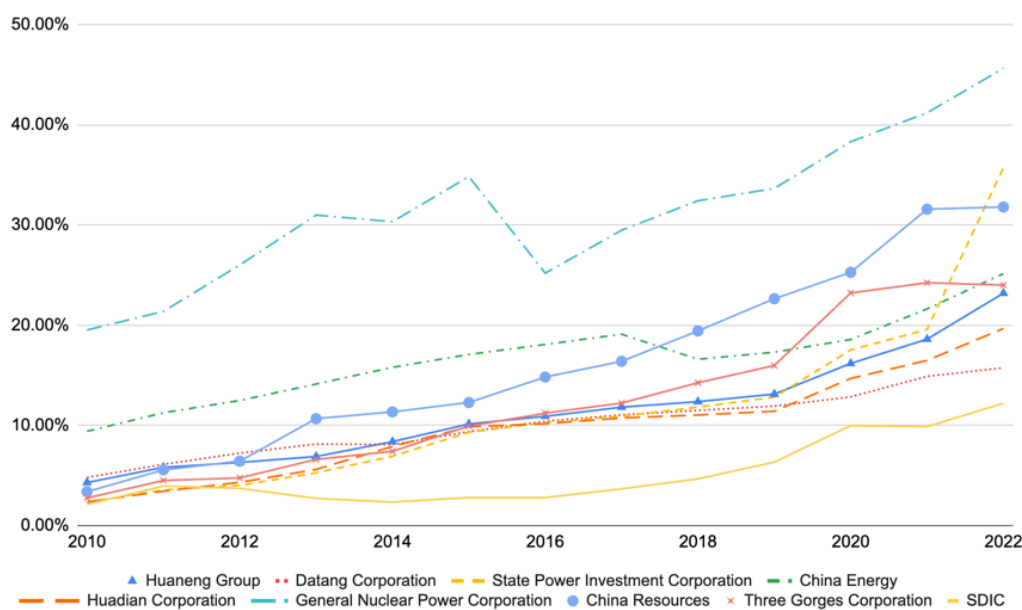
\*\*SDIC = State Development and Investment Corporation

Source: Data compiled by Mengye Zhu from public and proprietary sources

Central SOEs' renewable energy investments have played a key role in driving decarbonization in China's power sector. As a result, China has made significant progress in renewable energy (see Figure 3), achieving a globally recognized "miracle" by growing from near zero in the early 2000s to over 40% of global installed capacity in both wind and solar by 2023. In 2023 alone, China contributed more than 60% of the newly installed global capacity in each of these two sectors. The share of China's coal power installed capacity declined sharply, from over 70% in 2010 to less than 40% by the end of 2023.<sup>27</sup>

<sup>27</sup> "2024 Statistical Review of World Energy Data," Energy Institute, (2024).

**Figure 3: “Big Five” and “Small Four” Central SOE Share of Installed Capacity for Wind and Solar in Total Installed Capacity, 2010-2022**



Source: Data compiled by Mengye Zhu from public and proprietary sources

### Cadre Management System

The CCP governs officials in China, including central SOE leaders, through the cadre management system. Party leaders have long used this system as an institutional mechanism to direct official behavior and integrate the governance of localities and SOEs.<sup>28</sup> In practical terms, the CCP controls officials' career trajectories through the cadre management system by determining their appointment, assessment, transfer, and dismissal. Officials are tasked with achieving multiple targets, the most important of which is economic performance, while simultaneously avoiding other “veto” targets, like major industrial accidents.<sup>29</sup> In theory, the cadre management system aligns Chinese officials' individual career incentives with the Party center's priorities using a combination of carrots (political advancement) and sticks (sanctions).

<sup>28</sup> Kjeld Erik Brødsgaard, “Politics and Business Group Formation in China: The Party in Control?”, *The China Quarterly* 211 (2012): 624–648; Kjeld Erik Brødsgaard, and Kasper Ingeman Beck, “Big Business and Cadre Management in China,” *Copenhagen Journal of Asian Studies* 39, no. 2 (2021): 53-76; John P. Burns, *The Chinese Communist Party's Nomenklatura System: A Documentary Study of Party Control of Leadership Selection, 1979–1984* (Armonk, NY: M.E. Sharpe, 1989); Yasheng Huang, *Selling China: Foreign Direct Investment During the Reform Era* (New York: Cambridge University Press, 2003); Pierre F. Landry, *Decentralized Authoritarianism in China: The Communist Party's Control of Local Elites in the Post-Mao Era* (New York: Cambridge University Press, 2008); Chen Li, “Holding ‘China Inc.’ Together: The CCP and the Rise of China's Yangqi,” *The China Quarterly* 288 (2016): 927–949; Hongbin Li, and Li-An Zhou, “Political Turnover and Economic Performance: The Incentive Role of Personnel Control in China,” *Journal of Public Economics* 89 (2005): 1743-1762.

<sup>29</sup> Ning Leng and Cai (Vera) Zuo, “Tournament Style Bargaining within Boundaries: Setting Targets in China's Cadre Evaluation System.,” *Journal of Contemporary China* 31, no. 133 (2022): 116–35.

Within this system, central SOE leaders possess limited yet significant autonomy. This autonomy originates in the discretion built into the cadre management system itself, the decentralization of authority and “subcontracting” among different levels of the Chinese bureaucracy, and at times deliberate policy ambiguity and uncertainty.<sup>30</sup> For some, personal ties or *guanxi* (关系) with superiors and allies may also increase their room for maneuver. Since 2012, the Chinese leadership’s combination of limited economic liberalization with increased political control has reshaped SOE leader autonomy. On the one hand, mixed ownership and state capital management reforms have given SOE leaders expanded resources and authority for commercial decision-making.<sup>31</sup> The State Council has continued to formally devolve new powers to SOEs, explicitly confirming their leaders’ autonomy to set strategies and to restructure their companies.<sup>32</sup> However, the Party state can still leverage its power over SOE leaders’ careers to influence their decision-making and firm behavior. In addition to assigning annual performance grades (from “A” to “E”) based on financial performance, SASAC evaluates the heads of SOEs in strategic sectors using non-market criteria such as alignment with national strategy, contributions to national security, and implementation of key state projects.

From a corporate governance perspective, studying SOE leaders is critical to understanding how central SOEs operate and behave at all levels. This is because the leadership at the group company level controls the entire enterprise group. The board chairman of a central SOE’s group company also frequently chairs the boards of its main subsidiaries, including listed firms. This leadership overlap between the group company and its key subsidiaries ensures that the group company remains both majority shareholder and main controller.<sup>33</sup> Furthermore, SOE executive decision-making is only minimally constrained by the board of directors. Formally, the board has the authority to convene general shareholders’ meetings, implement their resolutions, approve company budgets and major investments, determine public disclosures to shareholders, and establish special committees to handle matters like strategy and auditing. However, Chinese SOE boards lack authority to perform important functions like senior personnel selection, standard setting, assessment, and compensation. In reality, boards of directors in Chinese SOEs thus remain relatively weak.

SOE leaders are consequential actors in their firms’ and China’s low-carbon transitions, yet they remain under-examined. As both bureaucrats and businesspeople, they operate at the intersection of state goals and firm-level interests. They help determine whether, how, and when companies respond to government policies and targets. Specifically, they can shape company-level strategies, timeframes, and actions to advance, delay, or resist low-carbon

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<sup>30</sup> Wendy Leutert, *China’s State-Owned Enterprises: Leadership, Reform, and Internationalization* (Cambridge, MA: Cambridge University Press, 2024).

<sup>31</sup> The mixed ownership reform enables leaders to harness private capital while ceding little authority to new shareholders. The state capital management reform entails less direct state interference in firm activities, particularly decisions about investments and resource allocation.

<sup>32</sup> 国资委 [SASAC]: 《国务院国资委授权放权清单(2019年版)》 [List of Authorized Powers Delegated to SASAC by the State Council (2019 Version)], June 5, 2019, <http://www.sasac.gov.cn/n2588035/c11424862/content.html>.

<sup>33</sup> Daniel H. Rosen, Wendy Leutert, and Shan Guo, *Missing Link: Corporate Governance in China’s State Sector* (San Francisco: Asia Society, 2018).

policy mandates. Yet despite the significant role SOE leaders play in shaping implementation and outcomes, they remain peripheral in current analyses of China's low-carbon transition, which have instead focused on topics including macro-level policy design, industry trends, subnational developments, and comparative analyses. Even case studies of individual central Chinese SOEs in the power sector have tended to under-examine potential leadership effects.<sup>34</sup>

## Data and Key Factors

### *China Power Sector Central SOE Leader Dataset*

This paper uses an original dataset<sup>35</sup> to analyze the individual attributes and career trajectories for all of the top leaders of 21 central SOEs in the power sector between 2003-2022 (see [Appendix 1 for a list of power sector central SOEs analyzed](#)).<sup>36</sup> It is comprised of manually collected and coded data on the personal backgrounds and career trajectories for 92 individuals, yielding a total of 601 leader-year observations.<sup>37</sup> The *China Power Sector Central SOE Leader Dataset* also contains information about firm- and industry-level factors, such as changes in the frequency of joint Party and managerial appointments for SOE leaders, and patterns in leadership rotation and intra-industry executive swaps. It further examines the political integration and connectedness of central SOEs in the power sector and their leaders, for instance through SOE leaders' concurrent appointments with external Party and government bodies and work history-based personal ties with the current national leadership. The start date of 2003 is chosen to coincide with the establishment of SASAC; the end date of 2022 is selected because this was the final year of the first term of top leader Xi Jinping (2017-2022). This section introduces the variables used in the study and describes why they were included and how they were measured.

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<sup>34</sup> Michael R. Davidson, "Low-Carbon Transition Planning in China's Coal and Power SOEs: Case of China Energy" (2022), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4124504](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4124504).

<sup>35</sup> This dataset was compiled through online research and manual coding by two researchers at the University of Maryland and Indiana University, who worked independently and in parallel. Sources included official CVs (from company websites and other public sites), media reports, and other online materials. Discrepancies between coders were adjudicated by a third University of Maryland researcher. The two authors maintained regular communication with the research team, providing oversight and feedback throughout the process.

<sup>36</sup> These 21 companies include several firms that merged together to create new central SOEs or which were merged into existing central SOEs during this period. Sinohydro Group (中国水电建设集团公司) merged with Hydropower Engineering Consulting Group (HydroChina, 中国水电顾问集团公司) to create PowerChina (中国电力建设集团有限公司) in 2011; China Power Investment Corporation (中国电力投资集团公司) merged with State Nuclear Power Technology Corporation (国家核电技术公司) to create State Power Investment Corporation (国家电力投资集团有限公司) in 2015; China Guodian Corporation (中国国电集团公司) and Shenhua Group Corporation Limited (神华集团有限责任公司) merged to form China Energy Investment Corporation (国家能源投资集团有限公司) in 2017; China Nuclear Engineering Group Corporation (中国核工业建设集团公司) was absorbed into China National Nuclear Corporation (中国核工业集团有限公司) in 2019.

<sup>37</sup> "Top leaders" are defined as the individuals serving in one or more of the following positions: Party secretary (党委书记); chairman of the board of directors(董事长); and general manager (总经理).

### *Individual-level Factors*

Age is an important individual-level attribute affecting SOE leaders' decision-making and incentives because Chinese officials have mandatory retirement ages. For the heads of central SOEs of both vice-ministerial and departmental rank equivalence, the mandatory retirement age is 60 years of age.<sup>38</sup> The tendency of some officials approaching retirement age to engage in risky investment behavior with short-term time horizons in pursuit of a final promotion is popularly known in China as the “58 phenomenon” (58 现象) or the “59 phenomenon” (59 现象).<sup>39</sup> Conversely, other officials nearing retirement may opt for conservative behavior or even inaction to attempt to minimize risk during their final years in office.

Educational background is another key factor affecting executive decision-making. In China's state sector, education can reflect technocratic competence, alignment with national policy priorities, and political loyalty—all of which may shape executive decision-making. SOE leaders with technical or business management degrees may tend to place greater priority on corporate innovation or efficiency than those without such training. Education is measured in this study as an individual's highest scholarly attainment: high school education, undergraduate degree, master's degree (MA), or doctoral degree (Ph.D.). Separate measures are also reported for master's or doctoral degrees in management and in technical fields, specifically engineering (工科) or a hard science (理科).<sup>40</sup>

This paper also considers SOE leaders' previous full-time work experience in government or Party organs at central and local levels. In theory, having previous work experience in central government could enable SOE leaders to cultivate informal connections that could theoretically make them more responsive to, and likely to implement, central policies.<sup>41</sup> Local-level experience may foster officials' cooperation with subnational actors and ability to navigate implementation dynamics, and it frequently serves as a stepping stone to future political advancement. For central SOE leaders, however, work experience at the central level may have less impact than for local officials. Unlike local officials, who are distant from the heart of political power in Beijing, most central SOEs are headquartered in the capital and their leaders interact routinely with central-level government and Party authorities.<sup>42</sup>

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<sup>38</sup> According to a regulatory order that SASAC issued in 2004 affirming age limits for officials originally set forth in the 1982 Constitution of the People's Republic of China.

<sup>39</sup> 国资委 [SASAC] (2012). 《探索与研究：国有资产监督管理和国有企业改革研究报告》 [Exploration and Research: State-owned Assets Supervision and Management and SOE Reform Research Report] (北京 [Beijing]: 经济出版社 [Economic Publishing House], 2012).

<sup>40</sup> In considering an official's highest educational attainment, MBA and Ph.D. degrees in management are measured and reported separately. This is because work done by executive students for such degrees might be completed remotely, may be evaluated according to lower standards, and in some cases may even be done by proxy.

<sup>41</sup> Yasheng Huang, *Inflation and Investment Controls in China: The Political Economy of Central-Local Relations During the Reform Era* (New York: Cambridge University Press, 1999); Yumin Sheng, *Economic Openness and Territorial Politics in China* (New York: Cambridge University Press, 2010).

<sup>42</sup> Wendy Leutert, “The Political Mobility of China's Central State-Owned Enterprise Leaders,” *The China Quarterly* 233 (2018): 7-8.

In addition, this study examines the total number of years that an executive worked in a given power sector central SOE before assuming a leadership position there. On the one hand, long-serving executives in a single state firm may be less likely to advance after their leadership tenure—and therefore to actively implement policies that could negatively affect other company goals, like economic performance—because they are viewed as having narrow professional expertise and experience specific to that company or industry. On the other hand, executives who climbed to the top of their companies over a period of years, even decades, may be experienced leaders who are well-suited to implement policies involving difficult trade-offs.

Leadership tenure is also included as a standard factor in analyses of Chinese officials.<sup>43</sup> A longer leadership tenure may be a strategic asset that signals depth of leadership experience—or it may imply a lack of ability or indicate that one is coasting to retirement. Leadership tenure is defined in this paper as the total number of years that an individual serves in one or more of the top three leadership roles in a given central SOE. It includes both joint appointments (in which a single individual holds one or more top leadership roles simultaneously) and consecutive top leadership roles (if a single individual serves consecutively in different top leadership roles or combinations of those roles). There is no fixed term limit for central SOE leaders, in contrast to other Party and government officials who do face formal term limits.<sup>44</sup>

This study analyzes political mobility outcomes for central SOE leaders based on their immediate next appointment. An individual is considered still in position if he has not yet been appointed to a subsequent post during a given calendar year. Termination occurs if retirement is stated explicitly as the reason for exit, which constitutes the vast majority of cases, or if an individual takes up a so-called empty position (虚职) or “retires internally” (内退), for example by serving as a lead engineer in his company but no longer holding a formal leadership position. Publicly reported cases of disciplinary investigations or violations, such as corruption, are also categorized as terminations, because the use of forced retirement as a disciplinary measure makes it difficult to clearly distinguish them.<sup>45</sup> Other possible political mobility outcomes for central SOE leaders include transfer to another SOE, to local government, to central government, or other appointments. These variables also provide useful context for the subsequent discussion of leadership orientations, helping illustrate how individual characteristics may differ across ‘champions,’ ‘mediators,’ and ‘skeptics.’

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<sup>43</sup> Eun Kyong Choi, “Patronage and Performance: Factors in the Political Mobility of Provincial Leaders in Post-Deng China,” *The China Quarterly* 212 (2012): 965–981; Gang Guo, “Retrospective Economic Accountability Under Authoritarianism: Evidence from China,” *Political Research Quarterly* 60, no. 3 (2007): 378–390. Hongbin Li, and Li-An Zhou, “Political Turnover and Economic Performance: The Incentive Role of Personnel Control in China,” *Journal of Public Economics* 89 (2005): 1743–1762.

<sup>44</sup> On the issue of term limits in the core central SOEs with vice-ministerial rank equivalence, see 中共中央组织, 干部五局 [Organization Department of the Central Committee of the Chinese Communist Party, Cadre Fifth Office], 《国有重要骨干企业领导人员任期目标和考核评价指标体系研究》 [Research on State-Owned Important Backbone Enterprises Leaders Term Goals and Evaluation and Assessment Measures System] (北京 [Beijing]: 党建读物出版社 [Dangjian Duwu Publishing House], 2003).

<sup>45</sup> A separate measure for corruption cases is also included and reported; however, it is based only on publicly available information and may therefore be incomplete.

### *Firm- and Industry-Level Factors*

Joint appointments occur when a single individual holds two or more top leadership roles simultaneously.<sup>46</sup> Joint appointments for managerial and CCP roles, such as the board chairman-Party secretary pairing, are a long-standing practice across China's political system.<sup>47</sup> These appointments function to centralize authority because consolidating decision-making power in the hands of fewer individuals, or even a single individual, shortens the chain of command between the Party-state and central SOEs. This reduces the number of organization-level veto points to superiors' directives. Combining top managerial and Party positions effectively blurs the boundaries between political affairs and commercial management, thereby limiting SOE leader autonomy. Analyzing joint appointments can thus offer insight into SOE governance, with higher incidence of joint appointments indicating a higher degree of centralized authority.

The CCP routinely appoints central SOE leaders in the power sector to directly head other SOEs inside and outside of the industry. Intra-industry leadership transfers act as a way for the CCP to promote policy consistency, coordinate policy implementation, and replicate successful practices. Leadership transfers accomplish this by facilitating the diffusion of sector-specific expertise and proven governance models across central SOEs. In particular, intra-industry leadership swaps can aid the process of mergers and coordinating implementation across state firms responding to similar policy mandates, such as carbon reduction or excess capacity reduction. At the firm level, leader transfers can also support executive retirement or leadership transitions by positioning successors. They can further reduce discord among top leaders by shaking up the executive lineup, or repositioning a leader deemed unsuitable for a particular firm while minimizing disruption. Furthermore, such moves can act as a prelude to formal inspections or disciplinary audits, strategically relocating leaders to allow investigations in their home firms to proceed with less interference.

