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# *The Driving Effect of Provincial Dual-Carbon Policy Mix on Green Transition — A Case Study on the Pathways of Corporate Business Model Reconfiguration*

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***Abstract.*** To achieve carbon peak and neutrality, provincial governments employ policy mixes including regulatory constraints, market incentives, and innovation guidance to drive corporate green transition. Through a multi-case comparison of Zhejiang Longsheng, Hikvision, and Wenergy Group, this study analyzes the transmission pathway of "policy mix - business model reconfiguration - green transition." Findings show that different policies drive firms to reconfigure various dimensions of their business models via differentiated mechanisms, leading to distinct transition outcomes. Regulatory constraint policies force operational process reconfiguration, achieving process optimization (e.g., Longsheng's annual carbon reduction of 11,400 tons). Innovation guidance policies drive value proposition expansion, achieving technology-enabled transition (e.g., Hikvision's carbon emission density decreased by 23% over three years). Strategic planning policies drive business portfolio adjustment, achieving strategic reconfiguration (e.g., Wenergy's new energy installed capacity increased 32-fold over four years). The study suggests that policy mixes need to match corporate endowments to effectively drive green transition.

***Keywords:*** Provincial Dual-Carbon Policy, Green Transition, Business Model Reconfiguration, Multi-Case Study, Transmission Pathway

## 1. Introduction

Achieving carbon peak and neutrality (dual carbon) is a major national strategy, imposing clear low-carbon transition requirements on enterprises. As key executors, provincial governments use various policy tools (planning, market, fiscal) to promote local enterprise transformation. However, firms face high transition costs and weak internal motivation. The core solution lies in whether dual-carbon policies can effectively prompt enterprises to proactively reconfigure their business models, turning external pressure into new developmental momentum.

The mechanisms by which provincial policy mixes influence corporate behavior and the core transition pathways are central to this study. Existing research insufficiently explores how policies promote green transition through the micro-pathway of business model reconfiguration [1,2]. Provinces like Zhejiang, Jiangsu, Guangdong, and Anhui have introduced distinctive dual-carbon

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policies covering high-energy-consuming and key emissions-intensive industries, providing a research context.

This study aims to clarify the specific mechanisms and pathways of provincial dual-carbon policies affecting corporate green transition. Theoretically, it fills the gap in the "policy – behavior – outcome" micro-transmission chain. Practically, it offers references for governments to optimize policy mixes and for similar enterprises to adopt replicable transition paths.

## 2. Case analysis

Based on prior research, provincial dual-carbon policies are categorized into regulatory constraint, innovation guidance, and strategic planning [1]. Corporate green transition can be observed through business model reconfiguration across the dimensions of value proposition, operational processes, resources & capabilities, and profit models [3], with outcomes including process optimization, technology enablement, and strategic reconfiguration [2]. This chapter analyzes three case firms from five aspects: policy context, transition baseline, business model reconfiguration, outcomes, and pathway refinement.

### 2.1. Zhejiang Longsheng: process optimization under regulation and guidance

In February 2023, Zhejiang's Industrial Sector Carbon Peak Implementation Plan set regulatory constraints for the chemical industry: by 2025, energy consumption per unit industrial added value to drop more than16%, carbon emissions more than20%, and 50% of key area capacity to meet efficiency benchmarks. It encouraged energy-saving retrofits, digital tech application, and zero-carbon factories [4]. Before the policy (2022), Longsheng had not systematically disclosed energy-saving results nor established a carbon reduction organization. In response, it reconfigured its business model: operationally, it implemented heat-conducting oil furnace upgrades and dye spray tower retrofits in 2023, saving 11,100 tons of standard coal [5]; in 2024, it continued sulfuric acid heat recovery, saving 4,811 tons, while maintaining a circular economy industrial ecosystem. In resources & capabilities, it set up a carbon reduction leadership group in 2023, completed carbon verification, and in 2024 obtained carbon footprint certification for products such as m-phenylenediamine and established a partnership with Ruibo on AI for energy saving. In value proposition, it evolved from "green intelligent manufacturing" (2022) to systematically disclosing green products and low-carbon solutions in ESG reports (2023 onward), positioning as a chain leader promoting clean technologies. In its profit models, economic returns mainly come from cost savings; in 2024, it first disclosed cash dividends and renewed a tax compliance agreement, reserving capacity for future carbon assets. Outcomes: 2023 first disclosed annual $CO_2$ reduction of 11,400 tons and environmental investment of 423 million yuan; 2024 carbon reduction reached 15,000 tons, with carbon footprint certification emerging [5,6]. Its pathway centers on operational process reconfiguration, simultaneously advancing resources & capabilities and value proposition adjustments, achieving process optimization.

