

# 主要产煤省份公正转型政策激励与挑战

## Policy Incentives and Challenges for Just Transition in Major Coal-Producing Provinces

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# 公正转型含义的不断延伸和泛化

## The Expanding and Broadening Scope of Just Transition

### 应用领域扩展

#### Expansion of Application Areas

从高碳行业工人在脱碳过程中的就业与社会保障问题，逐步延伸至农业、交通、城市规划、数字经济、气候适应等领域。

From employment and social protection challenges in high-carbon sectors, the focus gradually extends to agriculture, transportation, urban planning, digital economy, and climate adaptation.

### 主体范围扩大

#### Expansion of the Scope of Actors

从矿工与社区扩展到包括女性、青年、小微企业、弱势群体、地方政府等更广泛的社会群体。

From miners and communities, the scope extends to a wider array of social actors, including women, youth, SMEs, vulnerable groups, and local authorities.

### 政策内涵延展

#### Broadening the Policy Scope

从再就业与补偿扩展到社会公平、代际公平、区域协调等更综合的议题。

From re-employment and compensation, the scope extends to broader topics, including social and intergenerational equity, as well as regional coordination.

积极意义 Positive Implications	促进跨领域政策融合；增强转型包容性与社会认同；提升能源、产业、财政、社会政策的协调性 Foster cross-sector policy integration, strengthen transition inclusiveness and social legitimacy, and enhance coordination across energy, industry, fiscal, and social policies
潜在风险 Potential Risks	概念稀释，实践操作性下降；责任边界模糊，落实难度增加；失去聚焦，偏离受影响群体核心诉求 Concept dilution reduces practical applicability; blurred responsibility boundaries increase implementation challenges; and loss of focus risks straying from the core concerns of affected groups.”



# 全球公正转型的资源投入与风险分布在各地区呈现显著差异

## Global Imbalances in Just Transition Resources and Risks

**Europe / 欧洲：** 制度化最完善，建立欧盟公正转型机制与专项基金，区域规划明确、资金充足。

Well-established just transition system, with a dedicated fund, clear regional planning, and ample financial resources.

**United States / 美国：** 以州为主导，强调就业创造与技能培训，公私合作灵活但缺乏统一框架。

State-led, emphasizing job creation and skills training, with flexible public-private cooperation but lacking a unified framework.

**Asia / 亚洲（印度、东亚）：** 处于规划与试点阶段，聚焦经济多元化与社会稳定，依赖国际支持。

At the planning and pilot stage, focusing on economic diversification and social stability, and reliant on international support.

**Africa / 非洲：** 聚焦发展公平与能源可及，依赖国际援助与社区参与。

Focused on development equity and energy access, relying on international aid and community participation.