Inter-industry leadership rotations, in contrast, often serve broader political and developmental objectives within the cadre management system. In theory, cross-sector transfers are designed to cultivate generalist officials with wide-ranging governance experience, grooming them for higher-level positions. Inter-industry swaps can therefore signal political trust and are often precursors to future promotions. Like intra-industry rotations, these moves can also break up vested interests in a given firm or function as pre-inspection shuffles, distancing a leader from their original base of operations prior to audits or disciplinary action. In this way, cross-industry SOE leader transfers are both a tool for upward mobility and for political discipline, reflecting the CCP's dual emphasis on performance and control in the state sector. They can also similarly function as a tool for preparing successors and managing retirement transitions.

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<sup>46</sup> There are four possible types of joint appointments combining the top three executive positions: general manager-Party secretary, board chairman-Party secretary, general manager-board chairman, and general manager-Party secretary-board chairman.

<sup>47</sup> On the principle of "two-way entry, overlapping position holding" (双向进入, 交叉任职) guiding this practice, see 张卓元 [Zhang Zhuoyuan], 《以完善为主题推进市场经济体制建设》 [Improving the Market Economy System as the Main Theme], 《内部参阅》 [Internal Reference Materials], vol. 47, no. 691, December 12, 2003.

### *Political Integration and Connectedness*

Concurrent appointments occur when SOE leaders simultaneously hold positions in external Party and government bodies during their executive tenures. Concurrent appointments combining government and Party roles are a widespread phenomenon across the Chinese bureaucracy. They function as a primary means of fusing the CCP and government apparatuses. The frequency and type of concurrent appointments for SOE leaders can thus be treated as one possible measure of the degree and nature of political integration for the state sector—and for central SOEs in the power sector specifically. This study examines possible joint appointments across a wide range of central- and local-level government and CCP organizations.<sup>48</sup>

Political connectedness is another potential determinant of SOE executive and firm behavior. In systems like China where the management of SOEs is highly integrated with the political system and ruling elites, political connectedness may affect personnel selection and behavior. Patrons are incentivized to keep “their people” in the game longer, benefiting from networks creating a pool of political allies, whereas “clients” may be incentivized to respond to their patrons’ interests and priorities.<sup>49</sup> Multiple studies have found that political connectedness improves officials’ career prospects in China.<sup>50</sup> Measures of political connectedness vary and include birthplace networks, occupational proximity (defined as work and military experience in the same place at the same time), co-worker networks, and patronage ties.<sup>51</sup> Elite factions linked to China’s top national leadership may be particularly politically salient, especially for central-level officials like central SOE leaders.<sup>52</sup>

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<sup>48</sup> Specifically, they include: specifically including: delegates of the National People’s Congress (全国人民代表大会代表), members of the National Committee of the Chinese People’s Political Consultative Conference (CPPCC, 全国政协委员), full and alternate members of the Central Committee of the Chinese Communist Party (中国共产党中央委员会委员/候补委员) across its 16th through 20th terms, members of the Central Commission for Discipline Inspection (中国共产党中央纪律检查委员会委员) during those same terms, and delegates to the 16th through 18th National Party Congresses (中国共产党全国代表大会代表); at the subnational level, delegates to provincial People’s Congresses (省级人民代表大会代表), and members of provincial CPPCC committees (省政协委员).

<sup>49</sup> Franziska Barbara Keller, “Moving Beyond Factions: Using Social Network Analysis to Uncover Patronage Networks Among Chinese Elites,” *Journal of East Asian Studies* 16, no. 1 (2016): 17-41.

<sup>50</sup> Pierre F. Landry, “The Political Management of Mayors in Post-Deng China,” *Copenhagen Journal of Asian Studies* 17 (2003): 31-58; Victor C. Shih, Christopher Adolph, and Mingxing Liu, “Getting Ahead in the Communist Party: Explaining the Advancement of Central Committee Members in China,” *American Political Science Review* 106, no. 1 (2012): 166-187.

<sup>51</sup> Junyan Jiang, “Making Bureaucracy Work: Patronage Networks, Performance Incentives, and Economic Development in China,” *American Journal of Political Science* 62, no. 4 (2018): 982-999; Pierre F. Landry, Xiaobo Lü, and Haiyan Duan, “Does Performance Matter? Evaluating Political Selection Along the Chinese Administrative Ladder,” *Comparative Political Studies* 51, no. 8 (2018): 1074-1105; David Meyer, Victor C. Shih, and Jonghyuk Lee, “Factions of Different Stripes: Gauging the Recruitment Logics of Factions in the Reform Period,” *Journal of East Asian Studies* 16, no. 1 (2016): 43-60.

<sup>52</sup> As a preliminary measure, we therefore assess political connectedness at the level of the top national administration based on occupational proximity: whether or not a given SOE leader had previous work experience in a locality that overlapped with Xi Jinping’s tenure during his political rise. Specifically, Xi served previously in Fujian as Vice Mayor of Xiamen, Party Secretary of Ningde and Fuzhou, and Governor (1985–2002); in Zhejiang as Governor and then Party Secretary (2002–2007); and in Shanghai as Party Secretary (2007).

## Findings and Discussion

### *Individual-level Factors*

Leaders of central SOEs in the power sector have primarily been Han Chinese men in their mid-50s. The average age of central SOE power sector leaders in any given year between 2003 and 2022 was 56.2 years old, which is consistent with expectations that such senior positions are typically held by officials in the final stage of their careers. While the average age rose slightly over time, it remained largely stable across this two-decade period. The youngest serving SOE leader was Qian Zhimin (钱智民), who was only 43 years old in 2003 when he served as the general manager of CGN and was later promoted to chairman and Party secretary in 2005—making him the youngest person ever to head a central SOE in the nuclear power sector.<sup>53</sup> The oldest was Lu Youmei (陆佑楣), who concluded his tenure as the general manager of China Three Gorges in 2003 at the age of 69.

Leaders of central SOEs in the power sector exhibited significant advances in professionalization through education. All of them between 2003 and 2022 had a college education or higher. Of those serving in any given year during this period, 42.9% completed a college degree, 41.7% held a master's degree, and 15.4% had received a Ph.D. This level of educational attainment mirrors that of provincial governors and Party secretaries, and it accords with Party regulations that candidates for positions above the county level should possess a college degree.<sup>54</sup> The proportion of executives in any given year who held master's degrees or higher in engineering or science more than tripled from 15.0% in 2003 to 60.7% in 2022. At the same time, more individuals sought master's degrees in business administration (MBA) and/or Ph.D. degrees in management; the proportion of executives with these qualifications in any given year quadrupled from 10.0% in 2003 to 44.4% in 2022. There was little overlap between those with advanced degrees in science or engineering and those with higher degrees in management.

In these ways, central SOE leaders in the power sector are similar in some ways to other types of central- and local-level Chinese officials. All are typically ethnically Han men in their mid-50s who have exhibited growing professionalization through education over time. The average SOE leaders' educational attainment rose from a college degree to a master's degree between 2003 and 2022, reflecting a common trend across the Chinese bureaucracy. Some SOE executives earned MBA or Ph.D. degrees in management during their leadership tenures, suggesting deliberate efforts to polish their credentials for future promotion—and thus also reflecting increased incentives for professionalization.

Only a small proportion of central SOE leaders in the power sector worked previously in central government positions. Between 2003 and 2022, 24.6% of central SOE leaders in any given

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<sup>53</sup> 《钱智民将调任能源局》 [Qian Zhimin Will be Transferred to the National Energy Administration], 21 世纪网[21<sup>st</sup> Century Business Herald], March 23, 2010.

<sup>54</sup> See clause 7 of 《中央组织部》 [Central Organization Department], 《党政领导干部选拔任用工作条例》 [Regulations on the Selection and Appointment of Leading Party Cadres], July 23, 2002.

year had prior central-level work experience.<sup>55</sup> Since the personnel and assets of some central-level ministries were later restructured to form central SOEs, the proportion of leaders with distinct prior central-level work experiences is likely lower.<sup>56</sup> Among those with previous central-level work experience and for whom detailed career information was available, the vast majority had done fewer than 10 years of such work.

An even smaller proportion of central SOE leaders in the power sector had previous work experience at the local level. Only 11.2% of the central SOE leaders serving in any given year between 2003 and 2022 had such prior professional experience.<sup>57</sup> Moreover, even among those with such a prior record, their local work experience was limited. Out of those who had worked previously locally and for whom career data was available, more than half had worked for a year or less at the local level. Only a handful had worked at the local level for 10 years or longer. Overall, in any given year, most central SOE leaders in the power sector had limited prior work experience at either central or local levels. Table 1 below summarizes these trends.

**Table 1: Previous Central- and Local-Level Work Experience of Power Sector Central SOE Leaders, 2003-2022 (Unit: Leader-Year)**

	No central experience	Central experience	Total
No local experience	389 (69.8%)	106 (19.0%)	495 (88.9%)
Local experience	30 (5.4%)	32 (5.7%)	62 (11.1%)
Total	419 (75.2%)	138 (24.8%)	557 (100.0%)

Source: *China Power Sector Central SOE Leader Dataset, 2003-2022*

A significant proportion of central SOE leaders in the power sector exceeded the mandatory retirement age. Chinese officials of vice-ministerial and departmental rank are required to step down at 60 years old. The average age at termination for central SOE leaders in the power

<sup>55</sup> Take for instance Sun Qin (孙勤), who was Deputy Director of the National Energy Administration and later appointed as chairman of China National Nuclear Corporation (CNNC). Another example is Li Yong'an (李永安), who served as the Vice Chairman of the State Council's Three Gorges Project Construction Committee in 2003 and later became the general manager of the Three Gorges Corporation.

<sup>56</sup> For example, Lu Youmei (陆佑楣) worked previously in the Ministry of Water Resources and Electric Power before becoming the founding general manager of HydroChina.

<sup>57</sup> For instance, Zhang Xiwu (张喜武) started his career in provincial government in his native Liaoning province, serving in multiple positions including as director of Liaoning's Economic and Trade Commission, before later becoming the general manager of Huaneng.

sector between 2003 and 2022 was 62.3 years old, compared with 55.7 years old for in-position executives during this period. Between 2003 and 2022, 17.8% of central SOE leaders in the power sector serving in any given year were 61 years of age or older; this figure peaked in 2016 with 26.8% of serving central SOE leaders being 61 years of age or older.

Relative to other Chinese officials, central SOE leaders in the power sector were far more likely to exceed the mandatory retirement age of 60.<sup>58</sup> They were also much more likely to remain past this mandatory retirement age than their counterparts in central SOEs in other sectors.<sup>59</sup> This suggests that some standard norms of China's cadre management system remain weakly institutionalized in the state sector, and particularly in the power sector. This may be because the CCP prioritizes continuity and stability in executive leadership, particularly in times of policy shifts or sectoral restructuring.<sup>60</sup> It may also be because power sector central SOE leaders have industry-specific technical expertise that is valued and not easily replaced. From an institutional perspective, the high proportion of individuals serving past retirement age, together with the fact that most power sector SOE leaders' posts end in retirement, as discussed below, also means that the prospect of political advancement may be a weaker behavioral incentive for them compared to other Chinese officials.

#### *Firm- and Industry-Level Factors*

Many central SOE leaders in the power sector can be considered "company insiders" because of their prior years of work and longer leadership tenures in their own firms, as well as their limited prior professional experience at central and local levels (see Figure 4). Power sector central SOE leaders serving in any given year between 2003 and 2022 had an average of 8.0 years of previous work experience in their own companies. They also had comparatively lengthy leadership tenures of 4.3 years on average during this period. Long company and leadership tenures make the decisions by central SOE executives in the power industry—and their subsequent implementation efforts, or lack thereof—particularly consequential.

Compared to similar Chinese officials at the local level, central SOE leaders in the power sector had slightly longer average leadership tenures. A power sector SOE leader in a given year between 2003 and 2022 clocked an average of 4.3 years of experience in his top executive position. This is slightly longer than the average leadership tenure of local officials, which has typically averaged less than 4 years in total as estimated by research about provincial governors, mayors, and municipal Party secretaries.<sup>61</sup> Such deep experience working in the

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<sup>58</sup> For example, only one mayor and six municipal Party secretaries exceeded the mandatory retirement age of 60 between 2000 and 2010, constituting approximately 1% of cases. In every year between 2003 and 2012, less than 1% of serving provincial Party secretaries were above the mandatory retirement age of 65; no provincial governors went beyond it during this period. Statistic shared in personal communication with Samantha A. Vortherms, based on Vortherms (2019) and Leutert (2018).

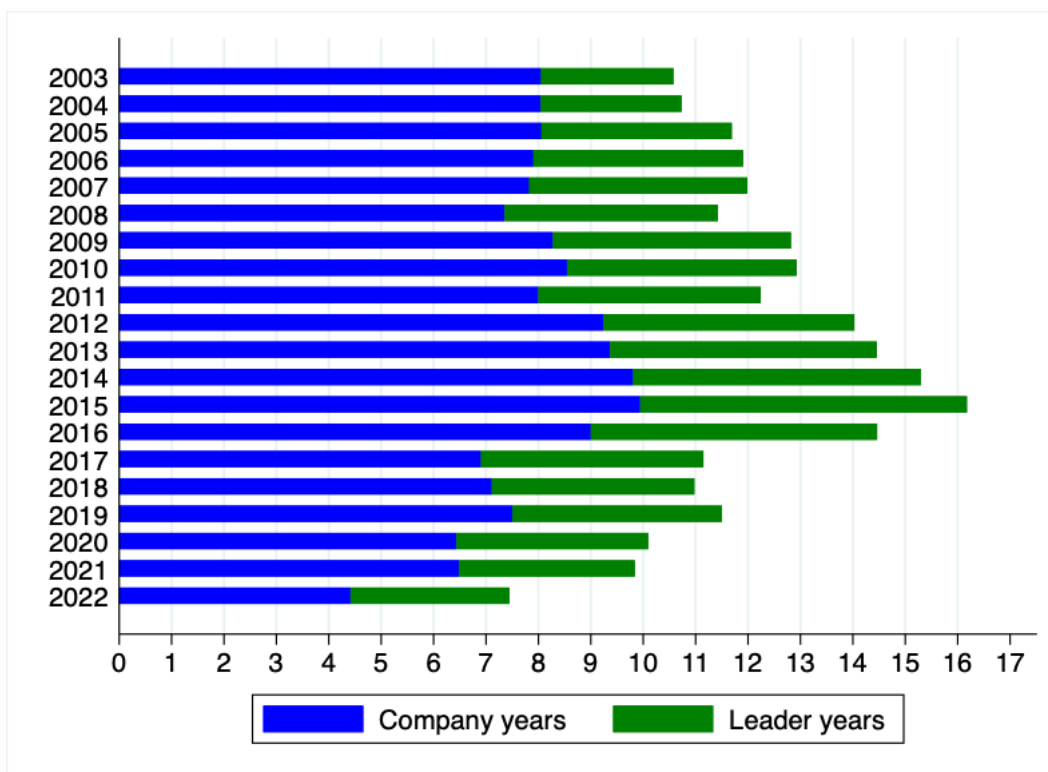
<sup>59</sup> Among all leaders of central SOEs with vice-ministerial rank equivalence serving between 2003 and 2012, 10% per cent exceeded the mandatory retirement age of 60.

<sup>60</sup> The percentage of central SOE leaders in the power sector serving past retirement peaking in 2016, immediately prior to the start of Xi's second term in power (2017-2022), is suggestive evidence in support of this interpretation.

<sup>61</sup> Jie Chen, Danglun Luo, Guoman She, and Qianwei Ying, "Incentive or Selection? A New Investigation of Local Leaders' Political Turnover in China," *Social Science Quarterly*, vol. 98, no. 1 (2017): 341-359; Yue Hou, and Siyao

companies they ultimately lead, together with long leadership tenures, might generate firm-specific knowledge and networks to carry out change; conversely, these factors could also make leaders more beholden to existing networks and interests within the firm.

**Figure 4: Years Worked in Firm Before Leadership and Leadership Tenure, 2003–2022**

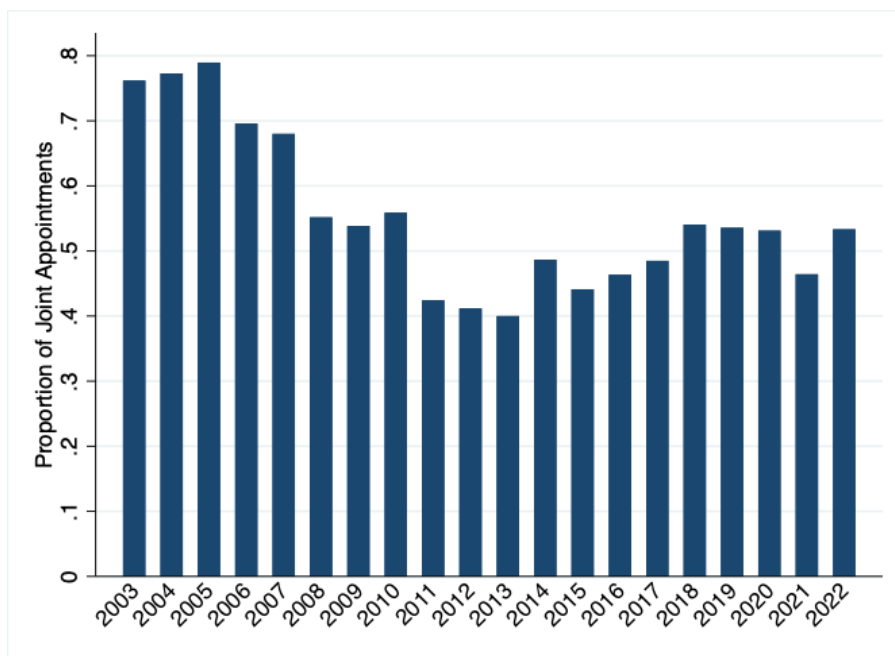


Source: China Power Sector Central SOE Leader Dataset, 2003-2022

Joint appointments, in which one individual held two or more of the top three leadership roles, were common (see Figure 5). Between 2003 and 2022, 53.4% of power sector central SOE leaders in any given year served in two or more top leadership roles. The most common combination of roles during this period was Party secretary-board chairman (33.8%), followed by Party secretary-general manager (17.0%). Other possible combinations of roles—namely, Party secretary-board chairman-general manager (2.7%) or board chairman-general manager (.5%)—were infrequent. Overall, the frequency of joint appointments has trended downward over time, declining from a high of 78.9% for those SOE leaders in office in 2005 (see Figure 6).