### 2.2. Hikvision: technology-enabled transition under innovation guidance

In June 2021, Zhejiang's Carbon Peak and Neutrality Science and Technology Innovation Action Plan promoted new-generation IT integration, key technologies such as multi-energy complementary smart energy systems and carbon labeling, and supported leading firms in forming innovation consortia [7]. In February 2022, the Implementation Opinions on Fully Implementing the New

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Development Concept to Achieve Carbon Peak and Neutrality explicitly proposed leveraging digital reform to drive comprehensive green transformation and building dual-carbon digital intelligence platforms [8]. Before these policies (2020), Hikvision lacked a carbon management organization, had not disclosed PV/green electricity data, and had not conducted carbon footprint certification. Driven by innovation guidance, it reconfigured: organizationally, it established a Carbon Neutrality Committee in December 2021, defining its green mission; in 2022, it set up a Carbon Neutrality Operations Working Group with four sub-groups and compiled the Greenhouse Gas Emission Management Procedure. In value proposition, it established "Technology for Good" and "Green & Low-Carbon" as core ESG directions in 2022; in 2023, "Climate Change Response" and "Clean Technology Application" were first listed as highly material environmental issues alongside "Technological Innovation." Operationally, it first disclosed green electricity procurement (32,900 MWh) and PV generation (4,500 MWh) in 2022 [9]; by 2023, PV generation rose to 12,500 MWh (+178%), the company was rated a green factory, and annual plastic reduction reached 46.2 tons [10]. In product technology, environmental label products increased from 24,000 models in 2020 to 47,000 in 2023 (+96%); in 2023, it first conducted carbon footprint certification for products including network cameras, LCDs, and LEDs, launching the "Dual Carbon Brain" platform [10,11]. R&D investment grew from 6.38 billion yuan in 2020 to 11.39 billion yuan in 2023, maintaining high growth. Outcomes: carbon emission density fell from 2.31 t/million yuan in 2020 to 1.77 t/million yuan in 2023, declining for three consecutive years, with organizational development synchronized with policy implementation [10,11]. Its pathway takes organizational change as precursor, transforming technological capabilities into green solutions, achieving technology-enabled transition.

### 2.3. Wenergy group: strategic reconfiguration under strategic planning

In September 2022, Anhui's Carbon Peak Implementation Plan required promoting coal and new energy combination, targeting a share of non-fossil energy consumption of more than 15.5% by 2025 and more than 22% by 2030. The Provincial Party Committee and Government endowed the Group with a functional positioning: "Provincial Team for Energy Security, Main Force for Strategic Adjustment of Energy Structure, and Main Platform for Dual-Carbon Action" [12]. Before the policy was implemented in 2020, the Group's business was dominated by thermal power, with clean energy assets accounting for 24.1% and new energy scale small; the assets of Xinneng Company stood at only 1.169 billion yuan [13]. Driven by strategic planning, it underwent strategic reconfiguration: in terms of its business portfolio, it clarified "extraordinary new energy development" in 2021. By 2023, cumulative new energy capacity reached 4.95 million kW (32× from 2020) [14]; by 2024, new energy generation reached 2.24 billion kWh (+77.4%). It acquired thermal power units for the "Xinjiang electricity to Anhui" project, which is capable of delivering 7 billion kWh annually [15]. In 2022, it led a 5 billion yuan provincial carbon neutrality fund [16]; in 2024, the Hefei Gas Power Plant commenced operation as Anhui's first natural gas peaking plant. In terms of organizational structure, it launched the reform to become a state-owned capital investment company in 2021; in 2022, the three-year SOE reform was rated A-grade, and Anhui Natural Gas Company was selected as a "Double Hundred Enterprise" by SASAC. It established an Industrial Research Institute, a talent platform with "Two Camps and One Center," and joint labs with USTC. Technologically, it conducted ammonia blending combustion experiments in 2021; in 2023, it built the Zhicarbon Energy Industrial Internet Platform; in 2024, the virtual power plant control platform went online, obtaining the province's first qualification, and "Wenergy Cloud" launched. In green management, it released the Carbon Asset Management Measures in 2021, and from 2022 to 2024

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continuously implemented environmental improvement projects, with cumulative investment exceeding 600 million yuan [12,14,16]. Outcomes: total assets rose from 55.9 billion yuan in 2020 to 116.2 billion in 2024, more than doubling; new energy generation increased 21-fold over four years; technological innovation investment increased from 115 million to 1.04 billion yuan (8× growth) [13,14]. Its pathway centers on business portfolio reconfiguration, achieving strategic reconfiguration from a traditional thermal power-focused model to a diversified "thermal power + new energy + new businesses" model, from provincial to cross-regional operations, and from single power producer to integrated energy service provider.