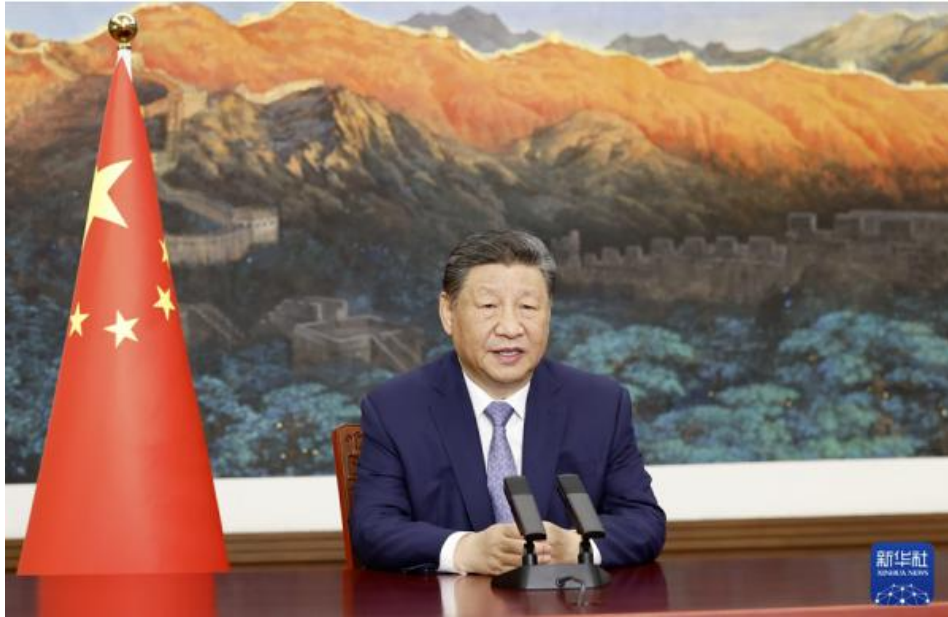


### 共性特征 | Common Features

- 设立专门资金与金融机制。 | Dedicated funds and financing mechanisms.
- 多层次治理与协调机制。 | Multi-level coordination and governance structures.
- 利益相关方与社区广泛参与。 | Stakeholder participation and community engagement.
- 以试点为基础的渐进式推广。 | Pilot-based learning and gradual scaling.



## 中国公正转型强调以人为本推进多重目标 People-Centered Multi-Objective Just Transition in China



习近平向气候和公正转型领导人峰会发表致辞  
Chinese President Xi Jinping delivers a speech  
via video link at the Leaders Meeting on  
Climate and the Just Transition, April 23,  
2025.

推动公正转型。以人民为中心，协同推进民生福祉改善和气候治理，统筹保护环境、发展经济、创造就业、消除贫困等多重目标。发达国家有义务向发展中国家提供帮助和支持，助力全球绿色低碳转型，增进各国人民共同和长远福祉。

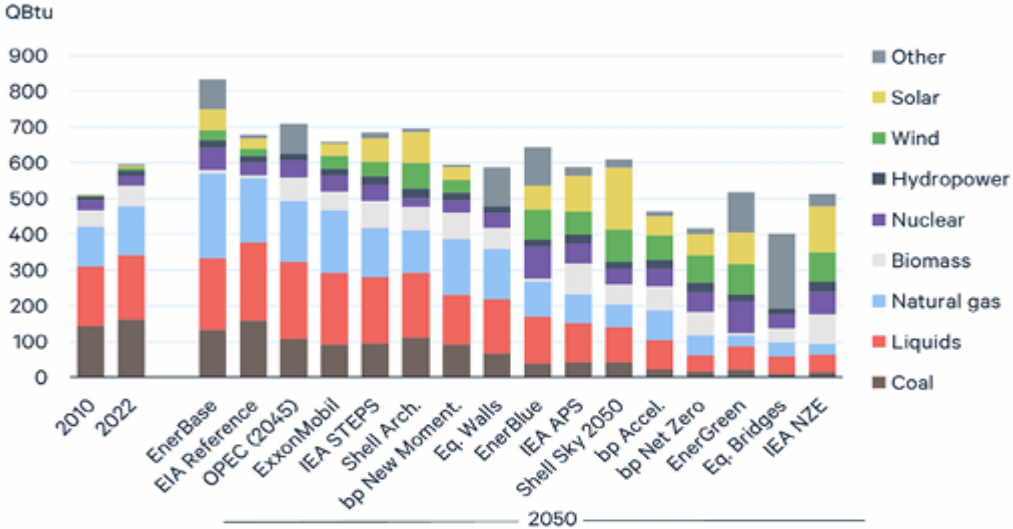
Accelerate the just transition,.Green transformation must be people-centered and pursued in a way that advances the well-being of people and climate governance in tandem, and strike a balance between multiple goals including environmental protection, economic growth, job creation, and poverty alleviation