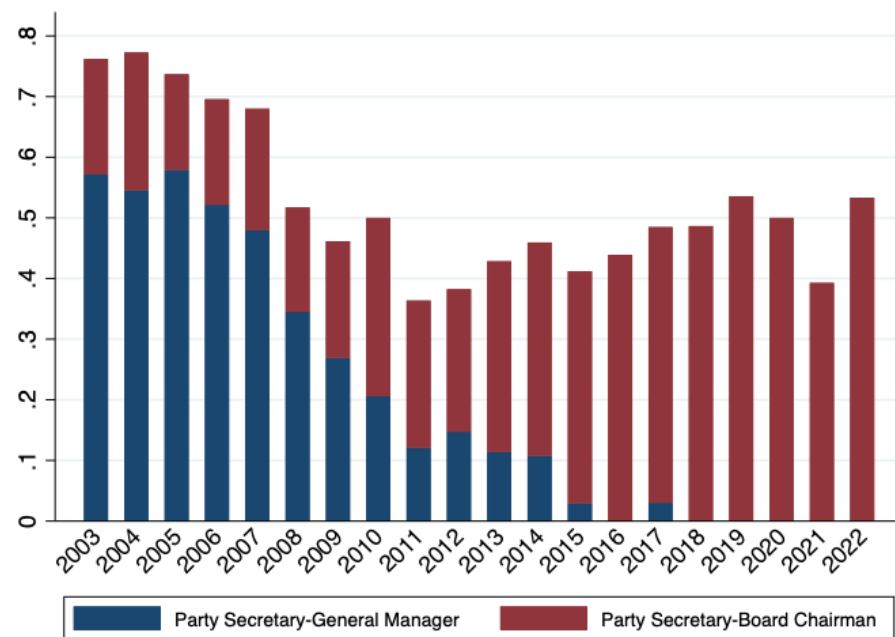
Li, “Stimulated Political Decisions: Local Leadership Turnover and Firm Subsidies in China,” *Political Science Research and Methods* 11, no. 1 (2023): 18-33.

**Figure 5: Proportion of Joint Appointments, 2003–2022**



Source: China Power Sector Central SOE Leader Dataset, 2003-2022

**Figure 6: Proportion of Party Secretary-General Manager and Party-Secretary-Board Chairman Joint Appointments, 2003-2022**



Source: China Power Sector Central SOE Leader Dataset, 2003-2022

These patterns of joint appointments for power sector central SOE leaders appear somewhat distinctive compared to central SOE executives in other industries. Specifically, joint appointments are less common among power sector SOE leaders, and their frequency has declined gradually over time. This is surprising given directives by the State Council in 2017 that the roles of board chairman and Party secretary should generally be held by the same individual in central SOEs.<sup>62</sup> Gradual role differentiation may be a deliberate action to foster checks and balances and oversight across the executive team. It may also reflect the real-world challenges of a single person simultaneously fulfilling multiple top leadership roles, especially given increases in power sector central SOEs' size, complexity, and commercial orientation.

For the majority of central SOE leaders in the power sector, their leadership position was their final post. Among the individuals who departed their positions of executive leadership between 2003 and 2022, the majority (47.7%) ended their careers. Most of these retired directly. Again, this outcome means that political advancement may constitute a weaker behavioral incentive for central SOE leaders relative to other Chinese officials, such as their counterparts in local government. Among these departees, at least four individuals were later formally implicated in corruption investigations.<sup>63</sup> A small proportion (1.5%) of all power sector central SOE leaders serving during this period were appointed directly to central-level positions,<sup>64</sup> while even fewer (.67%) immediately took up a subsequent post in local government.<sup>65</sup> Table 2 below summarizes these trends.

**Table 2 : Political Mobility Outcomes for Power Sector Central SOE Leaders, 2003-2022 (Unit: Leader-Year)**

Outcome	Count	Percentage (%)
Still in position	515	85.7

<sup>62</sup> 国务院办公厅 [State Council General Office]: 《关于进一步完善国有企业法人治理结构的指导意见》 [Guiding Opinions on Further Improving the Corporate Governance Structure of SOEs], May 3, 2017, [https://www.gov.cn/xinwen/2017-05/03/content\\_5190660.htm](https://www.gov.cn/xinwen/2017-05/03/content_5190660.htm).

<sup>63</sup> Specifically, they include 孙洪水 (Sun Hongshui) and 范集湘 (Fan Jixiang), and 马宗林 (Ma Zonglin), who concluded their careers with leadership roles at PowerChina, and 李庆奎 (Li Qingkui), who was formerly a top executive at China Southern Power Grid.

<sup>64</sup> These individuals were 穆占英 (Mu Zhanying), 王野平 (Wang Yeping), 刘顺达 (Liu Shunda), 陈飞 (Chen Fei), 张喜武 (Zhang Xiwu), 王寿君 (Wang Shoujun), 王禹民 (Wang Yumin), 钱智民 (Qian Zhimin), 王祥喜 (Wang Xiangxi).

<sup>65</sup> These individuals were 毛伟明 (Mao Weiming), 李小鹏 (Li Xiaopeng), 曹广晶 (Cao Guangjing), and 凌文 (Ling Wen).

Terminated (retired or removed)	41	6.8
Transfer to another SOE	31	5.2
Transfer to central government	9	1.5
Transfer to local government	4	0.7
Other	1	.2

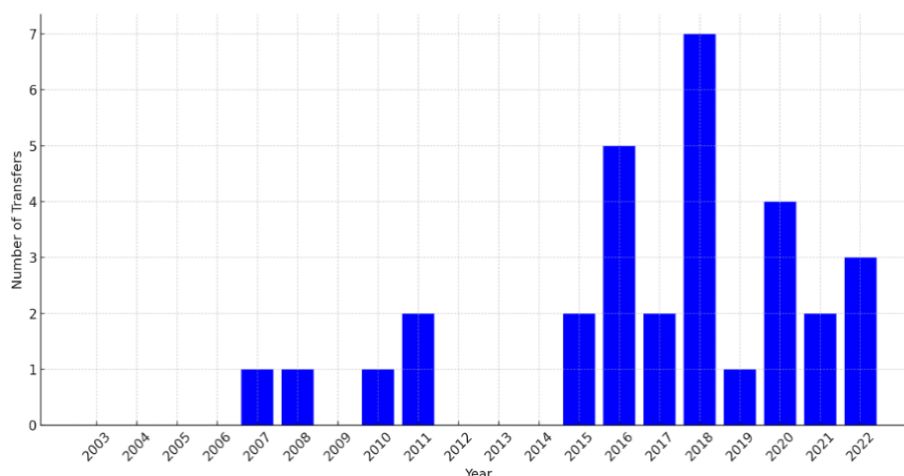
Source: *China Power Sector Central SOE Leader Dataset, 2003-2022*

Transfers of leaders from one central SOE in the power sector to another were routine but varied significantly in frequency over time, particularly between the Xi administration's first ten years in power (2012-2022) and the preceding decade-long Hu administration (2002-2012) (see Figure 7). Out of all top central SOE leaders in this industry that vacated their positions between 2003 and 2022, 36.0% were appointed directly to an executive position in another central SOE. The vast majority of these leadership transfers involved appointments to head another central SOE in the power industry.

These trends suggest that China's current leadership is employing the cadre management system more actively to govern central SOEs in the power sector. Leaders of central SOEs in the power sector were transferred to another SOE with far greater frequency during the first decade of Xi's administration—26 times between 2012 and 2022—compared to only 5 times during the previous Hu administration between 2003 and 2012.<sup>66</sup> This increase suggests that the CCP under Xi is using its executive appointment authority—and leadership transfers specifically—to take a more hands-on approach to managing central SOEs in the power sector.

**Figure 7: Frequency of Executive Transfers Among Central SOEs, 2003-2022**

<sup>66</sup> Leadership transition from Hu to Xi in November 2012 is taken as the cut-point for 2012 measurement.



Source: China Power Sector Central SOE Leader Dataset, 2003-2022

Closer analysis of SOE leader transfers further reveals that multiple types exist—each with a distinct underlying logic. One routine transfer type occurs when executive leadership teams are combined and reorganized in the process of mergers.<sup>67</sup> Another common type of transfer is a leadership “swap” or “shuffle” among two or more central SOEs in the industry.<sup>68</sup> The least frequent type of SOE leader transfer is the movement of executives from central SOEs in the power sector to head state firms in other industries.<sup>69</sup> This variation suggests that SOE leader transfers are used both as a tool for coordination and control in state sector governance, and also as a targeted mechanism to align executive placement with evolving corporate, industrial, and political priorities—including potential firm-level inspections.

### *Political Integration and Connectedness*

Leaders of central SOEs in the power sector have had limited, although gradually increasing, representation as full and alternate members of the CCP’s Central Committee.<sup>70</sup> Such roles in

<sup>67</sup> For example, Wang Binghua (王炳华) served as chairman of China Power Investment Corporation and after it merged with State Nuclear Power Technology Corporation to create State Power Investment Corporation, he became its inaugural chairman.

<sup>68</sup> One such case was the transfer of Cao Peixi (曹培玺), the Party secretary and general manager at Huadian, to serve as the general manager and later additionally the Party secretary and board chairman of Huaneng.

<sup>69</sup> For instance, Liu Qitao (刘起涛), the Party secretary at Sinohydro, was transferred to serve as the Party secretary of China Communications Construction Corporation (CCCC), a central SOE in the construction industry.

<sup>70</sup> The Central Committee is a key political body that shapes national policy and the selection of top leaders, including the selection of the Politburo and its Standing Committee. It consists of approximately 200 full members and 170 alternate members, who are selected every five years at the National Party Congress. Alternate members may attend meetings but cannot vote. However, serving as an alternate member is still significant because it signals political elite status and positions individuals for potential promotion to full membership and higher leadership roles in China’s political system.

the Central Committee signal political connectedness, because they reflect elite status, access to top leadership networks, and alignment with the Party's core decision-making apparatus. As Table 3 shows, such representation of serving central SOE leaders in the power sector during this study's timeframe rose during the 17th Party Congress (2007-2012) and became more consistent thereafter. In the 19th and 20th Central Committees (2017-2022, 2022-2027), one power sector central SOE leader—Mao Weiming (毛伟明), chairman of State Grid—was named a full member, demonstrating that such appointments at the highest levels exist but remain rare.<sup>71</sup> However, the number of power sector central SOE leaders serving as alternate members has increased steadily, peaking with the selection of four industry executives to serve as alternate members in the 19th Central Committee of the CCP (2017-2022).

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<sup>71</sup> Wang Xiangxi (王祥喜) was also appointed as a full member of the 20<sup>th</sup> Central Committee in 2022; however, at the time of his appointment that year he had already moved on from his position as CEIC chairman and Party secretary. Zhang Yuzhuo (张玉卓), former chairman and Party secretary of Shenhua and Sinopec, was also appointed a full member of the 20<sup>th</sup> Central Committee.

**Table 3: Representation on the CCP Central Committee of Serving Power Sector Central SOE Leaders, 2003-2022**

Central Committee	Name
16th Central Committee of the CCP Member (2002-2007)	
16th Central Committee of the CCP Alternate (2002-2007)	
17th Central Committee of the CCP Member (2007-2012)	
17th Central Committee of the CCP Alternate (2007-2012)	Liu Zhenya (刘振亚)
18th Central Committee of the CCP Member (2012-2017)	
18th Central Committee of the CCP Alternate (2012-2017)	Qian Zhimin (钱智民); Cao Guangjing (曹广晶)
19th Central Committee of the CCP Member (2017-2022)	Mao Weiming (毛伟明)
19th Central Committee of the CCP Alternate (2017-2022)	Qian Zhimin (钱智民); Kou Wei (寇伟); Mao Weiming (毛伟明)
20th Central Committee of the CCP Member (2022-2027)	Mao Weiming (毛伟明)
20th Central Committee of the CCP Alternate (2022-2027)	Xu Jianfeng (余剑锋); Zhang Zhigang (张智刚)

Source: *China Power Sector Central SOE Leader Dataset, 2003-2022*

Just over half of central SOE executives in the power sector between 2003 and 2022 held a concurrent appointment during their leadership tenure. Out of 601 leader-year observations, 333 (54.6%) of them included a concurrent appointment. The most common was national Chinese People's Political Consultative Conference (CPPCC) membership, with 32 individuals serving in this capacity between 2003 and 2022. In contrast, concurrent appointments in specific National Party Congresses—such as the 18th National Party Congress (11 individuals), 19th National Party Congress (10 individuals), and 20th National Party Congress (12 individuals)—reflect more selective and limited inclusion of central SOE leaders in top-level Party conclaves. The least frequent concurrent appointments included National People's Congress delegate (8 individuals), provincial CPPCC membership (4 individuals), and provincial People's Congress delegate (2 individuals). Finally, there is little evidence based on work

history overlap to demonstrate political connectedness between central SOE leaders in the power sector and top national leadership.<sup>72</sup>

These trends indicate that the political integration of power sector central SOE leaders within top ruling elites remains limited. For instance, their representation as Central Committee members between 2003 and 2022 has been low—and also relatively less than central SOE leaders in aerospace and oil and gas.<sup>73</sup> The recent rise in power sector central SOE leaders' selection as Central Committee alternates may reflect the industry's strategic importance to China's energy security and decarbonization goals. This uptick is small but still noteworthy when viewed against the larger backdrop of declining Central Committee representation since the 1990s for central SOE leaders overall.<sup>74</sup> However, the continued underrepresentation of power sector central SOE leaders as full Central Committee members indicates they still have a relatively peripheral position in elite political decision-making.

### Policy Mandates for Central SOEs' Low-Carbon Transition

What low-carbon policies and targets exist for central SOEs? And in what ways have the leaders of key firms in the power sector acted—or not? Existing policies and targets specifically direct central SOEs to take action in three areas central to low-carbon transition: energy conservation and emissions reduction, climate change mitigation, and social responsibility. These mandates have evolved through distinct but increasingly interconnected regulatory trajectories (see Figure 8). While broader industrial policies—such as the Feed-in Tariffs (FiTs)<sup>75</sup>—have played a crucial role in encouraging renewable energy deployment, these policies are designed to apply to all market actors and do not specifically mandate action by central SOEs. In contrast, this section summarizes policies that explicitly assign low-carbon obligations to central SOEs and link these responsibilities to their performance evaluation, thereby distinguishing them from general market-wide incentives. These policy mandates have evolved and vary in the degree to which they incentivize central SOEs' low-carbon transition (See Appendix 3).

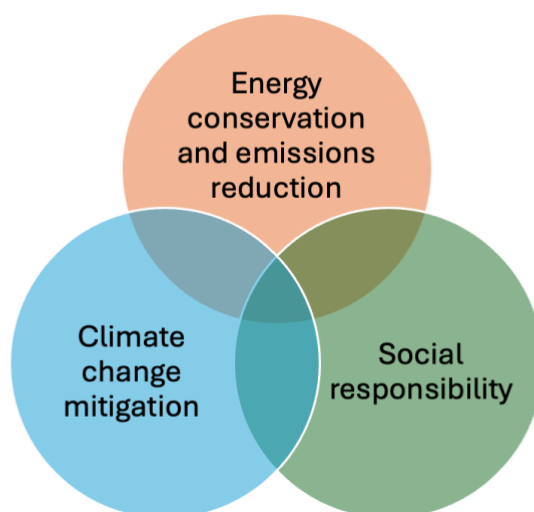
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<sup>72</sup> Only one individual, Ma Zonglin, had overlapping work history with Xi in Fujian Province between December 1998 and October 2022. Ma worked in the Fujian Provincial Electric Power Bureau and later became General Manager and Chairman of Fujian Electric Power Company. During this period, Xi served as Deputy Secretary of the Fujian Provincial Committee of the Chinese Communist Party from 1996 to 2002 and as Governor of Fujian Province from 1999 to 2002. Ma later worked at State Grid before serving in leadership roles at PowerChina between 2010 and 2016 until retiring. In March 2025, Ma was placed under investigation for “serious violations of Party discipline and state law.” 《中国电力建设集团有限公司原党委书记、董事马宗林接受纪律审查和监察调查》 [PowerChina Former Party Secretary and Director Ma Zonglin Under Disciplinary Review and Investigation], Sina Finance, March 19, 2025.

<sup>73</sup> Kjeld Erik Brødsgaard. “Moving Ahead in China: State-Owned Enterprises and Elite Circulation,” *China: An International Journal* 18, no. 1 (2020): 107-122; Arthur Ding and K. Tristan Tang, “Xi Jinping Has Further Boosted the Military-Industrial Group of China,” *China Brief*, vol. 24, no. 20 (Washington, D.C.: Jamestown Foundation, 2024).

<sup>74</sup> Jun Zhang, Qi Zhang, and Zhikuo Liu, “The Political Logic of Partial Reform of China's SOEs,” *Asian Survey* 57, no. 3 (2017): 395-415.

<sup>75</sup> China's feed-in tariffs (FiTs), introduced under the 2005 Renewable Energy Law and implemented in 2006, helped to accelerate wind and solar deployment by offering above-market prices to all generators regardless of ownership type. See Articles 14, 20, and 21: [https://sdb.nea.gov.cn/xxgk/zcfg/202310/t20231022\\_174429.html](https://sdb.nea.gov.cn/xxgk/zcfg/202310/t20231022_174429.html)

**Figure 8: Overlapping Policy Mandates for Central SOEs' Low-Carbon Transition**

### *Energy Conservation and Emissions Reduction*

Energy conservation and emissions reduction (节能减排) formally holds strong binding authority over central SOEs as these objectives have become central in China's energy and environmental policy agenda. Over the past four decades, China has progressively integrated energy conservation and emissions reduction goals into SOE governance directives through a comprehensive policy framework developed in tandem with its Five-Year Plans (FYPs). Specifically, these goals have included improving energy efficiency, decarbonizing the energy mix, reducing pollutants—and later also reducing carbon emissions.

Beginning with the 9<sup>th</sup> FYP (1996–2000) and the 1997 *Energy Conservation Law*, energy saving became a national policy priority<sup>76</sup>. The 11<sup>th</sup> FYP (2006–2010) institutionalized the target responsibility system, with a 20% energy intensity reduction target (energy use per unit of GDP)<sup>77</sup> be disaggregated by province and further assigned to cities, counties, and top energy-intensive companies through the “Top-1,000 Enterprises” initiative (千家企业“节能行动”, an energy-saving program covering top energy-intensive firms), which included the “Big Five”

<sup>76</sup> Energy Conservation Law (first enacted in 1997 and amended later on) [https://www.gov.cn/flfg/2007-10/28/content\\_788493.htm](https://www.gov.cn/flfg/2007-10/28/content_788493.htm)

<sup>77</sup> State Council: 《国务院关于加强节能工作的决定》 [Decision of the State Council on Strengthening Energy Conservation Work] (2006) [https://www.gov.cn/zwfgk/2006-08/23/content\\_368136.htm](https://www.gov.cn/zwfgk/2006-08/23/content_368136.htm)

power generation companies.<sup>78,79,80</sup> Subsequently, the central government has set the national energy saving and emissions reduction targets for across the 12<sup>th</sup>-14<sup>th</sup> FYPs<sup>81</sup> and directed central SOEs to “set an example” by framing target completion as a core component of corporate and leadership evaluation.<sup>82,83</sup>

SASAC and central SOEs have responded to these requirements accordingly. As SASAC's inaugural director Li Rongrong emphasized in 2007, SOEs in sectors such as power, coal, petrochemicals, and steel were both major energy users and critical to achieving national goals, and therefore had “a mission to lead” in energy conservation and emissions reduction<sup>84</sup>. This

<sup>78</sup> 《“十一五”节能减排成效及“十二五”节能思路的初步考虑——在 2010'中国节能与低碳发展论坛上的讲话》国家发展改革委员会副秘书长赵家荣（2010 年 12 月 3 日）[Achievements in Energy Conservation and Emissions Reduction during the 11th Five-Year Plan and Preliminary Considerations for Energy Conservation under the 12th Five-Year Plan — Remarks at the 2010 China Energy Conservation and Low-Carbon Development Forum.]