### 2.4. Comparison of reconfiguration pathways

The three firms exhibit differentiated pathways. Longsheng focuses on operational process reconfiguration to achieve process optimization. Hikvision takes organizational change as precursor for technology-enabled transition. Wenergy focuses on business portfolio reconfiguration for strategic reconfiguration.

Table 1. Comparison of business model reconfiguration pathways

| Dimension | Zhejiang Longsheng | Hikvision | Wenergy group |
|---|---|---|---|
| Dominant policy type | Regulatory + innovation | Innovation guidance | Strategic planning |
| Policy mechanism | Raise compliance cost, provide direction | Create market signals, guide technology conversion | Clarify positioning, assign tasks |
| Core reconfiguration dimensions | Operational processes, resources & capabilities | Organizational, value proposition, product technology | Business portfolio, organizational |
| Reconfiguration focus | Energy saving, circular economy | Technology productization, external enablement | Structural adjustment, cross-regional layout |
| Transition form | Process optimization | Technology-enabled | Strategic reconfiguration |
| Quantitative evidence | Annual $CO_2$ reduction 11,400 t | Carbon density ↓23% in 3 years | New energy capacity ↑32× in 4 years |

## 3. Cross-case comparison and discussion

The three cases reveal three typical transmission pathways.

First, the regulatory forcing–process optimization pathway (Longsheng). Regulatory policies raise compliance costs, thus forcing enterprises to transform their operational processes. Such enterprises prioritize compliance while improving efficiency, reconfiguring operational processes and resources, achieving process optimization.

Second, the innovation guidance–value expansion pathway (Hikvision). Innovation guidance clarifies tech directions, supports the formation of innovation consortia and fosters digital-green markets, driving firms to convert their existing technological capabilities into green digital solutions. Enterprises take organizational change as precursor, reconfigure value proposition and product technology, achieving technology-enabled transition.

Third, the strategic planning–systematic reconfiguration pathway (Wenergy). Strategic planning clarifies functional positioning and assigns strategic tasks, driving firms to fundamentally adjust business portfolios and strategic positioning. Enterprises leverage state-owned capital investment

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company reform, reconfigure business structure and growth logic, achieving strategic reconfiguration.

Policy mixes must match corporate endowments to effectively drive transition. Traditional manufacturers with accumulated production technologies are more suitable for the regulatory guidance pathway, achieving cost reduction and efficiency through operational optimization. Technology firms, possessing digital capabilities, suit the innovation guidance pathway, achieving external enablement through technology productization. State-owned energy firms, undertaking provincial strategic tasks, suit the strategic planning pathway, achieving comprehensive transformation through business reconfiguration.

This study fills a research gap: previous studies focused only on single policy tools or individual transition dimensions, while this full-chain case analysis reveals how policy mixes drive business model reconfiguration as a mediating mechanism, leading to differentiated green transition outcomes.

## 4. Conclusion

Through case studies of Zhejiang Longsheng, Hikvision, and Wenergy Group, this study draws the following conclusions.

First, provincial-level dual-carbon policy mixes drive green transition through differentiated transmission mechanisms: regulatory constraint forces operational process transformation; innovation guidance guides technology conversion; strategic planning drives business structure adjustment.

Second, business model reconfiguration serves as the core mediating link in policy transmission. Policies act on specific business model dimensions, based on which firms adjust value propositions, operational processes, resources, or business portfolios, ultimately achieving transition outcomes.

Third, three typical pathways exist: regulatory forcing–process optimization (operational process reconfiguration, suitable for traditional manufacturing); innovation guidance–value expansion (value proposition reconfiguration, suitable for technology firms); strategic planning–systematic reconfiguration (business portfolio reconfiguration, suitable for state-owned energy firms).