# 中国煤炭需求量和产量仍居全球首位

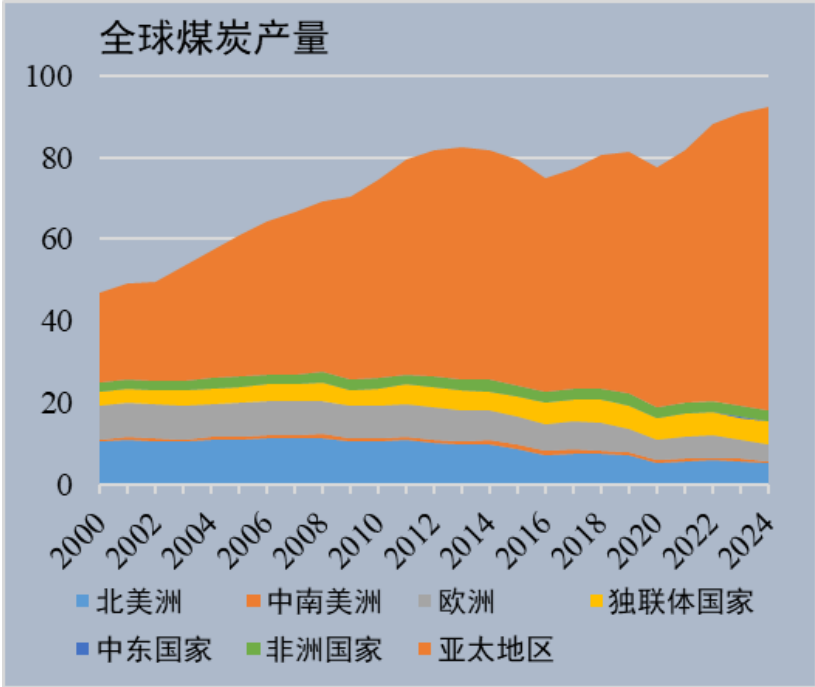
## China Leads the World in Coal Demand and Production

Figure 3. World Primary Energy Demand Grows Modestly or Declines Under Most Scenarios



Note: Projections are ordered from highest to lowest demand for fossil fuels. Historical data from IEA. "Liquids" includes oil only for Enerdata scenarios. "Biomass" excludes biofuels, which are included in "Liquids." OPEC projections are for 2045. "Other" includes wind and solar for Equinor and OPEC.

Figure. Trends in Coal Production Across Global Regions 2000 – 2024



2024年全球能源需求增长了2.2%，各类能源需求均有所增长。可再生能源在全球能源供应增长中占据最大份额（38%），其次是天然气（28%）、煤炭（15%）、石油（11%）和核能（8%）。中国在全球煤炭消费中占比达58%，全球煤炭产量中占比达51.7%。

In 2024, global energy demand grew by 2.2%, with all energy types experiencing increases. Renewables accounted for the largest share of the growth in global energy supply (38%), followed by natural gas (28%), coal (15%), oil (11%), and nuclear energy (8%). China accounted for 58% of global coal consumption and 51.7% of global coal production.



# 煤炭在中国能源消费中的比重下降，但生产量仍在上升

## Coal's Share in China's Energy Consumption Declines, but Production Continues to Rise

图 2000-2023年中国能源消费结构

China's Energy Consumption Structure, 2000 - 2023

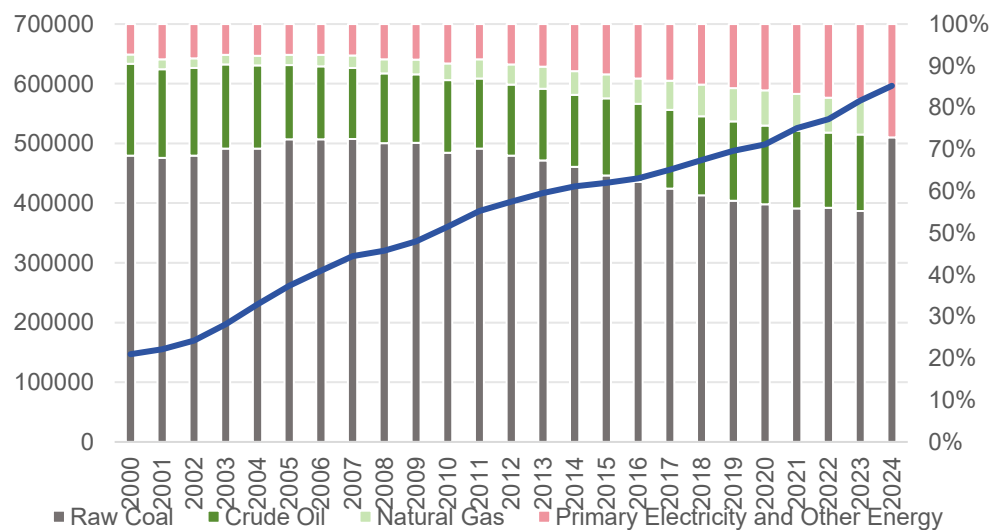
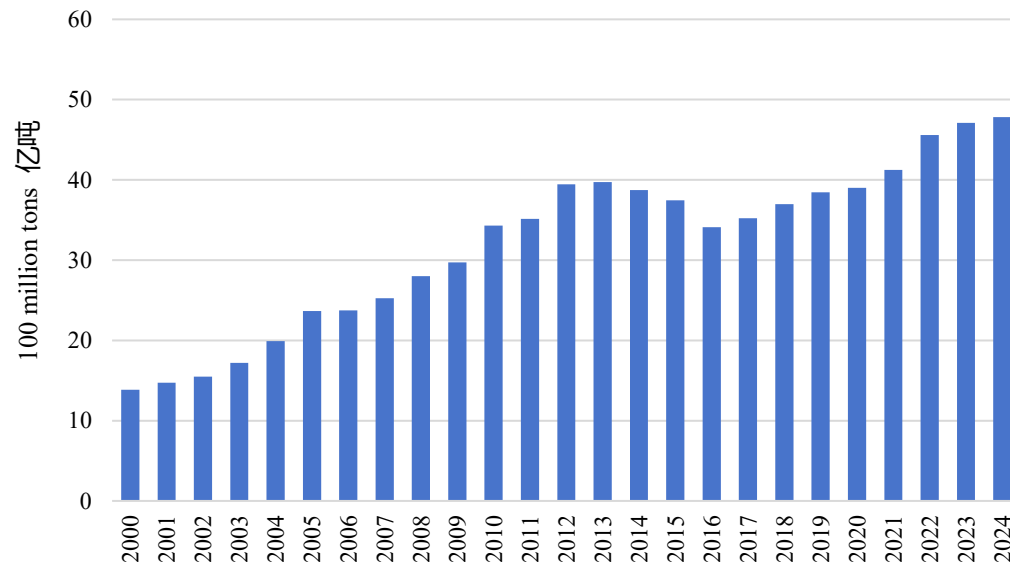