Zhao Jiarong, Deputy Secretary-General, National Development and Reform Commission (December 3, 2010)] [https://www.ndrc.gov.cn/fqgz/hjzy/stwmjs/201012/t20101206\\_1160963.html](https://www.ndrc.gov.cn/fqgz/hjzy/stwmjs/201012/t20101206_1160963.html)

<sup>79</sup> State Council: 《国务院关于加强节能工作的决定》[Decision of the State Council on Strengthening Energy Conservation Work] (2006) [https://www.gov.cn/zwqk/2006-08/23/content\\_368136.htm](https://www.gov.cn/zwqk/2006-08/23/content_368136.htm)

<sup>80</sup> 《“十一五”节能减排成效及“十二五”节能思路的初步考虑——在 2010'中国节能与低碳发展论坛上的讲话》国家发展改革委员会副秘书长赵家荣（2010 年 12 月 3 日）[Achievements in Energy Conservation and Emissions Reduction during the 11th Five-Year Plan and Preliminary Considerations for Energy Conservation under the 12th Five-Year Plan — Remarks at the 2010 China Energy Conservation and Low-Carbon Development Forum.]

Zhao Jiarong, Deputy Secretary-General, National Development and Reform Commission (December 3, 2010)] [https://www.ndrc.gov.cn/fqgz/hjzy/stwmjs/201012/t20101206\\_1160963.html](https://www.ndrc.gov.cn/fqgz/hjzy/stwmjs/201012/t20101206_1160963.html)

<sup>81</sup> 12<sup>th</sup> FYP (2011-2015), 13<sup>th</sup> FYP (2016-2020), 14<sup>th</sup> FYP (2021-2025)

<sup>82</sup> 《国务院办公厅关于印发 2014-2015 年节能减排低碳发展行动方案的通知》[Notice of the General Office of the State Council on Issuing the 2014–2015 Action Plan for Energy Conservation, Emissions Reduction, and Low-Carbon Development] (State Council, 2014) [https://www.gov.cn/zhengce/content/2014-05/26/content\\_8824.htm](https://www.gov.cn/zhengce/content/2014-05/26/content_8824.htm)

<sup>83</sup> 《国务院关于印发“十三五”节能减排综合工作方案的通知》[Notice of the State Council on Issuing the Comprehensive Work Plan for Energy Conservation and Emissions Reduction during the 13th Five-Year Plan Period] (State Council, 2017) The 13th FYP on Comprehensive Work Plan for Energy Saving and Pollution Reduction defines SASAC's responsibilities in directing central SOEs to support China's energy conservation and emissions reduction agenda. These include strengthening the energy management of key energy-consuming enterprises, supporting industrial upgrading under the “Made in China 2025” initiative, and expanding performance-based evaluation systems. Through the “Hundred-Thousand-Ten Thousand” Action Plan (“百千万”行动) for the top energy intensive firms across national, provincial, and city levels, SOEs are subject to differentiated performance evaluations alongside other key enterprises. Additional mandates emphasize financial and tax incentives, strengthened statistical and monitoring systems, and stricter enforcement of binding energy and environmental targets. For SASAC, the mandates require implementation of a target responsibility system, with energy conservation and emissions reduction outcomes incorporated into both enterprise performance evaluations and executive assessments. [https://www.gov.cn/zhengce/content/2017-01/05/content\\_5156789.htm](https://www.gov.cn/zhengce/content/2017-01/05/content_5156789.htm)

<sup>84</sup> 国资委召开中央企业节能减排工作会议 [SASAC Convenes Meeting on Energy Conservation and Emissions Reduction Work of Central SOEs] (SASAC, 2007). *“Central SOEs must play a leading role in energy conservation and emissions reduction... They are a key force in achieving national targets. Central SOEs are primarily concentrated in sectors such as petroleum and petrochemicals, coal, chemicals, metallurgy, electricity, transportation, and building materials. They are both major producers and consumers of energy, with significant influence and spillover effects... Central SOEs possess clear advantages in advancing energy conservation and emissions reduction. Compared to other domestic enterprises, they have unique strengths in technology, talent, equipment, and management, which form a strong foundation for effective implementation.”*

<http://www.sasac.gov.cn/gzjg/xcgz/200708290159.htm>

framing reinforced the binding nature of the targets and cultivated a strong sense of obligation within SOE leadership, who came to view energy and environmental mandates as integral to both their corporate standing and personal accountability.

As a result, SASAC officially announced the 11<sup>th</sup> FYP energy conservation and emissions reduction targets for central SOEs in 2007, mandating a 20% reduction of energy intensity (measured by comprehensive energy consumption per 10,000 RMB of industrial value-added) and a 10% decrease in total emissions of major pollutants by 2010 in accordance with the 11<sup>th</sup> FYP national targets. It also directed key industries—including power, coal, petrochemicals, metals, transportation, and building materials—to meet targets ahead of schedule by the end of 2009.<sup>85</sup> Across the 11<sup>th</sup> to 14<sup>th</sup> FYPs, SASAC consistently set quantified targets on energy conservation and emissions reduction for central SOEs. Under the 11<sup>th</sup> FYP, SASAC announced binding goals for reducing both energy intensity and major pollutants, with accelerated deadlines for key industries.<sup>86</sup> During the 12<sup>th</sup> FYP, new binding targets on energy intensity were established in line with national objectives, reinforced through State Council directives and SASAC notices.<sup>87,88</sup> The 13<sup>th</sup> FYP further expanded these requirements, specifying SASAC's responsibilities for directing central SOEs to improve energy management, support industrial upgrading, and comply with differentiated targets under the “Made in China 2025” initiative and through the “Hundred-Thousand-Ten Thousand” Action Plan (“百千万”行动).<sup>89</sup> In the 14<sup>th</sup> FYP, quantified targets were extended to include both energy conservation and emissions reduction, with clear benchmarks for energy use, carbon intensity, and renewable energy deployment.<sup>90</sup>

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<sup>85</sup> 国资委确定中央企业节能减排工作目标 [SASAC Sets Energy Conservation and Emissions Reduction Targets for Central SOEs] (SASAC, 2007) [https://www.gov.cn/banshi/2007-08/30/content\\_731506.htm](https://www.gov.cn/banshi/2007-08/30/content_731506.htm)

<sup>86</sup> 国资委确定中央企业节能减排工作目标 [SASAC Sets Energy Conservation and Emissions Reduction Targets for Central SOEs] (SASAC, 2007) [https://www.gov.cn/banshi/2007-08/30/content\\_731506.htm](https://www.gov.cn/banshi/2007-08/30/content_731506.htm)

<sup>87</sup> 国资委：十二五期间中央企业节能减排形势更严峻 [SASAC: Central SOEs Face a More Challenging Landscape for Energy Conservation and Emissions Reduction During the 12th Five-Year Plan Period] (2011) <https://www.chinanews.com.cn/ny/2011/05-31/3079423.shtml>

<sup>88</sup> 《关于进一步加强中央企业节能减排工作的通知》 [Notice on Further Strengthening Energy Conservation and Emissions Reduction Efforts in Central State-Owned Enterprises] (SASAC, 2014) Specifically, this policy required central SOEs to strengthen internal accountability mechanisms for energy conservation and environmental performance. This includes more rigorous evaluations, the incorporation of target completion into performance assessments for both enterprises and their top executives, and the imposition of strict penalties for non-compliance. In cases of major violations of energy or environmental regulations, a “one-vote veto” policy is applied, under which a single incident can disqualify a firm and its leaders from receiving positive performance evaluations. <http://www.sasac.gov.cn/n2588035/n2588320/n2588335/c20234007/content.html>

<sup>89</sup> 《国务院关于印发“十三五”节能减排综合工作方案的通知》 [Notice of the State Council on Issuing the Comprehensive Work Plan for Energy Conservation and Emissions Reduction during the 13th Five-Year Plan Period] (State Council, 2017) [https://www.gov.cn/zhengce/content/2017-01/05/content\\_5156789.htm](https://www.gov.cn/zhengce/content/2017-01/05/content_5156789.htm)

<sup>90</sup> 《关于推进中央企业高质量发展做好碳达峰碳中和工作的指导意见》 [Guiding Opinions on Promoting High-Quality Development of Central SOEs and Advancing Carbon Peaking and Carbon Neutrality Efforts] (SASAC, 2021) <http://www.sasac.gov.cn/n2588035/c22499825/content.html>

More importantly, the State Council also called for these targets to serve as key performance indicators for both local officials and SOE leaders to promote strict implementation<sup>91,92</sup>. SASAC emphasized that SOE leaders bore primary responsibility for energy conservation and emissions reduction<sup>93</sup>, and it has incorporated these targets into its leader performance evaluations since 2009<sup>94,95</sup>, along with additional oversight mechanisms such as national auditing<sup>96</sup> and differentiated performance evaluations based on energy consumption and emissions levels of central SOEs.<sup>97</sup> These measures formally institutionalized accountability and signaled a shift toward stricter enforcement efforts.

In the current 14th FYP period (2021-2025), the agenda for these aims has expanded and is now closely linked to carbon emissions reduction (“节能降碳”) and broader environmental

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<sup>91</sup> State Council: 《国务院关于加强节能工作的决定》 [Decision of the State Council on Strengthening Energy Conservation Work] (2006) [https://www.gov.cn/zwqk/2006-08/23/content\\_368136.htm](https://www.gov.cn/zwqk/2006-08/23/content_368136.htm)

<sup>92</sup> 《“十二五”节能减排综合性工作方案的通知》 [Notice on the Comprehensive Work Plan for Energy Conservation and Emissions Reduction during the 12th Five-Year Plan Period] (State Council, 2011) [https://www.gov.cn/zwqk/2011-09/07/content\\_1941731.htm](https://www.gov.cn/zwqk/2011-09/07/content_1941731.htm)

<sup>93</sup> 国资委要求央企确保完成“十一五”节能减排目标 [SASAC Calls on Central SOEs to Ensure the Fulfillment of the 11th Five-Year Plan Energy Conservation and Emissions Reduction Targets] (SASAC, 2010) [https://www.gov.cn/gzdt/2010-05/10/content\\_1603131.htm](https://www.gov.cn/gzdt/2010-05/10/content_1603131.htm) As emphasized in SASAC's Central SOEs Energy Saving and Pollution Reduction Work Conference in 2011: “The principal leaders of central SOEs are the primary persons responsible for energy saving and emission reduction efforts... Central SOEs must remember their mission and resolutely achieve the energy conservation and emission reduction targets of the 11th FYP, fulfilling their social responsibilities and adhering to the principles of sustainable, clean development.”

<sup>94</sup> 《中央企业负责人经营业绩考核办法》 [Measures for the Performance Evaluation of Central SOE Leaders] (SASAC, 2009) [https://www.moj.gov.cn/pub/sfbgw/flfgqz/flfgqzbgz/201004/t20100428\\_144810.html](https://www.moj.gov.cn/pub/sfbgw/flfgqz/flfgqzbgz/201004/t20100428_144810.html) It introduced specific provisions: SOEs that exceed these targets or lead in industry-wide emissions reductions would be rewarded, while those failing to meet goals would face deductions in their performance evaluations.

<sup>95</sup> As emphasized in SASAC's Central SOEs Energy Saving and Pollution Reduction Work Conference in 2011: “The principal leaders of central SOEs are the primary persons responsible for energy saving and emission reduction efforts... Central SOEs must remember their mission and resolutely achieve the energy conservation and emission reduction targets of the 11th FYP, fulfilling their social responsibilities and adhering to the principles of sustainable, clean development.” 国资委要求央企确保完成“十一五”节能减排目标 [SASAC Calls on Central SOEs to Ensure the Fulfillment of the 11th Five-Year Plan Energy Conservation and Emissions Reduction Targets] (SASAC, 2010) [https://www.gov.cn/gzdt/2010-05/10/content\\_1603131.htm](https://www.gov.cn/gzdt/2010-05/10/content_1603131.htm)

<sup>96</sup> 《2009年第6号：“41户中央企业节能减排情况审计调查结果”》 [Audit Investigation Results on Energy Saving and Emissions Reduction in 41 Central SOEs in 2009] (National Audit Office, 2009) <https://www.audit.gov.cn/n5/n25/c63488/content.html>

<sup>97</sup> 《中央企业节能减排监督管理暂行办法》 [Interim Measures for the Supervision and Administration of Energy Conservation and Emissions Reduction in Central State-Owned Enterprises] (SASAC, 2010) [https://www.gov.cn/flfg/2010-04/12/content\\_1578699.htm](https://www.gov.cn/flfg/2010-04/12/content_1578699.htm) This policy categorized central SOEs into three groups based on their levels of energy consumption and major pollutant emissions: key companies, companies requiring attention, and regular companies. It also prioritized power central SOEs as key companies. The policy further emphasized that central SOEs must establish and improve internal evaluation and incentive systems for energy conservation and emissions reduction, delegating responsibilities at all levels.

protection.<sup>98,99</sup> SASAC have set quantified targets for both energy conservation and carbon emissions reduction for central SOEs<sup>100</sup> and added fulfilling the national climate targets to central SOE leader performance assessment.<sup>101</sup> Most recently, the State Council further emphasized SOE leaders' responsibility in achieving both energy conservation and carbon reduction objectives, stating: "Strengthen the assessment of energy conservation and carbon reduction targets in the performance evaluations of central SOE leaders."<sup>102</sup>

It is worth noting that although SASAC largely sets mandates and evaluation for central SOEs on energy conservation and emissions, other government authorities also play an important in facilitating the compliance. The National Development and Reform Commission (NDRC)—China's national planning body—officially supervises this policy domain. The NDRC has direct authority to supervise all key energy use entities (重点用能单位) across the country since 1993.<sup>103</sup> The NDRC's 2018 revision of this policy underscored the integration of energy conservation responsibilities into the performance evaluations of central SOE leadership and the institutionalization of performance-based incentives. It further specifies that non-compliance is subject to public disclosure and severe penalties will be given for cases of serious misconduct or failure to meet this regulatory obligation.<sup>104</sup> Local authorities also serve as key supervisory actors in ensuring policy implementation. Given that central SOEs, especially those in the energy sector, operate through multilayered structures of group companies, subsidiaries, and local branches, these entities are jointly overseen by both their corporate headquarters and local authorities. China's energy conservation governance mirrors this hierarchy. Under the

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<sup>98</sup> 《国务院关于印发“十四五”节能减排综合工作方案的通知》 [Notice of the State Council on Issuing the Comprehensive Work Plan for Energy Conservation and Emissions Reduction during the 14th Five-Year Plan Period] (State Council, 2021) [https://www.gov.cn/zhengce/content/2022-01/24/content\\_5670202.htm](https://www.gov.cn/zhengce/content/2022-01/24/content_5670202.htm)

<sup>99</sup> 《中央企业节约能源与生态环境保护监督管理办法》 [Measures for the Supervision and Administration of Energy Conservation and Ecological Environmental Protection in Central State-Owned Enterprises] (SASAC,2022) <http://www.sasac.gov.cn/n2588035/n2588320/n2588335/c25677916/content.html>

<sup>100</sup> 《关于推进中央企业高质量发展做好碳达峰碳中和工作的指导意见》 [Guiding Opinions on Promoting High-Quality Development of Central SOEs and Advancing Carbon Peaking and Carbon Neutrality Efforts] (SASAC, 2021) <http://www.sasac.gov.cn/n2588035/c22499825/content.html>

<sup>101</sup> 《中央企业节约能源与生态环境保护监督管理办法》 [Measures for the Supervision and Administration of Energy Conservation and Ecological Environmental Protection in Central State-Owned Enterprises] (SASAC,2022) <http://www.sasac.gov.cn/n2588035/n2588320/n2588335/c25677916/content.html>

<sup>102</sup> 《2024-2025 年节能降碳行动方案》 [2024–2025 Action Plan for Energy Conservation and Carbon Reduction](State Council, 2024) “在中央企业负责人经营业绩考核中强化节能降碳目标考核” [https://www.gov.cn/zhengce/content/202405/content\\_6954322.htm](https://www.gov.cn/zhengce/content/202405/content_6954322.htm)

<sup>103</sup> 《重点用能单位节能管理办法》 [Energy Conservation Administrative Measures for Key Energy-Consuming Entities](NDRC,2018) <https://zfxgk.ndrc.gov.cn/web/iteminfo.jsp?id=18518>. Note: Key energy consuming entities refer to entities with an annual energy consumption of 10,000 tons of coal equivalent or more. NDRC's predecessor—the former State Economic and Trade Commission (SETC) (国家经贸委)—issued the “Administrative Measures for Energy Conservation of Key Energy Use Entities” in 1993, supervising all energy conservation efforts for energy-intensive entities identified by ministries, provincial, and local governments.

<sup>104</sup> Ibid

NDRC's "Hundred-Thousand-Ten Thousand" initiative launched in 2017<sup>105</sup>, the top 100 and next 1,000 key energy-consuming enterprises are supervised by provincial authorities, while the remaining 10,000, many being central SOE subsidiaries, fall under municipal or county-level oversight.

### *Climate Change Mitigation*

Despite climate change mitigation being a key component of China's environmental policy agenda for decades, the central government did not explicitly mandate central SOEs to take related actions or evaluate them based on their performance in this area. For example, the 13th FYP for greenhouse gas emissions control required large power generation companies to limit their carbon dioxide emissions per unit of electricity within 550g/kwh;<sup>106</sup> however, this policy was not central SOE-specific.

Instead, climate mitigation was largely treated as a co-benefit of energy conservation efforts since the 12th FYP period<sup>107</sup> and embedded within the broader green development actions of central SOEs, such as through clean energy investments. There were no climate-centric mandates directly for central SOEs until the central government's 2021 announcement of its dual carbon goals (双碳)—peaking carbon emissions before 2030 and achieving carbon neutrality by 2060.<sup>108</sup> It has since become a political priority and a formal requirement for central SOEs, and quantified carbon intensity targets have been officially incorporated in central SOEs' operations, strategic planning, and performance evaluations.