This study's theoretical contribution lies in revealing the micro-transmission mechanism of "policy mix - business model reconfiguration - green transition," filling gaps in existing research. Its practical implication is that governments should design differentiated policy mixes, and enterprises should choose transition pathways suited to their own endowments.

This study has certain limitations, including a small number of cases and reliance on a single type of data source. Future research could expand the sample and incorporate primary data for deeper investigation.

## References

[1] Zhou, P., Gao, Z.H., Wen, W. (2022) Government Subsidies, Carbon Emission Reduction Target Constraints, and Low-Carbon Strategy Choices of Industrial Enterprises. Journal of Beijing Institute of Technology (Social Sciences Edition), 24(4): 118-128.

[2] Yu, F.F., Mao, J.Y., Jiang, Q. (2024) The Impact of Corporate Digital-Green Transition Synergy on Sustainable Development Performance and Its Mechanism—Analysis of the Moderating Effect of Local Low-Carbon Policies. Scientific Research Management, 45(11): 89-98.

[3] Jia, F., Islam, N., Chen, L. (2025) The role of technology-enabled business model innovation in achieving carbon neutrality. Technovation, 147: 103305.

[4] Zhejiang Provincial Department of Economy and Information Technology, et al. (2023) Zhejiang Province Industrial Sector Carbon Peak Implementation Plan (ZheJingXin Green [2023] No. 57). https:

DOI: 10.54254/2754-1169/2026.BL32729

//www.miit.gov.cn/jgsj/jns/dfdt/art/2023/art_0bd2ec0fb8cb41bbadfb33b3382da3ae.html
[5] Zhejiang Longsheng Group Co., Ltd. (2023) 2022 Corporate Social Responsibility Report. https: //static.sse.com.cn/disclosure/listedinfo/announcement/c/new/2024-04-20/600352_20240420_RNQW.pdf
[6] Zhejiang Longsheng Group Co., Ltd. (2024) 2023 Environmental, Social and Governance Report. https: //static.sse.com.cn/disclosure/listedinfo/announcement/c/new/2025-04-15/600352_20250415_VEMR.pdf
[7] Zhejiang Provincial Science and Technology Strong Province Construction Leading Group. (2021) Zhejiang Province Carbon Peak and Carbon Neutrality Science and Technology Innovation Action Plan (ZheKeQiangSheng [2021] No. 1).
[8] Zhejiang Provincial Committee of the CPC, Zhejiang Provincial People's Government. (2022) Implementation Opinions on Fully, Accurately, and Comprehensively Implementing the New Development Concept to Achieve Carbon Peak and Carbon Neutrality.
[9] Hangzhou Hikvision Digital Technology Co., Ltd. (2023) 2022 Environmental, Social and Governance Report. https: //www.cninfo.com.cn/new/disclosure/detail?orgId=9900012688& announcementId=1216651774& announcementTime=2023-04-28
[10] Hangzhou Hikvision Digital Technology Co., Ltd. (2024) 2023 Environmental, Social and Governance Report. https: //www.cninfo.com.cn/new/disclosure/detail?orgId=9900012688& announcementId=1219860296& announcementTime=2024-04-27
[11] Hangzhou Hikvision Digital Technology Co., Ltd. (2021) 2020 Environmental, Social and Governance Report. https: //www.cninfo.com.cn/new/disclosure/detail?orgId=9900012688& announcementId=1209846837& announcementTime=2021-04-29
[12] Anhui Provincial People's Government. (2022) Anhui Province Carbon Peak Implementation Plan (Wan Zheng [2022] No. 83). https: //www.ah.gov.cn/public/1681/554193191.html
[13] Anhui Energy Group Co., Ltd. (2021) 2020 Corporate Social Responsibility Report. https: //www.wenergy.com.cn/images/shzrbgPDF/2020nianshehuizerenbaogao.pdf
[14] Anhui Energy Group Co., Ltd. (2024) 2023 Corporate Social Responsibility Report. https: //www.wenergy.com.cn/images/shzrbgPDF/2023nianshehuizerenbaogao.pdf
[15] Anhui Energy Group Co., Ltd. (2025) 2024 Corporate Social Responsibility Report. https: //www.wenergy.com.cn/images/shzrbgPDF/wannengjituan2024nianshehuizerenbaogao.pdf
[16] Anhui Energy Group Co., Ltd. (2023) 2022 Corporate Social Responsibility Report. https: //www.wenergy.com.cn/images/shzrbgPDF/2022nianshehuizerenbaogao.pdf