图 2000-2024年中国煤炭产量变化趋势

Trends in China's Coal Production, 2000-2024



中国能源生产结构中清洁能源占比不断增加，2024年煤炭占比从2000年的68.5%下降到2024年的55.3%；全年一次能源生产总量49.8亿吨标准煤，比上年增长4.6%，原煤产量47.8亿吨（换算成标准煤是32.56亿吨标准煤），增长1.2%。

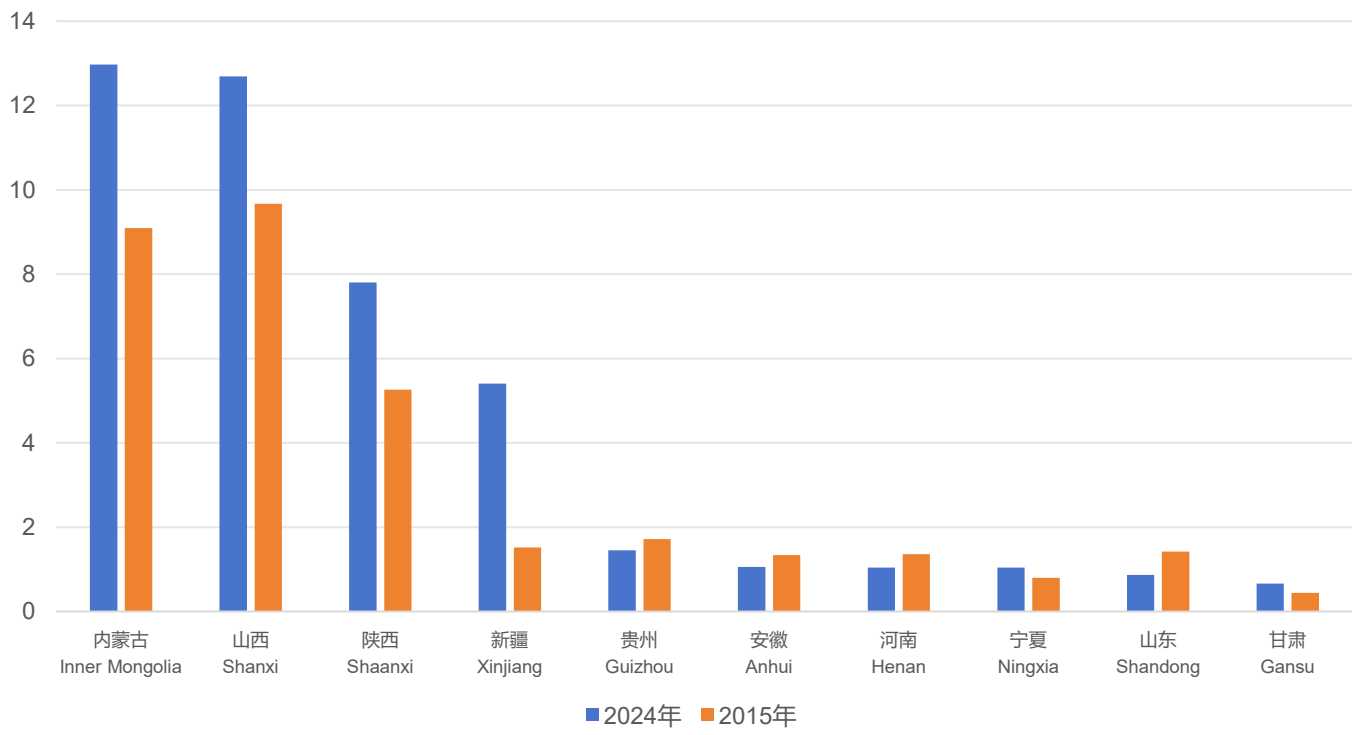
The share of clean energy in China's energy production structure continues to rise. In 2024, coal's share fell from 68.5% in 2000 to 55.3%. Total primary energy production reached 4.98 billion tons of standard coal, up 4.6% year-on-year, with raw coal production at 4.78 billion tons, an increase of 1.2%.