Responding directly to this national climate mandate, SASAC issued the "Guiding Opinions on Promoting High-Quality Development of Central SOEs and Advancing Carbon Peaking and Carbon Neutrality Efforts" in 2021.<sup>109</sup> This document called for the formal incorporation of climate goals into firm-level planning and performance evaluation frameworks, institutionalizing climate mitigation within central SOE governance—and thereby highlighting central SOEs'

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<sup>105</sup> 《国家发展改革委关于开展重点用能单位“百千万”行动有关事项的通知》 [Notice of the National Development and Reform Commission on Matters Related to the Implementation of the 'Hundred-Thousand-Ten Thousand' Initiative for Key Energy-Consuming Entities] (NDRC, 2017) [https://www.ndrc.gov.cn/xxgk/zcfb/tz/201711/t20171110\\_962591.html](https://www.ndrc.gov.cn/xxgk/zcfb/tz/201711/t20171110_962591.html)

<sup>106</sup> 《国务院关于印发“十三五”控制温室气体排放工作方案的通知》 [Notice of the State Council on Issuing the Work Plan for Greenhouse Gas Emissions Control during the 13th Five-Year Plan Period] (State Council, 2016) [https://www.gov.cn/zhengqce/content/2016-11/04/content\\_5128619.htm](https://www.gov.cn/zhengqce/content/2016-11/04/content_5128619.htm)

<sup>107</sup> 《“十二五”节能减排综合性工作方案的通知》 [Notice on the Comprehensive Work Plan for Energy Conservation and Emissions Reduction during the 12th Five-Year Plan Period] (State Council, 2011) [https://www.gov.cn/zwgk/2011-09/07/content\\_1941731.htm](https://www.gov.cn/zwgk/2011-09/07/content_1941731.htm)

<sup>108</sup> 《中共中央国务院关于完整准确全面贯彻新发展理念做好碳达峰碳中和工作的意见》 [Opinions of the Central Committee of the Communist Party of China and the State Council on Fully and Accurately Implementing the New Development Philosophy and Effectively Carrying Out Carbon Peaking and Carbon Neutrality Work] (State Council, 2021) [https://www.gov.cn/zhengqce/2021-10/24/content\\_5644613.htm](https://www.gov.cn/zhengqce/2021-10/24/content_5644613.htm)

<sup>109</sup> 《关于推进中央企业高质量发展做好碳达峰碳中和工作的指导意见》 [Guiding Opinions on Promoting High-Quality Development of Central SOEs and Advancing Carbon Peaking and Carbon Neutrality Efforts] (SASAC, 2021) <http://www.sasac.gov.cn/n2588035/c22499825/content.html>

leading role in achieving national climate goals,<sup>110</sup> These guidelines introduced specific quantitative targets, with central SOEs expected to peak their emissions—some ahead of schedule.<sup>111</sup> Subsequently, under the “One Firm, One Plan” (一企一策) policy—which requires central SOEs to develop tailored action plans for achieving the dual carbon goals<sup>112</sup>—SASAC issued the “Guidelines for the Preparation of Carbon Peaking Action Plans for Central SOEs” in 2022 with detailed instructions to support central SOEs in formulating their carbon peaking action plans.<sup>113</sup>

SASAC has further issued multiple policy directives to formalize central SOEs’ climate mitigation responsibilities. In 2022, it issued the “14th FYP Development Outline for Central SOEs,” which directed firms to develop carbon peaking pathways aligned with national targets.<sup>114</sup> In the same year, SASAC released “Measures for the Supervision and Management of Energy Saving and Ecological Environmental Protection in Central SOEs,” which required SOEs to establish greenhouse gas accounting systems.<sup>115</sup> This policy also officially incorporates carbon reduction progress into central SOEs’ leadership performance evaluations. SASAC’s “2024–2025 Energy Conservation and Carbon Reduction Action Plan” in 2024 further strengthened formal assessment measures for energy conservation and carbon reduction for central SOEs and their leaders.<sup>116</sup> In the 2022–2024 performance evaluation cycle, specific energy conservation and carbon reduction indicators were set for 72 central SOEs with relatively high energy consumption and emissions.<sup>117</sup> Central SOEs found to have significantly

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<sup>110</sup> 《国资央企努力在碳达峰行动中发挥示范引领作用——“碳达峰十大行动”进展（七）》 [Central State-Owned Enterprises Strive to Play a Demonstrative and Leading Role in Carbon Peaking Efforts — Progress on the ‘Ten Actions for Carbon Peaking’ (Part 7)] (NDRC, 2022) “在碳达峰行动中发挥示范引领作用”[https://www.ndrc.gov.cn/fggz/hjzy/tdftzh/202211/t20221130\\_1343073.html](https://www.ndrc.gov.cn/fggz/hjzy/tdftzh/202211/t20221130_1343073.html)

<sup>111</sup> These guidelines introduced specific quantitative targets: by 2025, comprehensive energy consumption per RMB 10,000 of industrial value-added must decrease by 15% relative to 2020 levels, carbon emissions per RMB 10,000 of output must decline by 18%, and the proportion of renewable energy in total installed power capacity must exceed 50%. By 2030, carbon emissions per RMB 10,000 of industrial value-added are to fall by more than 65% compared to 2005 levels, with central SOEs expected to peak their emissions—some ahead of schedule.

<sup>112</sup> NDRC: 《国资央企努力在碳达峰行动中发挥示范引领作用——“碳达峰十大行动”进展（七）》 [State-Owned Central Enterprises Strive to Play a Leading Role in Carbon Peaking Action - Progress of the ‘Ten Actions for Carbon Peaking’ (VII)], November 13, 2022, [https://www.ndrc.gov.cn/fggz/hjzy/tdftzh/202211/t20221130\\_1343073.html](https://www.ndrc.gov.cn/fggz/hjzy/tdftzh/202211/t20221130_1343073.html)

<sup>113</sup> 《中央企业碳达峰行动方案编制指南》 [Guidelines for Developing Carbon Peaking Action Plans for Central State-Owned Enterprises] (SASAC, 2022) [https://www.ndrc.gov.cn/fggz/hjzy/tdftzh/202211/t20221130\\_1343073.html](https://www.ndrc.gov.cn/fggz/hjzy/tdftzh/202211/t20221130_1343073.html)

<sup>114</sup> 《“十四五”中央企业发展规划纲要》 [14th Five-Year Development Plan Outline for Central State-Owned Enterprises] (SASAC, 2022) <https://m.cls.cn/detail/761541>

<sup>115</sup> 《中央企业节约能源与生态环境保护监督管理办法》 [Measures for the Supervision and Administration of Energy Conservation and Ecological Environmental Protection in Central State-Owned Enterprises] (SASAC, 2022) <http://www.sasac.gov.cn/n2588035/n2588320/n2588335/c25677916/content.html>

<sup>116</sup> 《2024–2025 年节能降碳行动方案》 [2024–2025 Action Plan for Energy Conservation and Carbon Reduction] [https://www.gov.cn/zhengce/content/202405/content\\_6954322.htm](https://www.gov.cn/zhengce/content/202405/content_6954322.htm)

<sup>117</sup> 《国资央企努力在碳达峰行动中发挥示范引领作用——“碳达峰十大行动”进展（七）》 [Central State-Owned Enterprises Strive to Play a Demonstrative and Leading Role in Carbon Peaking Efforts — Progress on the ‘Ten Actions for Carbon Peaking’ (Part 7)] (NDRC, 2022) [https://www.ndrc.gov.cn/fggz/hjzy/tdftzh/202211/t20221130\\_1343073.html](https://www.ndrc.gov.cn/fggz/hjzy/tdftzh/202211/t20221130_1343073.html)

falsified data related to energy conservation, carbon emissions reduction, or environmental protection are to be subject to sanctions in the annual performance evaluation.

Notably, China's international climate commitments formally recognize the role of central SOEs—for example, in its 2022 updated Nationally Determined Contributions (NDCs) under the Paris Agreement—the current global climate governance framework.<sup>118</sup> Furthermore, beginning in 2025, the fulfillment of China's dual carbon goals was formally integrated into the Central Environmental Protection Inspection (CEPI) —a high-level accountability mechanism established in 2016 to evaluate the environmental and ecological performance of local governments and central SOEs. Operating under the direct authority of the Political Bureau and its Standing Committee, CEPI possesses substantial political weight. Its incorporation of climate actions into the scope of inspection signals significant reinforcement of the regulatory environment and strengthens compliance incentives for central SOEs' low-carbon transition.<sup>119</sup> In May 2025, the fourth phase of the third round of CEPI included three central SOEs: Huaneng, Datang, and SPIC.<sup>120</sup>

### *Social Responsibility*

The mandate for central SOEs to fulfill social responsibility functions has become a key institutional mechanism for steering and assessing their contributions to China's low-carbon transition. Initially framed as voluntary alignment with international norms in the early 2000s, social responsibility has gradually evolved into a formal component of SOE governance. This transformation has been driven by a series of central directives—beginning with SASAC's Guiding Opinions on the Fulfillment of Social Responsibility by Central SOEs (2008) and the Central Organization Department's Interim Measures for the Comprehensive Evaluation of Leadership Teams and Personnel in Central SOEs (2009)—which embedded social responsibility performance, including energy conservation and emissions reduction, into enterprise evaluation and leadership assessment.<sup>121,122</sup>

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<sup>118</sup> Progress on the Implementation of China's Nationally Determined Contributions (2022): "Central government-administered enterprises have all made their action plans for carbon dioxide peaking and carbon neutrality, and many have also set up research institutes to conduct basic research on carbon dioxide peaking and carbon neutrality. Particularly, China Three Gorges Corporation successfully issued the first-ever carbon-neutral bond, and many others launched special funds for green and low-carbon development. Central government-administered enterprises in various sectors, including petroleum, power, transportation, construction and telecommunication, have declared their green and low-carbon statements, calling the whole society to participate in the carbon emission reduction drive for a cleaner and better homestead."

<https://unfccc.int/sites/default/files/NDC/2022-11/Progress%20of%20China%20NDC%202022.pdf>

<sup>119</sup> 《生态环境保护督察工作条例》[Regulations on the Supervision and Inspection of Ecological and Environmental Protection] (State Council, 2025) [https://www.gov.cn/zhengce/202505/content\\_7023427.htm](https://www.gov.cn/zhengce/202505/content_7023427.htm)

<sup>120</sup> CGTN: "China Launches First Environmental Inspections Under New Regulations," May 27, 2025.

<sup>121</sup> 《关于中央企业履行社会责任的指导意见》[Guiding Opinions on the Fulfillment of Social Responsibility by Central SOEs] (SASAC, 2008) [https://www.gov.cn/zwgk/2008-01/04/content\\_850589.htm](https://www.gov.cn/zwgk/2008-01/04/content_850589.htm) This policy directed central SOEs to report their performance in fulfilling eight aspects of social responsibility—including strengthening resource conservation and environmental protection.

<sup>122</sup> 《中央企业领导班子和领导人员综合考核评价办法（试行）》[Interim Measures for the Comprehensive Evaluation of Leadership Teams and Personnel in Central SOEs] (Central Organization Department and SASAC, 2009). The

SASAC has since taken the lead in defining and enforcing these responsibilities through a structured reporting and coordination system. It mandated all central SOEs to publish social responsibility reports by 2012<sup>123</sup> and later established the Central SOEs Social Responsibility Steering Committee (2012) to guide implementation.<sup>124</sup> Building on this foundation, SASAC's Guiding Opinions on Enhancing the Fulfillment of Social Responsibility by SOEs (2016) called for the establishment of a standardized social responsibility management system by 2020<sup>125</sup>, further institutionalizing CSR into SOE governance. Most recently, the Guiding Opinions on Central SOEs' High-Standard Fulfillment of Social Responsibilities in the New Era (2024) promoted the full integration of social responsibility into enterprise strategies and operations, aligning CSR implementation with national low-carbon and sustainability goals.<sup>126</sup>

Institutional reforms have further elevated CSR within the state bureaucracy. The establishment of the Bureau of Scientific and Technological Innovation and Social Responsibility (2019)<sup>127</sup> and its subsequent upgrade into a standalone Social Responsibility Bureau (2022), which includes the Division of Environmental Protection and Low-Carbon Development (环保低碳处)<sup>128</sup>, marked the full integration of low-carbon objectives into central SOE governance.

Parallel to these reforms, ESG disclosure has become an important extension of the social responsibility mandate. SASAC's Work Plan for Improving the Quality of Central SOEs'

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Central Organization Department (COD), the agency supervising the CCP's administrative and personnel affairs, issued this policy that specified social responsibility fulfillment as a key performance measure for central SOE leaders. The evaluation focuses on political competence, operational performance, teamwork and collaboration, and conduct and image, with a total of 11 indicators: Political competence includes political orientation, social responsibility, and Party building within the enterprise; Operational performance includes performance results, financial performance, and scientific development; Teamwork and collaboration include promoting democracy and overall synergy; Conduct and image include integrity and pragmatism, connection with the masses, and honesty and self-discipline.

[https://www.zhizhengce.com/policies/6551d0773426095498073402?\\_sk=%E5%AE%89%E5%85%A8%E7%94%9F%E4%BA%A7%2C%E8%80%83%E6%A0%B8](https://www.zhizhengce.com/policies/6551d0773426095498073402?_sk=%E5%AE%89%E5%85%A8%E7%94%9F%E4%BA%A7%2C%E8%80%83%E6%A0%B8)

<sup>123</sup> "SASAC Establishes the Bureau of Social Responsibility," China Sustainability Tribune, July 6, 2022, <http://sdg-china.net/en/NewsList/info.aspx?itemid=67484>

<sup>124</sup> 《关于成立国资委中央企业社会责任指导委员会的通知》 [Notice on the Establishment of the SASAC Central SOE Social Responsibility Steering Committee] (SASAC, 2012) <http://www.sasac.gov.cn/n2588020/n2588072/n2591482/n2591484/c3735105/content.html>

<sup>125</sup> 《关于国有企业更好履行社会责任的指导意见》 [Guiding Opinions on Enhancing the Fulfillment of Social Responsibility by SOEs] (SASAC, 2016) <http://www.sasac.gov.cn/n2588035/n2588320/n2588335/c20234205/content.html>

<sup>126</sup> 《关于新时代中央企业高标准履行社会责任的指导意见》 [Guiding Opinions on High-Standard Fulfillment of Social Responsibility by Central SOEs in the New Era] (SASAC, 2024) [https://www.gov.cn/zhengce/zhengceku/202406/content\\_6955457.htm](https://www.gov.cn/zhengce/zhengceku/202406/content_6955457.htm)

<sup>127</sup> "SASAC Establishes the Bureau of Social Responsibility," (2022) China Sustainability Tribune, July 6, 2022, <http://sdg-china.net/en/NewsList/info.aspx?itemid=67484>

<sup>128</sup> 《国务院国资委成立科技创新局社会责任局 更好推动中央企业科技创新和社会责任工作高标准高质量开展》 [SASAC Establishes the Bureau of Science and Technology Innovation and the Bureau of Social Responsibility to Better Promote High-Standard and High-Quality Advancement of Technological Innovation and Social Responsibility Work in Central State-Owned Enterprises] (SASAC, 2022) [https://www.gov.cn/xinwen/2022-03/16/content\\_5679420.htm](https://www.gov.cn/xinwen/2022-03/16/content_5679420.htm)

Controlling Listed Companies (2022) and Several Opinions on Improving and Strengthening the Market Value Management of Listed Companies Controlled by Central SOEs (2024) explicitly linked ESG performance with market value management and leadership evaluation<sup>129,130</sup>. Initiatives such as the Central SOE ESG Alliance (2022) have accelerated this shift, leading to near-universal publication of ESG or sustainability reports among listed central SOEs.<sup>131</sup>

These measures—spanning early policy guidance, bureaucratic restructuring, and ESG system building—have transformed social responsibility from a peripheral corporate function into a central governance instrument for achieving national climate objectives. The Guiding Opinions on Central SOEs' High-Standard Fulfillment of Social Responsibilities in the New Era (SASAC, 2024)<sup>132</sup> formalized this integration, identifying green and low-carbon development as a core element of high-standard corporate responsibility and a key channel for advancing China's "dual-carbon" goals. As a result, nearly all listed companies controlled by central SOEs now publish ESG reports alongside annual social responsibility or sustainability reports.<sup>133</sup>

These disclosure practices also highlight the growing integration of social responsibility with national climate policy. The Ministry of Ecology and Environment's China's Policies and Actions for Addressing Climate Change: Annual Report 2024 identified green and low-carbon development as a core dimension of central SOEs' high-standard social responsibility fulfillment, positioning these enterprises as key contributors to China's corporate climate action framework.<sup>134</sup>

### *Evolving Scope of Central SOEs' Low-Carbon Transition Mandates*

These policy mandates with varying levels of stringency for central SOE compliance, comprise an evolving and expanding framework for central SOEs' role and their responsibilities in the low-carbon transition and driving green transformation. During the 11th Five-Year Plan (FYP) period, central SOEs were primarily tasked with meeting energy intensity reduction targets, as energy conservation was a top national priority. Intensification of this focus during the 12th FYP period marked a policy shift from controlling energy intensity to placing caps on total energy

<sup>129</sup> 《提高央企控股上市公司质量工作方案》[Work Plan for Improving the Quality of Listed Companies Controlled by Central SOEs](SASAC, 2022) [https://www.gov.cn/xinwen/2022-05/27/content\\_5692621.htm](https://www.gov.cn/xinwen/2022-05/27/content_5692621.htm)

<sup>130</sup> 《关于改进和加强中央企业控股上市公司市值管理工作的若干意见》[Several Opinions on Improving and Strengthening the Market Value Management of Listed Companies Controlled by Central SOEs] (SASAC, 2024) [https://www.gov.cn/zhengce/zhengceku/202412/content\\_6993174.htm](https://www.gov.cn/zhengce/zhengceku/202412/content_6993174.htm)

<sup>131</sup> 《中央企业 ESG 联盟》[ESG Alliance of Central SOEs]. China Clean Development Mechanism Fund (2022). <https://www.cdmfund.org/32204.html>

<sup>132</sup> 《关于新时代中央企业高标准履行社会责任的指导意见》[Guiding Opinions on High-Standard Fulfillment of Social Responsibility by Central SOEs in the New Era] (SASAC, 2024) [https://www.gov.cn/zhengce/zhengceku/202406/content\\_6955457.htm](https://www.gov.cn/zhengce/zhengceku/202406/content_6955457.htm)

<sup>133</sup> 《国资委最新部署！事关央企上市公司 ESG 信息披露》[Latest SASAC Directive: Concerning ESG Information Disclosure by Listed Companies under Central SOEs](CSRCARE, 2024) <http://www.csrcare.com/Cultrue/Show?id=3248>

<sup>134</sup> 《中国应对气候变化的政策与行动 2024 年度报告》[China's Policies and Actions for Addressing Climate Change: Annual Report 2024] (MEE, 2024) <https://www.mee.gov.cn/ywgz/ydqhbh/wsqtz/202411/W020241106685054014098.pdf>

consumption. In this context, central SOEs were required to “strengthen total coal consumption control in accordance with national requirements.”<sup>135</sup>

Over time, the scope of low-carbon mandates for central SOEs expanded to include decarbonizing their energy mix, accelerating the development of low-energy, low-emission industries, and enhancing technological innovation. Initiatives such as the implementation of science and technology programs for energy conservation and emissions reduction, and the demonstration of low-carbon technology innovation projects in key sectors—including electricity, steel, petroleum and petrochemicals, chemicals, construction materials, and transportation—were introduced toward the end of the 12th FYP period.<sup>136</sup> These efforts were partially driven by an initial lack of progress, as performance on several key indicators between 2011 and 2013 lagged behind schedule.

In particular, the concept of “low-carbon” began to gain prominence by the end of the 12th FYP period (2011-2015). By the 14th FYP (2021-2025), central SOEs were explicitly required to contribute to national climate targets while taking on broader responsibilities in promoting green consumption and transforming industrial structures. Policy emphasis shifted to accelerating the transition toward green and low-carbon production modes, and establishing circular industrial systems.<sup>137</sup> China’s leadership also increasingly expected central SOEs to lead in fostering green and low-carbon consumption, expanding the effective supply of green products and services, promoting green product design, strengthening lifecycle green management, and implementing the extended producer responsibility (EPR) system<sup>138</sup> (Figure 9).

### Figure 9: Evolving Scope of Central SOEs’ Low-Carbon Transition Mandates

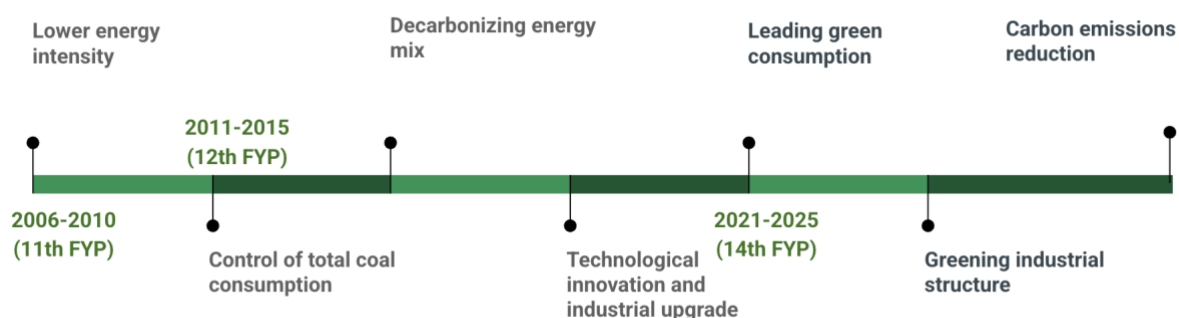
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<sup>135</sup> 《关于进一步加强中央企业节能减排工作的通知》 [Notice on Further Strengthening Energy Conservation and Emissions Reduction Efforts in Central State-Owned Enterprises] (SASAC, 2014) <http://www.sasac.gov.cn/n2588035/n2588320/n2588335/c20234007/content.html>

<sup>136</sup> 《国务院办公厅关于印发 2014-2015 年节能减排低碳发展行动方案的通知》 [Notice of the General Office of the State Council on Issuing the 2014–2015 Action Plan for Energy Conservation, Emissions Reduction, and Low-Carbon Development] (State Council, 2014) [https://www.gov.cn/zhengce/content/2014-05/26/content\\_8824.htm](https://www.gov.cn/zhengce/content/2014-05/26/content_8824.htm)

<sup>137</sup> Circular industrial systems refer to industrial production models that minimize waste and resource input by designing processes for reuse, recycling, and regeneration of materials across the product life cycle.

<sup>138</sup> Extended Producer Responsibility (EPR) is a policy approach that holds producers accountable for the post-consumer stage of their products, encouraging them to manage take-back, recycling, and disposal to reduce environmental impact. 关于推进中央企业高质量发展做好碳达峰碳中和工作的指导意见》 [Guiding Opinions on Promoting High-Quality Development of Central SOEs and Advancing Carbon Peaking and Carbon Neutrality Efforts] (SASAC, 2021) <http://www.sasac.gov.cn/n2588035/c22499825/content.html>



In summary, central SOEs are formally and increasingly obligated to comply with directives issued by SASAC and other state authorities. Such compliance is not merely procedural; it directly affects performance evaluations. As Cao Peixi (曹培玺), General Manager (2007-2018) of Huaneng Group stated when the company received the “Outstanding Enterprise Award for Energy Conservation and Emissions Reduction” in SASAC’s 2013 annual performance evaluation: “Vigorously promoting energy conservation and emissions reduction while accelerating clean energy development has earned us quite a few extra points in performance evaluations.”<sup>139</sup> Since energy conservation and emissions reduction, efforts on dual carbon goals, and fulfilling social responsibility have been integrated into central SOE leader performance evaluation, complying with these mandates has become a structural mechanism promoting low-carbon transition.

### Multiple Incentives for Central SOEs’ Low-Carbon Transition

Multiple incentives drive central SOEs to pursue low-carbon transitions. This section outlines three broad categories of incentives—political, policy-driven, and financial—that jointly shape SOE leaders’ decisions. These incentives for action—or inaction—are inherently complex, given SOEs’ unique political, economic, and social roles in China. As described above, SOE leaders’ dual identity as businesspeople and officials governed under the CCP’s cadre management system incentivizes them to fulfill political mandates from the central government. In addition, the central government uses SOEs as policy tools to pursue a variety of economic and non-economic goals.<sup>140</sup> Nevertheless, SOEs are still companies operating in domestic and international commercial markets, where they compete with other market actors for profit and seize rents for the state. They endeavor to safeguard and enhance the value of state-owned assets while simultaneously supporting their own business operations and survival. For this

<sup>139</sup> 《央企考核有哪些看点》 [What Are the Key Highlights of Central SOE Performance Evaluations ?], 新华网 [Xinhua Net], August 3, 2013, <http://politics.people.com.cn/n/2013/0803/c70731-22433821-2.html>

<sup>140</sup> Michael Howlett, and M. Ramesh, “State-Owned Enterprises as Policy Tools,” in *The Routledge Handbook of State-Owned Enterprises*, 553-67 (Routledge, 2020); Justin Yifu Lin, Fang Cai, and Zhou Li, “Competition, Policy Burdens, and State-Owned Enterprise Reform,” *The American Economic Review* 88, no. 2 (1998): 422-27.

reason, financial incentives such as increasing profitability and avoiding significant financial losses also motivate their decision-making in renewable energy investment.

### *Compliance with Policy Mandates*

Compliance with policy mandates is one of the primary incentives driving central SOEs' low-carbon transition behavior, although the extent of their compliance varies. Energy conservation has been a stringent policy mandate for central SOEs given its crucial role in China's development strategy since the 1980s. Quantified targets were set for central SOEs on energy conservation from the 11th FYP (2006-2010) to the 14th FYP period (2021-2025), except for the 13th FYP (2016-2020), requiring reductions in energy intensity of 20%, 16%, and 15%, respectively. In response, central SOEs established Energy Conservation and Emissions Reduction Leadership Groups led by their top leadership, developed statistical monitoring systems for energy conservation and emissions reduction, and implemented incentive and constraint mechanisms—integrating these performance metrics into SASAC's evaluation of central SOE leaders.<sup>141</sup> As a result, even though the national-level energy saving target was narrowly missed at the end of the 11th FYP, central SOEs overachieved the target,<sup>142</sup> and a similar outcome occurred during the 12th FYP.<sup>143</sup>

To comply with the dual carbon targets, power central SOEs have pledged to scale up investment in non-fossil fuel energy and set enterprise-specific targets to meet the mandated goal of above 50% renewable energy installed capacity by 2025 for central SOEs. Some have already surpassed their targets, including three out of the “Big Five” firms (Table 4).

**Table 4: The “Big Five” Renewable Energy Targets and Progress by 2024**

The “Big Five”	2020 Installation	2024 Installation	2025 Target
China Energy	Non-coal power installed capacity: 26.59%	Renewable energy installed capacity already achieved 40%	Renewable energy installed capacity by 40% of total power installed capacity
Huadian Group	Non-coal power installed capacity: 43.4%	Non-coal power installed capacity: 56.2%	Non-fossil power installed capacity: >50%; Non-coal

<sup>141</sup> Four Major Advances in Central SOEs' Energy Conservation and Emissions Reduction Efforts (Xinhuanet, 2008) <https://www.ccchina.org.cn/Detail.aspx?newsId=10435&Tid=57>

<sup>142</sup> Becoming the Backbone of China's Economy (People's Daily, 2011) <http://www.sasac.gov.cn/n2588025/n2588119/c2676481/content.html>

<sup>143</sup> Reply Letter to Proposal No. 0677 (Resource and Environment Category No. 039) of the Third Session of the 12th National Committee of the Chinese People's Political Consultative Conference (CPPCC) (MEE, 2014) [https://www.mee.gov.cn/gkml/sthjbgw/qt/201511/t20151113\\_316983\\_wh.htm](https://www.mee.gov.cn/gkml/sthjbgw/qt/201511/t20151113_316983_wh.htm)

			power installed capacity: >60%
Datang Group	Non-coal power installed capacity: 38.2%	Non-coal power installed capacity: 47%	Non-fossil power installed capacity: >50%; Non-coal power installed capacity: >50%
Huaneng Group	Non-coal power installed capacity: 36.5%	Non-coal power installed capacity already achieved 50%	Non-coal power installed capacity: >50%
SPIC	Non-coal power installed capacity: 56.09%	Non-coal power installed capacity: 70.86%	Non-coal power installed capacity: >60%

*\*\*Note: Non-coal power includes renewable energy (wind, solar, hydro power, and biomass), nuclear power, and natural gas power; non-fossil power excludes coal and natural gas power*  
Source: Sina (2025)<sup>144</sup>

Additionally, SASAC has required that all central SOEs must develop enterprise-tailored action plans for achieving the national carbon peak goal. Based on publicly available information gathered from 98 central SOEs as of October 2024, more than 70% have publicly announced their action plans and outlined pathways for the carbon peak or the dual carbon goals.

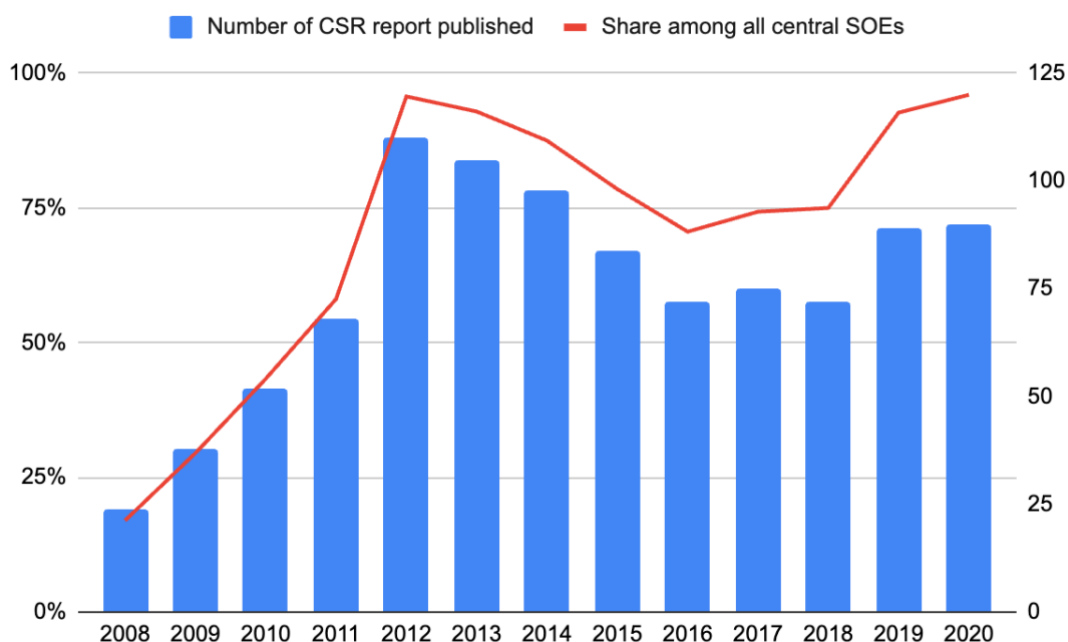
In contrast to energy conservation and climate mitigation goals, corporate social responsibility or ESG disclosure is not yet explicitly incorporated into the central SOE leader performance evaluation. However, one SASAC study shows that 96% of the central SOEs published social responsibility reports in 2020, and over 60% have published them annually more than 9 times (see Figure 10).<sup>145</sup> ESG has achieved almost full disclosure among listed companies owned by central SOEs, reaching 99.6%.<sup>146</sup>

<sup>144</sup> 《五大发电，仅两家还未完成》 [Among the Five Major Power Generation Companies, Only Two Have Yet to Meet the Target] (Sina, 2025) <https://finance.sina.com.cn/roll/2025-01-14/doc-ineexyiv8611585.shtml>

<sup>145</sup> 《中央企业社会责任报告发布数量及比例再创新高》 [Record-High Number and Proportion of CSR Reports Released by Central SOEs], SASAC Research Project (SASAC, 2021) [https://mp.weixin.qq.com/s/WsbL3dzK\\_HyGU-oGIWUZ8w](https://mp.weixin.qq.com/s/WsbL3dzK_HyGU-oGIWUZ8w)

<sup>146</sup> Blue Book on Environment, Social, and Governance (ESG) of Listed Central SOEs (2024) (SASAC, 2024) as cited in 王子霖 《Wang Zishuang》, 《国务院国资委：央企上市公司 ESG 报告披露率已达 99.6%》 [SASAC: ESG Report Disclosure Rate of Central SOEs Listed on the Stock Market has Reached 99.6%], 《上海证券报》 [Shanghai Securities News], November 9, 2024. <https://finance.eastmoney.com/a/202411093234647166.html>

**Figure 10: Number and Share of Published Corporate Social Responsibility (CSR) Reports by Central SOEs**



Source: Data from SASAC (2021)<sup>147</sup>

However, despite notable progress, SASAC's mandates for low-carbon transition have not necessarily yielded immediate or full SOE compliance. First of all, while requirements such as submitting dual carbon action plans and ESG or CSR reports are procedurally easier to fulfill, the production of these documents does not necessarily indicate actual or effective real-world implementation. Disclosure alone does not necessarily equate with substantive changes in investment behavior, operational practices, or actual carbon performance. The case of CSR reporting, for example, highlights the limitations of enforcement mechanisms. Although universal CSR disclosure was targeted for 2012, this goal remains unfulfilled. As of 2019, official documents were still calling for "full coverage," indicating that incentives have been insufficient to ensure full compliance.<sup>148</sup> Furthermore, even if SOEs do fulfill reporting requirements, actual firm behavior may still fall short in cases when ESG or CSR practices conflict with commercial or political priorities.

<sup>147</sup> 《中央企业社会责任报告发布数量及比例再创新高》 [Record-High Number and Proportion of CSR Reports Released by Central SOEs], | SASAC Research Project (SASAC, 2021) [https://mp.weixin.qq.com/s/WsbL3dzK\\_HyGU-oGIWUZ8w](https://mp.weixin.qq.com/s/WsbL3dzK_HyGU-oGIWUZ8w)

<sup>148</sup> 《央企社会责任报告有望实现“全覆盖”》 [Central SOEs' Social Responsibility Reports are Expected to Achieve Full Coverage], 《经济日报》 [Economic Daily], August 30, 2019, [https://www.gov.cn/xinwen/2019-08/30/content\\_5425751.htm](https://www.gov.cn/xinwen/2019-08/30/content_5425751.htm)

The extent of SASAC's actual influence over central SOEs remains contested but appears to have weakened somewhat over time. In 2013, SASAC director Jiang Jiemin was removed on charges of corruption and abuse of power—a high-profile case that tarnished SASAC's public credibility and authority.<sup>149</sup> SASAC's influence waned further in 2015 when the staff office of the Central Leading Group for Financial and Economic Affairs headed by Liu He<sup>150</sup>—not SASAC—acted as the highest authority for coordinating and drafting the Xi administration's SOE reform roadmap in 2015.<sup>151</sup> SASAC has also increasingly struggled to monitor and regulate central SOEs as their size, organizational complexity, and overseas assets and business have all steadily grown.<sup>152</sup> At SASAC's establishment 2003, it was granted ministerial-level administrative ranking and a relatively large staffing quota (编制) of 555 positions.<sup>153</sup> However, this figure stood only marginally higher at 636 in 2018—despite the massive expansion of central SOE assets and international portfolios over the past 15 years.<sup>154</sup> Moreover, the combination of SASAC director and Party secretary leadership roles since 2019, which had historically always been separated since 2003, further reflects the centralization of political authority over SASAC.<sup>155</sup>

### *Financial Incentives*

SOEs are well-known as less economically efficient and cost-sensitive than their private sector counterparts, but they have faced increasingly stringent economic performance requirements over time. On the one hand, SOEs are obligated to fulfill non-profit-oriented policy mandates—making them often subject to soft budget constraints.<sup>156</sup> On the other hand, SASAC does require and incentivize central SOEs to generate financial gains. They are expected to make profits, even if not necessarily to maximize profits.<sup>157</sup> Economic performance remains central to

<sup>149</sup> “Jiang Jiemin Removed from Office: Authority,” *Global Times*, September 3, 2013, [globaltimes.cn/content/808263.shtml](http://globaltimes.cn/content/808263.shtml)

<sup>150</sup> In 2015, Liu He (刘鹤) also served as NDRC Deputy Director and Central Committee member; he became Vice Premier in 2018.

<sup>151</sup> 中共中央、国务院 [Central Committee of the CCP and the State Council], 《关于深化国有企业改革的指导意见》 [Guiding Opinions on Deepening State-Owned Enterprise Reform], September 13, 2015.

<sup>152</sup> Wendy Leutert, “Firm Control: Governing the State-Owned Economy Under Xi Jinping,” *China Perspectives*, no. 1–2 (2018): 27–36.

<sup>153</sup> Kjeld Erik Brødsgaard, “Politics and Business Group Formation in China: The Party in Control?,” *The China Quarterly* 211 (2012): 624–648.

<sup>154</sup> 中共中央办公厅、国务院办公厅 [General Office of the CCP Central Committee and General Office of the State Council], 《关于深化中央国家机关机构改革的通知》 [Notice on Deepening Institutional Reform of Central State Organs], November 13, 2018.

<sup>155</sup> Hao Peng (郝鹏), SASAC Party secretary since 2017, additionally assumed the director role in 2019; current SASAC head Zhang Yuzhuo (张玉卓) has held both roles since his appointment in 2022.

<sup>156</sup> “Soft budget constraint” refers to the provision of external financial support when losses occur, thereby undermining fiscal discipline and market accountability Janos Kornai, “The soft budget constraint,” *Kyklos* 39, no. 1 (1986)..

<sup>157</sup> Ching Kwan Lee, *The Specter of Global China: Politics, Labor, and Foreign Investment in Africa* (Chicago: University of Chicago Press, 2017).

the performance evaluations of SOE leadership, as SASAC's core mission is to ensure the preservation and increase of state-owned assets and to secure returns for the state.