# 中国煤炭主产区经历十年重构，转型成效呈现显著分化

## Restructuring and Divergence in China's Coal Regions

中国煤炭产量前十省份2015vs2024产量对比  
2015 : 2024 Comparison of Coal Output in China's Top 10 Producing Provinces



新疆强势挤入煤炭主产区；各省资源枯竭型煤炭城市转型呈现明显两极化。  
Xinjiang's coal production has risen strongly, firmly establishing it as a major producing region, while resource-depleted coal cities in other provinces show a pronounced polarization in their transition.





# 中国煤炭产能持续向“晋陕蒙新”资源富集区集中

## Concentration of China's Coal Capacity in Resource-Rich Regions: Shanxi, Shaanxi, Inner Mongolia, and Xinjiang

晋陕蒙新公正转型既体现出共同规律，又呈现明显的差异化特征  
The just transition in Shanxi, Shaanxi, Inner Mongolia, and Xinjiang exhibits common patterns while also displaying distinct regional differences.

原煤生产量 **39亿吨**  
Raw coal production **3.9 billion tons**

煤炭调出量占全国跨省区调出总量：  
Coal outbound volume as a share of the national interprovincial outbound total  
**95%**

煤炭产量全国占比：  
Share of national coal production  
**82%**



Data for 2024



# 经济与煤炭高度相关，产业结构调整均需加速

## Coal Dependence Spurs Urgent Structural Reform

图 晋陕蒙新煤炭价格与名义经济增速的关系The relationship between coal prices and nominal economic growth in four regions  
注：横轴（x）为煤炭价格指数（上年价格=100），纵轴（y）为名义经济增速（%）

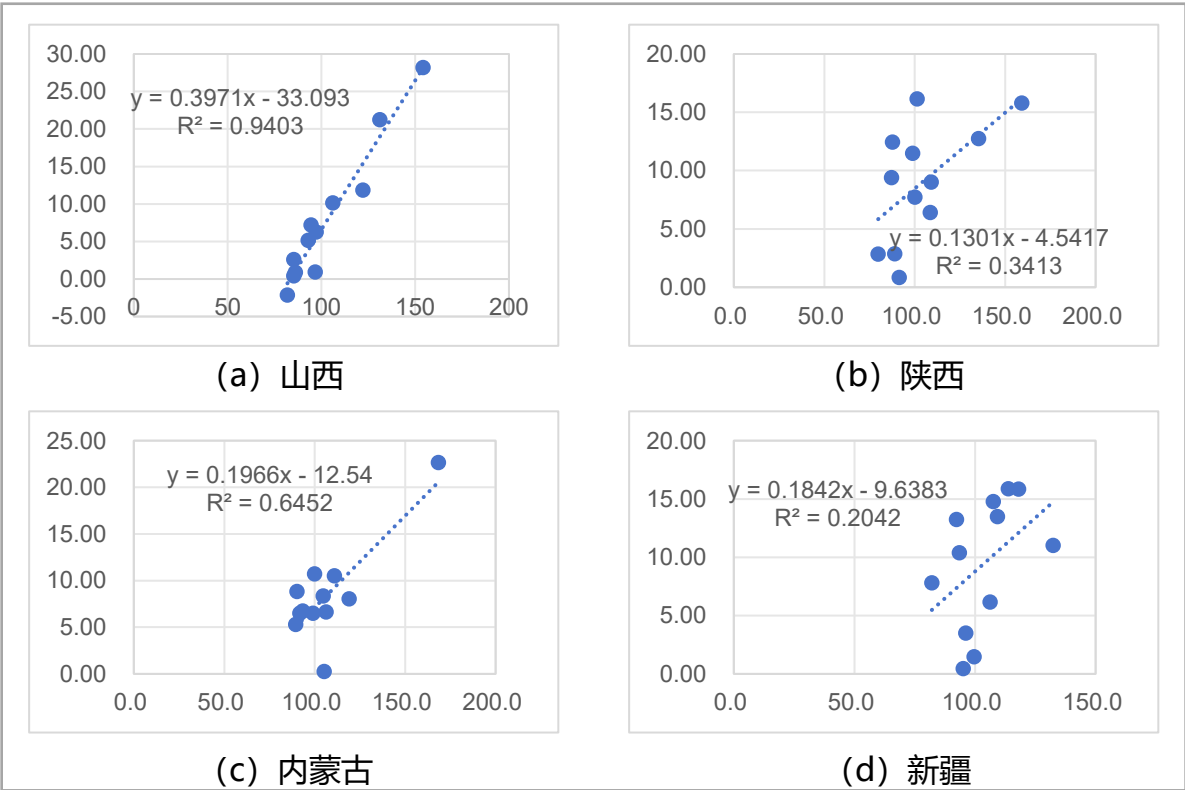
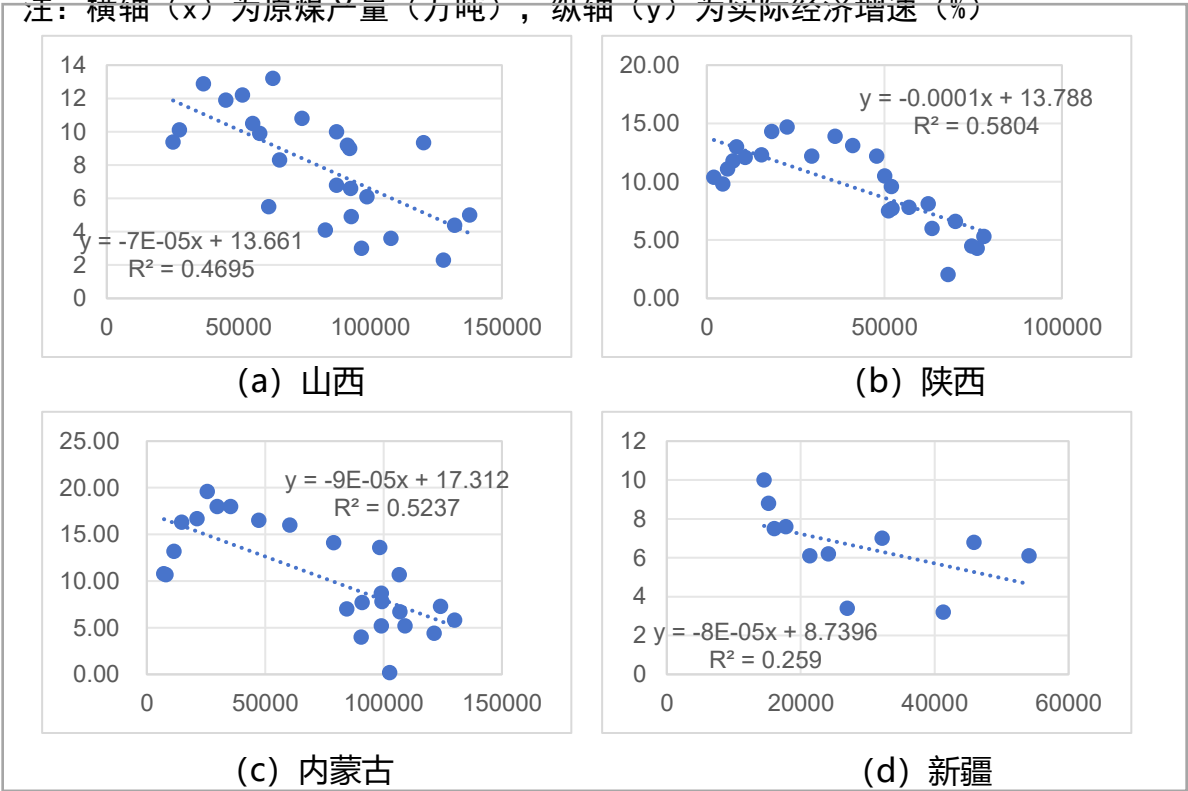