Since SASAC's establishment in 2003, the key financial performance indicators have expanded from total profits to encompass more refined metrics such as Economic Value Added (EVA) and net profit. Previously, SASAC only assessed total profits. However, total profit is positively correlated with investment scale and thus can encourage excessive expansion rather than reflecting actual profitability. In 2010, SASAC introduced EVA into its evaluation system.<sup>158</sup> Different from traditional profit measures such as total profit, EVA better reflects how efficiently capital is used and whether a firm generates value beyond its capital cost. In 2018, SASAC further refined its performance assessment by incorporating net profit—which provides a more accurate measure of business efficiency, relative to total profit<sup>159</sup>.

Wind and solar power were once among the most profitable power businesses in China. Decades of renewable energy industrial policies, especially the introduction of feed-in tariffs for wind and solar generation and the rise of intense market competition, had made these sectors highly lucrative for major central power generation SOEs.<sup>160</sup> During the late 2010s, wind and solar ventures gradually outperformed coal-fired power, particularly as coal-based operations suffered declining margins due to rising coal prices after 2016. Over this period, wind power in particular experienced steady and increasing profitability (Figure 11), becoming a major source of financial stability and growth for power generation SOEs. This divergence in profit trajectories prompted many central SOEs to reallocate capital and expand investment in wind and solar energy. As one internal company document reviewed by the author noted, "The wind power business has become an important pillar of the company and the primary engine of its growth."<sup>161</sup>

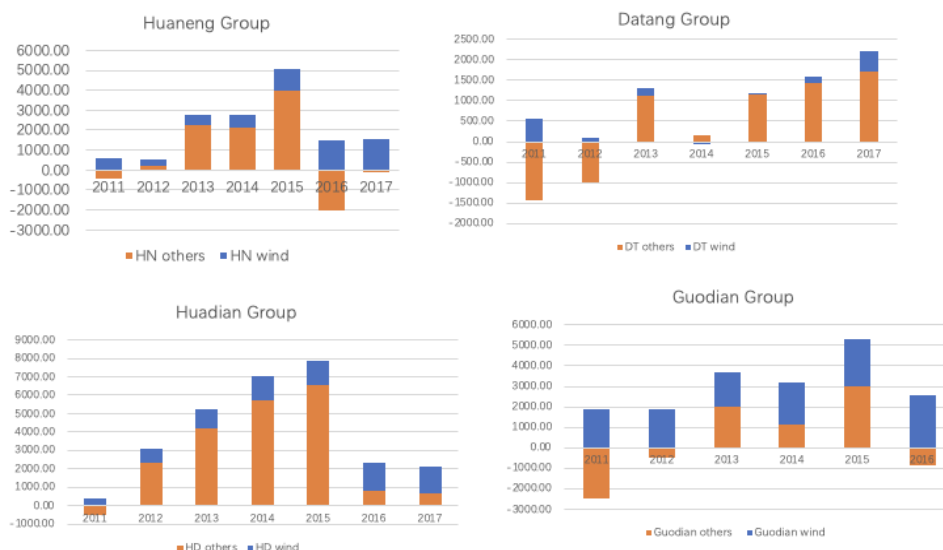
**Figure 11: Profitability of Wind and Other Businesses in Major Power Central SOEs (Million RMB), 2011-2017**

<sup>158</sup> EVA emphasizes that a project creates value only if the return on capital exceeds the cost of capital. Meena Subedi and Ali Farazmand, "Economic value added (EVA) for performance evaluation of public organizations," *Public Organization Review* 20 (2020).

<sup>159</sup> 《中央企业负责人经营业绩考核办法》 (Measures for the Performance Evaluation of Central SOE Leaders) (SASAC, 2018) [https://www.gov.cn/zhengce/zhengceku/2019-11/01/content\\_5447595.htm](https://www.gov.cn/zhengce/zhengceku/2019-11/01/content_5447595.htm)

<sup>160</sup> Zhu, M., Qi, Y., & Hultman, N. (2022). Low-carbon energy transition from the commanding heights: How state-owned enterprises drive China's wind power "miracle". *Energy Research & Social Science*, 85, 102392.

<sup>161</sup> Information obtained from the author's fieldwork at HuanengGroup in China in 2018



Sources: Fortune 500 data; central SOE listed wind power subsidiary financial reports

### Political Incentives

Political incentives for central SOEs' low-carbon transitions influence leader and firm behavior primarily through the cadre management system. Central SOE leaders' career continuation and advancement depends on their ability to meet—and preferably exceed—CCP-defined performance targets. Conversely, failure to do so can result in demotions or dismissal. In principle, the cadre management system is designed to align enterprise leaders' personal career ambitions with Party-state priorities through both positive and negative incentives.

Yet despite China's official decarbonization goals and concomitant roll-out of firm-level plans, political incentives may not be as influential in driving low-carbon transitions in central SOEs as other types of incentives. The General Office of the Central Committee (中央办公厅) and the COD serve as core agencies for advancing the Party's priority agenda and overseeing administrative and personnel affairs, respectively. This study finds no policies issued by either agency have explicitly required central SOEs or their leaders to fulfill low-carbon transition goals.<sup>162</sup> This suggests that low-carbon transition has not yet been institutionalized in the evaluation governing the political mobility of central SOE leaders. This is because central SOE leaders may view long-term climate and energy-related performance targets as secondary to short-term economic imperatives or energy security objectives—particularly when these goals conflict with one another or national emergencies occur. As a result, political incentives for decarbonization remain uneven and limited in practice by the lack of clear prioritization of energy and climate targets over those in other areas.

<sup>162</sup> Policy data gathered from the PKU (Peking University) Law database <https://home.pkulaw.com/>

Central SOEs must also navigate conflicting signals among multiple political goals. For example, political pressure to meet the dual carbon goals—first announced by top leader Xi Jinping and highly prioritized by the central leadership—has accelerated a surge in renewable energy installations since 2021. At the same time, however, China's leaders have also emphasized the need to avoid power shortages and blackouts. In 2021, for instance, a major electricity supply crisis affected 20 provinces across the country.<sup>163</sup> China remains heavily reliant on coal, which accounted for 63% of total electricity generation in 2021, to help close such shortfalls.<sup>164</sup> Central power SOEs have therefore continued to invest in coal-fired power capacity to ensure grid stability and energy security, even if this impedes their progress toward achieving China's dual carbon goals.

At least formally, however, the fulfillment of social responsibility is still considered a key element of central SOE leaders' "political competence" as specified in the COD and SASAC's "Interim Measures for the Comprehensive Evaluation of Leadership Teams and Personnel in Central SOEs" in 2009.<sup>165</sup> More recently, in May 2025, the General Office of the Central Committee issued an updated version of the "Regulations on Ecological and Environmental Protection Inspection Work," which expands its scope to areas including pollution prevention and control, green transformation of development models, ecological protection and restoration, and the advancement of carbon peaking and carbon neutrality as part of building a "Beautiful China" (美丽中国).<sup>166</sup> These institutional arrangements may strengthen the political incentives for central SOE leaders to prioritize low-carbon development.

### *Other Incentives*

Other incentives, such as reputation considerations and international pressure, also motivate central SOEs' low-carbon transitions. Central SOEs demonstrating excellence in areas such as technological innovation, international operations, energy conservation and environmental protection, and brand development may receive formal recognition in term-end evaluations. For example, central SOEs with outstanding performance in meeting the energy saving targets can receive the "Award for Enterprises with Outstanding Contributions to Energy Conservation and Emission Reduction."<sup>167</sup> Central SOE leadership teams that receive an "excellent" rating in their

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<sup>163</sup> For several analyses of this episode, see "The 2021 Energy Crisis: Implications for China's Energy Market and Policies," The Oxford Institute for Energy Studies, issue 131, March 2022, [www.oxfordenergy.org/publications/oxford-energy-forum-the-2021-energy-crisis-implications-for-chinas-energy-market-and-policies/](http://www.oxfordenergy.org/publications/oxford-energy-forum-the-2021-energy-crisis-implications-for-chinas-energy-market-and-policies/).

<sup>164</sup> IEA, "China – Electricity," (2024), [www.iea.org/countries/china/electricity](http://www.iea.org/countries/china/electricity).

<sup>165</sup> 《中央企业领导班子和领导人员综合考核评价办法（试行）》 [Interim Measures for the Comprehensive Evaluation of Leadership Teams and Personnel in Central SOEs] (Organization Department&SASAC, 2009) [https://www.zhizhengce.com/policies/6551d0773426095498073402?\\_sk=%E5%AE%89%E5%85%A8%E7%94%9F%E4%BA%A7%2C%E8%80%83%E6%A0%B8](https://www.zhizhengce.com/policies/6551d0773426095498073402?_sk=%E5%AE%89%E5%85%A8%E7%94%9F%E4%BA%A7%2C%E8%80%83%E6%A0%B8)

<sup>166</sup> 《生态环境保护督察工作条例》 [Regulations on Ecological and Environmental Protection Inspection Work] (General Office of the Central Committee & State Council, 2025) [https://www.gov.cn/zhengce/202505/content\\_7023427.htm](https://www.gov.cn/zhengce/202505/content_7023427.htm)

<sup>167</sup> China Energy was awarded the title of "Outstanding Contributor to Energy Conservation and Emissions Reduction" (China Energy, 2019), <https://www.ceic.com/gjnyjtw/chnjtyw/201907/2d1f8e1ec00041e08da212d255b74acd.shtml>

term-end performance evaluations would be publicly commended. Moreover, low-carbon actions can also serve as a means for some central SOEs to differentiate themselves from peer companies. For instance, even though previously there was no mandated quantified targets from SASAC regarding the share of the share of clean energy capacity, some central power SOEs—such as China Three Gorges Corporation and State Power Investment Corporation (SPIC)—have actively leveraged these indicators to highlight their comparative advantages.<sup>168</sup> Unlike the largest coal-fired power producers, these companies emphasize their clean energy portfolios to position themselves as leaders in the energy transition.

International pressure has shaped Chinese central SOEs' decarbonization behavior, although this factor has arguably been more influential beyond the power sector. For example, they have been more evident among central oil and gas SOEs—such as CNPC (China National Petroleum Corporation), Sinopec (China Petroleum & Chemical Corporation), and CNOOC (China National Offshore Oil Corporation). This has particularly been the case with regard to methane emissions, a potent greenhouse gas that significantly contributes to climate change. For example, in response to growing international expectations around global methane mitigation—an increasingly prominent item on the climate agenda in recent years—the three largest oil and gas central SOEs established the China Oil and Gas Methane Emissions Control Alliance in 2021, together with several other central and local SOEs in the oil and gas sector, including PipeChina, China Resources Gas, and Beijing Gas.<sup>169</sup>

#### *Variation in Incentive Stringency and Influence*

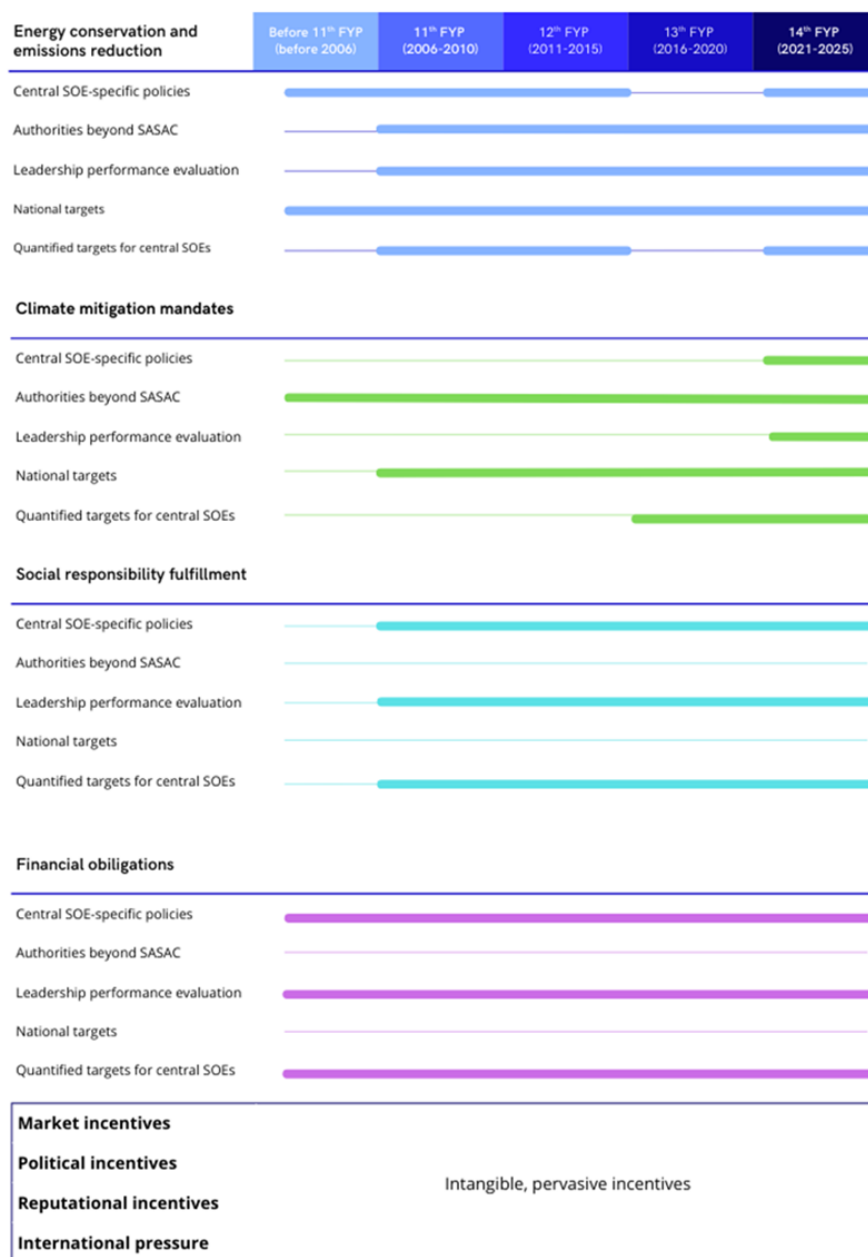
In summary, these incentives have motivated central SOE behavior concerning the low-carbon transition, though their degree of actual influence varies and requires further empirical investigation. The stringency of policy mandates, which thus partially affects the strength of compliance incentives, can be evaluated across five dimensions: (1) whether central SOE-specific policies exist for low-carbon transition; (2) whether other central government authorities beyond SASAC are involved in their supervision; (3) whether the policy mandate is formally integrated into company and leadership performance evaluations; (4) whether national-level targets are established for a given policy directive; and (5) whether quantified targets are specified for central SOEs. Political, reputational, and international pressure-based incentives vary in their stringency, but remain pervasive (Figure 12).

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<sup>168</sup> This observation is supported by the author's interviews and participatory fieldwork.

<sup>169</sup> Behind the Alliance: The Emissions Reduction Landscape of the "Three Barrels of Oil" (OilSNS, 2021) <http://www.oilsns.com/article/468186>

**Figure 12: Variation in Incentive Stringency Across Policy Mandates, Pre-2006 to 2025**



\* Color shading indicates that the dimension is covered by a policy mandate.

## Central SOE Leader Responses

Our biographical data on SOE leaders and their career trajectories and fieldwork reveal that central SOE leaders play critical yet divergent roles in shaping firms' responses to low-carbon transition. In practice, central SOE leaders can interpret, mediate, or in some cases even resist these mandates based on their professional backgrounds, strategic orientations, and institutional constraints. As one department head from a provincial branch of Datang Group stated: "It really depends on the leader. If he comes from a coal-fired power background, rest assured, he will stick with it to the end. Only when there's no alternative will he look for a different path."<sup>170</sup> While this statement reflects only this individual's viewpoint, it nevertheless illustrates how leaders' attitudes can shape an enterprise's actions—or inaction—toward low-carbon transition.

We identify three ideal types of leadership orientations toward clean energy deployment in central SOEs. Specifically, they include: 1) champions, who proactively promote low-carbon innovation and seek to position their firms as leaders in the energy transition; 2) skeptics, who are hesitant or resistant, often due to entrenched interests in traditional sectors or doubts about clean energy viability; and 3) mediators, who navigate between competing policy signals and internal interests, adopting a more cautious or pragmatic approach. Each type reflects a distinct approach in advancing or slowing low-carbon transformation.

### *Champions: Entrepreneurial Advocacy for Transition*

"Champions" are leaders who actively promote low-carbon development, often demonstrating entrepreneurial vision and a willingness to take early risks in clean energy investment. A notable example is Lu Qizhou (陆启洲), who served as general manager and Party secretary of China Power Investment (CPI)—now State Power Investment Corporation (SPIC)—from 2007 to 2015. With a strong technical background and deep experience in the power sector, Lu was instrumental in CPI's early and bold entry into solar power in 2011, a time when most central SOEs still viewed solar as marginal. This strategic pivot positioned CPI as a first mover in renewable energy among the "Big Five" power SOEs, and it also encouraged other firms to follow suit. Under Lu's leadership, CPI laid the foundation for SPIC's current position as the world's largest investor in wind and solar power. By 2024, over 70% of SPIC's installed capacity came from clean energy—the highest share among the traditionally coal-heavy "Big Five," making it the world's largest clean energy investor<sup>171</sup>.

### *Skeptics: Resistance and Delay*

In contrast, "skeptics" are SOE leaders who deprioritize clean energy, focusing instead on traditional fossil fuel-based development. Their actions often result in delayed or minimal adoption of low-carbon strategies. Yun Gongmin (云公民), who led Huadian from 2008 to 2013,

<sup>170</sup> Interview conducted by the author in China in 2018.

<sup>171</sup> "The Share of Clean Energy in SPIC's Installed Capacity Exceeded 70%" (YICAI, 2024) <https://www.yicai.com/news/102186984.html#:~:text=%E6%88%AA%E8%87%B3%E4%BB%8A%E5%B9%B45%E6%9C%88%E5%BA%95%EF%BC%8C%E5%9B%BD%E5%AE%B6,%E6%B8%85%E6%B4%81%E4%BD%8E%E7%A2%B3%E5%8F%91%E5%B1%95%E4%BC%98%E5%8A%BF%E3%80%82>

exemplifies this type of SOE leader. A former government official with a career rooted in coal-rich regions like Inner Mongolia and Shanxi, Yun lacked prior experience in the power sector and maintained a coal-centric development model. Despite Huadian's early strengths in hydropower and wind, Yun prioritized coal and natural gas expansion during his time in office, which slowed the company's clean energy transition. His tenure ultimately ended in scandal, when he was later convicted of corruption tied to coal-related interests. Yun's leadership illustrates how previous individual experience and preferences, together with deliberate institutional inertia, can constrain SOE responsiveness to policy mandates for low-carbon transition.