图 晋陕蒙新煤炭产量与实际经济增速的关系The relationship between coal output and real economic growth in Shanxi, Shaanxi, Inner Mongolia, and Xinjiang  
注：横轴（x）为原煤产量（万吨），纵轴（y）为实际经济增速（%）

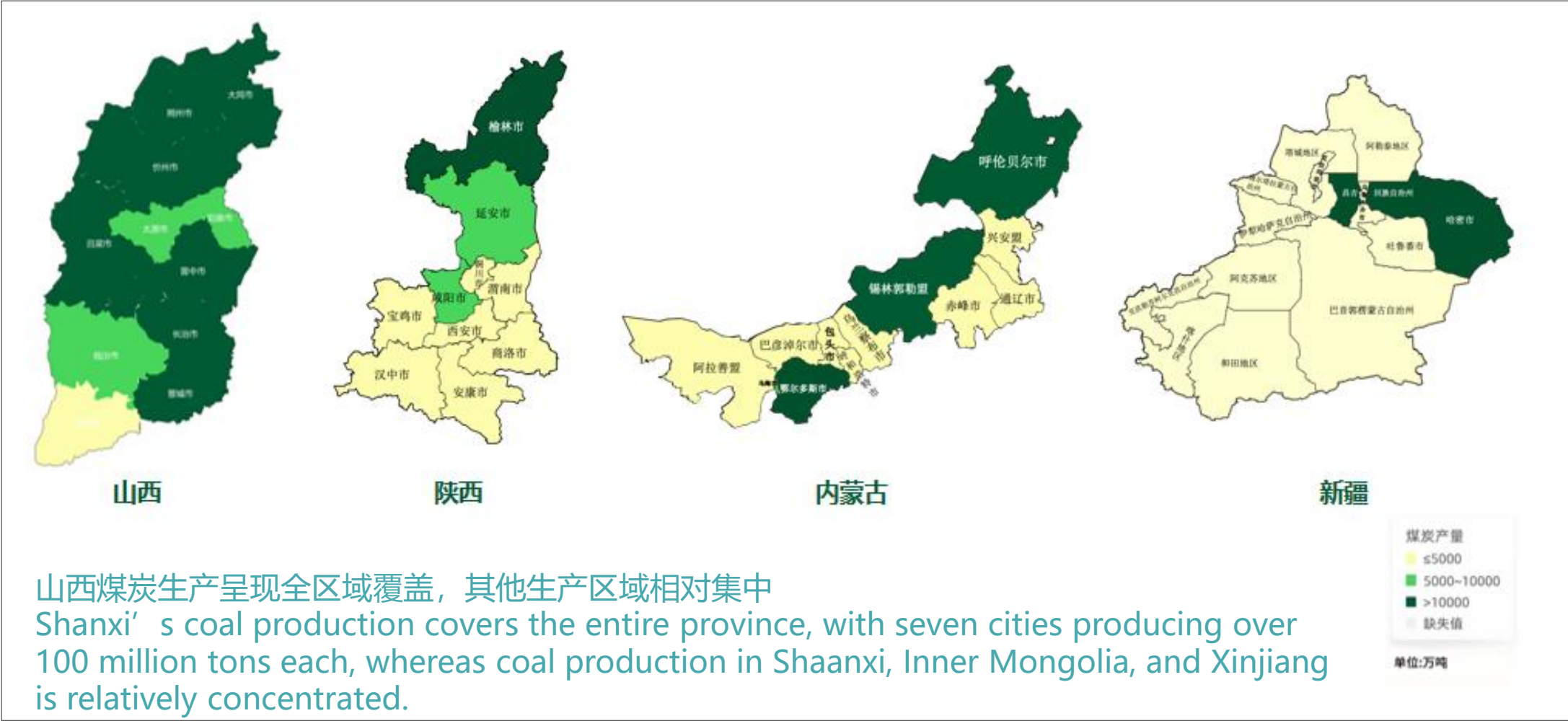


晋陕蒙新四省（区）名义经济增速与煤炭价格呈正相关，其中山西、内蒙古呈高度正相关；实际经济增速与煤炭产量呈负相关，暴露“增产不增效”结构性矛盾。The nominal economic growth of Shanxi, Shaanxi, Inner Mongolia, and Xinjiang is positively correlated with coal prices, with Shanxi and Inner Mongolia showing a strong positive correlation. Real economic growth, however, is negatively correlated with coal output, revealing the structural contradiction of “increased production without increased efficiency.”



四省/区转型影响范围不一，但几乎所有煤炭城市经济表现均低于全国平均水平