#### *Mediators: Institutional Bridge-Building and Implementation*

"Mediators" play a bridging role, facilitating implementation of low-carbon policies and enabling coordination across bureaucratic silos. Shu Yinbiao (舒印彪), chairman and party secretary of Huaneng from 2019 to 2022, is a representative example. Having spent over three decades at State Grid, where he rose to the top positions of board chairman and Party secretary, Shu brought a wealth of experience and strong industry ties when he transitioned to Huaneng—China's largest coal power generator. At the time, structural barriers such as grid connectivity challenges and local government permitting constraints hindered the scaling of wind and solar. Shu leveraged his background and networks to address these obstacles, improving grid access and fostering relationships with local authorities. Under his leadership, Huaneng's clean energy share rose from 33% in 2018 to 40% by 2022, gradual yet meaningful progress.

#### *Variation in Central SOE Leader Responses*

Variation in leadership roles highlights the significance of individual agency in shaping the pace, scope, and content of decarbonization efforts within China's central SOEs. "Champions" drive innovation and early adoption; "skeptics" deliberately reinforce the status quo; and "mediators" work within existing institutional constraints to advance implementation. These distinctions underscore the critical role of leadership in aligning enterprise behavior with national low-carbon objectives. Analysis of SOE leaders, and the policy context in which they operate, is thus vital to understanding the past, present, and future of China's low-carbon transition efforts.

### **Conclusion**

This paper presents the first systematic research on power sector central SOE leaders and their governance through the cadre management system. Using original data, it analyzes the demographic characteristics of these leaders and patterns in their appointments. In addition, this paper identifies the key policy mandates and incentive structures that guide central SOEs in advancing China's low-carbon transition. It further investigates variation in how central SOEs and their leaders have acted—or not—given expanding policy mandates for low-carbon transition. This paper provides an empirical foundation for analyzing the role of central SOE leaders in China's evolving low-carbon transition.

Power sector central SOE leaders are both demographically similar and distinct. Similar to most leading officials in China, virtually all are men in their mid- to late-50s and exhibit increasing professionalization through education. However, they also differ from other Chinese political

elites because of their longer average leadership tenures, fewer joint appointments combining top managerial and CCP positions, and weakly enforced mandatory retirement. Over the past decade, a jump in transfers of central SOE power sector leaders to other SOEs suggests that China's current leadership is using the cadre management system more actively to govern these firms and the power sector more broadly. At the same time, the limited incidence of power sector central SOE leaders' concurrent appointments in other leading CCP and government bodies suggests they still have peripheral influence at the highest levels of political decision-making.

In addition, central government policy mandates in three major areas directly assign low-carbon responsibilities to central SOEs: (1) energy conservation and emissions reduction; (2) climate mitigation, particularly in relation to China's 2030 carbon peaking and 2060 carbon neutrality goals; and (3) social responsibility and ESG fulfillment. Mandates in each of these areas originated from distinct national agendas and policy contexts but have gradually become interconnected, collectively shaping incentives and assessment for central SOEs' role in the low-carbon transition. Central SOEs are charged with these mandates and their associated quantitative targets, with SASAC's performance evaluation for SOE leaders strengthening their enforcement. Other types of incentives also influence central SOE behavior, including financial incentives (arising from their dual identity as both state agents and market participants); political incentives (linked to the CCP's cadre evaluation system, which affects leaders' political mobility); and intangible incentives (such as enhancing corporate reputation and responding to international expectations and pressure).

These findings have several important implications for China's low-carbon transition efforts. First, the relatively long tenures of power sector central SOE leaders, which end most commonly in retirement—and frequently after mandated retirement ages—suggest preferences for continuity and stable leadership, institutional memory, and industry experience and expertise. These qualities may all be beneficial for implementing long-term decarbonization strategies. However, they could also reduce responsiveness to policy incentives—especially if an executive becomes risk-averse as retirement approaches or, like Yun Gongmin of Huaneng, is entrenched in traditional fossil fuel-based development approaches and vested interests. Since most power sector central SOE leaders retire rather than advance politically, they may instead prioritize shorter-term performance metrics over long-term goals—particularly when those long-term goals could negatively impact firm financial performance in the short term.

Yet there are some patterns and trends identified in power sector central SOE leaders' career trajectories that indicate possible ways to aid low-carbon transition efforts. First, the jump in inter-SOE leadership transfers within the power sector suggests that China today has already—and could continue to—take a more hands-on approach to aligning SOE leadership with central priorities. This could be an influential mechanism for enforcing policy mandates for low-carbon transition—but only if decarbonization is prioritized politically, relative to other targets that could undercut efforts to achieve it. Transfers of SOE leaders could be used to reward compliance and their achievements at the firm level, or to remove obstructive leaders, thereby making the cadre management system a potential lever for accelerating the transition.

In addition, the relatively low and gradually declining incidence of joint appointments among top leadership roles could also potentially support low-carbon transition efforts. The trend toward separating top executive positions, particularly the roles of Party secretary and board chairman, could enhance internal checks and balances, thereby potentially improving efforts and oversight of actions to fulfill energy conservation and emissions reduction, climate change mitigation, and ESG goals. On the other hand, however, greater separation of roles could complicate efforts to coordinate complex transition efforts—unless the relevant tasks for each are clearly defined and allocated, and the individuals holding different executive roles can work together harmoniously.

The underrepresentation of power sector central SOE leaders in top political bodies suggests they have limited direct policy influence. This could constrain the ability of potential “champions” to advocate for or shape more ambitious low-carbon policy agendas. Such underrepresentation does not equate with lack of influence: there are documented examples of central SOE leaders in the power sector successfully advocating for their policy preferences at the highest levels.<sup>172</sup> However, it does mean that executives of power sector central SOEs may have fewer institutionalized channels for political influence. This study also found scant evidence of individual executives’ political connectedness with current top leadership led by Xi, although future analysis could also assess additional measures of political connectedness.<sup>173</sup>

Despite the existence of policy mandates for central SOEs’ low-carbon transition, the extent of compliance and their real-world impact remain uncertain. Compliance appears to be shaped by several institutional and political factors: whether mandates are formally incorporated into leadership performance evaluations, whether quantified and time-bound targets are set for central SOEs, and the overall stringency of the national policy context. The latter can be reflected in the extent to which other central government agencies—beyond SASAC—are involved in shaping and supervising the policy agenda, and whether national-level targets provide clear guidance. While the inclusion of key mandates—such as energy conservation, dual carbon goals, and clean energy development—into SOE performance evaluation systems has created institutionalized incentives, these alone do not guarantee full or effective compliance. Variation in policy implementation, gaps between procedural compliance and real behavioral change, and conflicting political signals may contribute to uneven outcomes across sectors and firms. Further empirical analysis of these dynamics is thus essential to assessing whether central SOEs can act as credible and capable agents of China’s low-carbon transition.

As policy mandates have evolved, SOE leaders have acted in diverse ways. “Champions,” like Lu Qizhou of China Power Investment, serve as entrepreneurial advocates of low-carbon energy transition, embracing renewable deployment, pioneering innovative initiatives, and

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<sup>172</sup> See, for example, this account of Liu Zhenya successfully lobbying for the development and commercial application of ultra-high voltage (UHV) power grid technology. Xu Yi-Chong, “China’s Giant State-Owned Enterprises as Policy Advocates: The Case of the State Grid Corporation of China,” *The China Journal* 79, no. 1 (2018): 21-39.

<sup>173</sup> In theory, central SOE leaders may have patron-client ties with multiple higher-level officials: central Party leaders, leaders in the COD (the department directly responsible for personnel decisions for those central SOEs in the power sector with vice-ministerial rank equivalence), and SASAC leaders (those nominally in charge of annual reviews). Future research could also include measures of relationships between SOE leaders and these additional types of leaders.

implementing performance metrics to accelerate emissions reductions. “Mediators,” like Shu Yinbiao of Huaneng and State Grid, function as institutional bridge-builders, facilitating horizontal and promoting the diffusion of successful implementation practices across different localities and central SOEs. In contrast, “skeptics” like Yun Gongmin of Huadian may acknowledge decarbonization targets rhetorically, but prioritize conventional fossil fuel–based development models in practice. The reluctance of such “skeptics” can slow or obstruct the rollout of low-carbon reforms, both at the firm-level and nationwide. In some companies and cases, SOE leaders can thus boost the effectiveness of policy mandate implementation, while in others they may impede it. Variation in SOE leader behavior therefore underscores the critical role of individual leadership in shaping how SOEs interpret and respond to China’s ongoing decarbonization agenda.

## Appendix 1

### List of Power Sector Central SOEs Analyzed

1. China National Nuclear Corporation (中国核工业集团公司)
2. China Nuclear Engineering Group Corporation (中国核工业建设集团公司)
3. State Grid Corporation of China (国家电网公司)

4. China Huaneng Group (中国华能集团公司)
5. China Datang Corporation (中国大唐集团公司)
6. China Huadian Corporation (中国华电集团公司)
7. China Three Gorges Corporation (中国长江三峡集团公司)
8. China Power Investment Corporation (中国电力投资集团公司)
9. State Nuclear Power Technology Corporation (国家核电技术公司)
10. China Energy Investment Corporation [China Energy] (国家能源投资集团有限责任公司 [国家能源集团])
11. Dongfang Electric Corporation (中国东方电气集团有限公司)
12. China Southern Power Grid Company Limited (中国南方电网有限公司)
13. State Development & Investment Corporation (国家开发投资公司)
14. China Resources (Holdings) Co., Ltd. (华润 (集团) 有限公司)
15. China Energy Conservation and Environmental Protection Group (中国节能环保集团有限公司)
16. China Guodian Corporation (中国国电集团公司)
17. Shenhua Group Corporation Limited (神华集团有限责任公司)
18. Power Construction Corporation of China (中国电力建设集团有限公司)
19. Sinohydro Group Ltd. (中国水电建设集团)
20. HydroChina Corporation (中国水电顾问集团)
21. China General Nuclear Power Group (中国广核集团有限公司)

## Appendix 2

### Summary Statistics for Key Variables

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Age	601	56.213	4.538	43	69
Above retirement age (>60)	601	.178	.383	0	1
Company years	583	7.986	7.369	1	35

Leader years	601	4.291	3.049	1	17
Previous central-level work experience	561	.246	.431	0	1
Previous local-level work experience	597	.112	.316	0	1
Joint appointments	601	.534	.499	0	1
Joint Party secretary-chairman	601	.338	.473	0	1
Joint Party secretary-general manager	601	.170	.376	0	1
Joint general manager-chairman	601	.005	.071	0	1
Joint Party secretary-chairman-general manager	601	.027	.161	0	1

### Appendix 3

#### Summary of Low-Carbon Policy Mandates for Central SOEs

Policy mandates		Before 11 <sup>th</sup> FYP (Pre-2006)	11 <sup>th</sup> FYP (2006-2010)	12 <sup>th</sup> FYP (2011-2015)	13 <sup>th</sup> FYP (2016-2020)	14 <sup>th</sup> FYP (2021-2025)
Energy conservation and emissions reduction	Central SOE-specific policies	No	<p><i>-Decision of the State Council on Strengthening Energy Conservation Work (State Council, 2006)</i></p> <p><i>- Measures for the Performance Evaluation of Executives of Central State-Owned Enterprises (SASAC, 2009)</i></p>	<p><i>- Notice on the Comprehensive Work Plan for Energy Conservation and Emissions Reduction during the 12th Five-Year Plan Period (State Council, 2011)</i></p> <p><i>- Notice on Further Strengthening Energy Conservation and Emissions Reduction Efforts in Central State-Owned Enterprises (SASAC, 2014)</i></p> <p><i>- Notice of the General Office of the State Council on Issuing the 2014–2015 Action Plan for Energy Conservation, Emissions Reduction, and Low-Carbon Development (State Council,2014)</i></p>	<p><i>- Notice of the State Council on Issuing the Comprehensive Work Plan for Energy Conservation and Emissions Reduction during the 13th Five-Year Plan Period (State Council, 2017)</i></p>	<p><i>- Measures for the Supervision and Administration of Energy Conservation and Ecological Environmental Protection in Central State-Owned Enterprises (SASAC,2022)</i></p> <p><i>- 2024–2025 Action Plan for Energy Conservation and Carbon Reduction (State Council, 2024)</i></p> <p><i>- Guiding Opinions on Promoting High-Quality Development of Central SOEs and Advancing Carbon Peaking and Carbon Neutrality Efforts (SASAC, 2021)</i></p>

	National targets	Energy intensity (per GDP): 5% reduction annually (9 <sup>th</sup> FYP)	Energy intensity: 20% reduction	Energy intensity :16% reduction Total energy consumption: Not to exceed 4 billion tons of coal equivalent (tce) by 2015	Energy intensity :15% reduction Total energy consumption: Not to exceed 5 billion tons of coal equivalent (tce) by 2020	Energy intensity :15% reduction Total energy consumption: Not to exceed 5 billion tons of coal equivalent (tce) by 2025
	Quantified targets for central SOEs	No	Energy intensity (per industrial value-added): 20% reduction	Energy intensity (per industrial value-added): ~16% reduction	No	Energy intensity: 15% reduction; Carbon intensity: 18% Renewable energy installed capacity: exceeding 50%
Climate change	Central SOE-specific Policies	No	No	No	No	- <i>Guiding Opinions on Promoting High-Quality Development of Central SOEs and Advancing Carbon Peaking and Carbon Neutrality Efforts</i> (SASAC, 2021)  - <i>Regulations on the Supervision and Inspection of Ecological and Environmental Protection</i> (MEE, 2025)

	National targets	No	By 2020, carbon intensity (measured by CO <sub>2</sub> emissions per unit of GDP) reduced by 40–45% compared to 2005 levels (announced in 2009)	By 2030, carbon dioxide emissions peak around 2030, with efforts to reach the peak as early as possible; carbon intensity reduced by 60–65% compared to 2005 levels; share of non-fossil fuels in primary energy consumption increased to around 20% (announced in 2015)	By 2020, carbon intensity reduced by 18% compared to 2015 levels; Total energy consumption capped at no more than 5 billion tce (announced in 2016)	Achieving carbon peak before 2030, reaching carbon neutrality by 2060 (announced in 2021)
	Quantified targets for central SOEs	No	No	No	No	By 2025, energy intensity must decrease by 15% relative to 2020 levels; carbon intensity (measured by CO <sub>2</sub> emissions per RMB 10,000 of industrial value-added) decline by 18%; share of renewable energy in total installed power capacity exceeds 50%. By 2030, carbon intensity reduced by more than 65% compared to 2005 levels; Central SOEs expected to peak their emissions ahead of schedule

Corporate social responsibility	Central SOE-specific policies	No	- <i>Guiding Opinions on the Fulfillment of Social Responsibility by Central SOEs</i> (SASAC, 2008)	- <i>Notice on the Establishment of the SASAC Central SOE Social Responsibility Steering Committee</i> (SASAC, 2012)	No	<p>- <i>Guiding Opinions on Enhancing the Fulfillment of Social Responsibility by SOEs</i> (SASAC, 2021)</p> <p>- <i>Work Plan for Improving the Quality of Listed Companies Controlled by Central SOEs</i> (SASAC, 2022)</p> <p>- <i>Several Opinions on Improving and Strengthening the Market Value Management of Listed Companies Controlled by Central SOEs</i> (SASAC, 2024)</p> <p>- <i>Guiding Opinions on High-Standard Fulfillment of Social Responsibility by Central SOEs in the New Era</i> (SASAC, 2024)</p>
	National targets	N/A	N/A	N/A	N/A	N/A

	Quantified targets for central SOEs		Required all central SOEs to disclose corporate social responsibility by 2012 (announced in 2009)			Achieving a full coverage of ESG disclosure among public listed central SOEs by 2023
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#### Appendix 4

##### Key Attributes of Currently Serving Power Sector Central SOE Board Chairmen-Party Secretaries

Company	Name	Start Date	Birth Year	Age	Past Retirement Age	Education	Previous Top Leadership Role at Central SOE	Previous Government Work Experience	National Political Roles (Central Committee, NPC & CPPCC)
China National Nuclear Corporation (CNNC)	Shen Yanfeng	05-2025	1972	53	No	MS	No	No	No
China Datang Corporation	Lü Jun	02-2025	1967	58	No	MS	COFCO Chairman-Party Secretary	No	20th Central Committee Alternate
China Energy Conservation Group	Liao Jiasheng	03-2025	1967	58	No	PhD	China Railway Materials Group General Manager; China Logistics Group General Manager	Yes - State-owned Assets Supervision and Administration Commission; Ministry of Finance, State-Owned Assets Administration Bureau, State Ethnic Affairs Commission	No

State Development & Investment Corporation (SDIC)	Fu Gangfeng	06-2022	1966	59	No	BA	China COSCO Shipping Corporation General Manager; China Merchants Group General Manager	No	20th National Party Congress Delegate, 14th National Committee of the Chinese People's Political Consultative Conference (CPPCC) Member
China Energy Investment Corporation (CEIC)	Zou Lei	02-2025	1966	59	No	MS	Harbin Electric Group Corporation Chairman-Party Secretary, General Manager; Chairman-Party Secretary Dongfang Electric Corporation; Chairman-Party Secretary Datang	No	14th National Committee of the Chinese People's Political Consultative Conference (CPPCC) Member
Dongfang Electric Corporation	Luo Qianyi	07-2025	1965	60	Yes	BA	China National Machinery Industry Corporation General Manager	No	No
State Grid Corporation of China	Zhang Zhigang	03-2024	1964	61	Yes (1 year)	MS	No	No	20th Central Committee Alternate
China Three Gorges Corporation	Liu Weiping	04-2024	1964	61	Yes (1 year)	BA	No	Yes - Ministry of Water Resources	14th National Committee of the Chinese People's Political Consultative Conference (CPPCC) Member
Power Construction Corporation of China (POWERCHINA)	Ding Yanzhang	09-2021	1964	61	Yes (1 year)	MS	China Energy Engineering Group Party Secretary	No	14th National Committee of the Chinese People's Political Consultative

									Conference (CPPCC) Member
China General Nuclear Power Group (CGN)	Yang Changli	07-2020	1964	61	Yes (1 year)	MS	No	No	14th National Committee of the Chinese People's Political Consultative Conference (CPPCC) Member
China Huaneng Group	Wen Shugang	09-2022	1963	62	Yes (2 years)	MS	Huadian Chairman-Party Secretary	No	14th National Committee of the Chinese People's Political Consultative Conference (CPPCC) Member
China Resources	Wang Xiangming	07-2020	1963	62	Yes (2 years)	BA	China State Construction Engineering Corporation President, General Manager	No	20th National Party Congress Delegate, 14th National Committee of the Chinese People's Political Consultative Conference (CPPCC) Member
China Huadian Corporation	Jiang Yi	09-2022	1962	63	Yes (3 years)	MS	State Power Investment Corporation (SPIC) General Manager	No	14th National Committee of the Chinese People's Political Consultative Conference (CPPCC) Member
China Southern Power Grid Company	Meng Zhenping	08-2018	1962	63	Yes (3 years)	MS	State Power Investment Corporation (SPIC) General Manager	No	20th National Party Congress Delegate, 14th National Committee of the Chinese People's



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