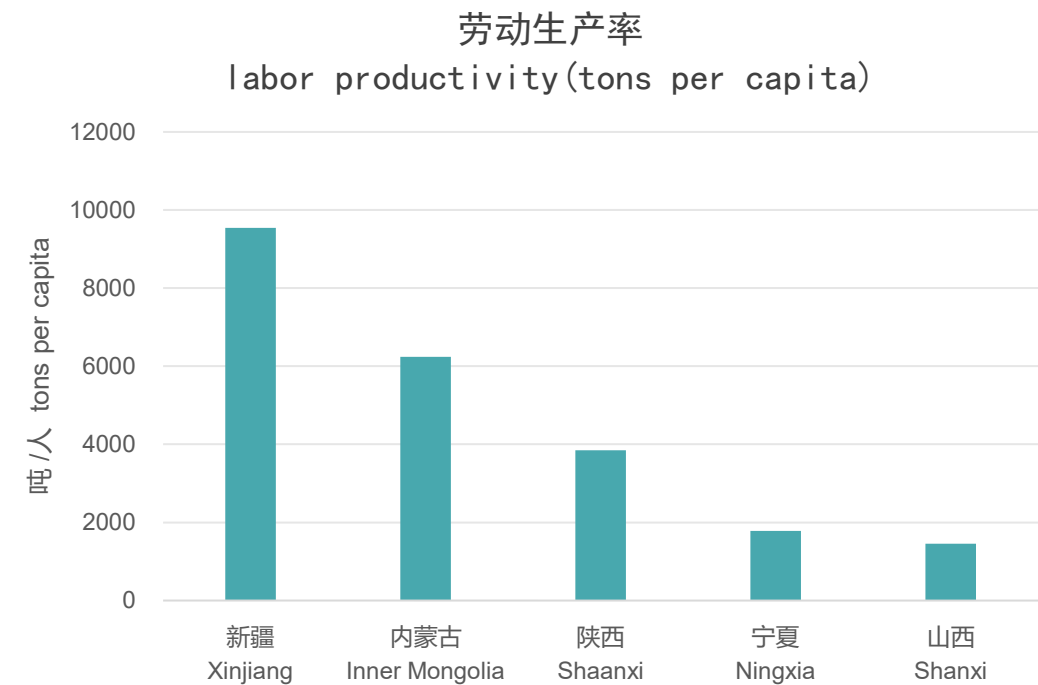
Transition impacts vary in scope, yet most coal cities underperform nationally





山西煤炭行业竞争力下降，经济社会依赖大，公正转型迫在眉睫

Shanxi’ s coal industry is gradually losing competitiveness, with the economy and society heavily dependent on it, making a just transition urgently needed



省（区） Region	营业收入贡献 Revenue contribution	税收贡献 Tax contribution	就业贡献 Employment contribution	就业人数 （万人） Employment (10,000 people)
山西 Shanxi	37.69%	59.85%	39.46%	93.27
陕西 Shaanxi	16.45%	36.10%	9.43%	19.78
内蒙古 Inner Mongolia	20.74%	46.42%	15.52%	19.9
新疆 Xinjiang	6.46%	10.48%	4.78%	4.81

山西省煤炭行业就业人数是三省（区）就业人数合计的2倍

The number of employees in Shanxi’ s coal industry is twice the combined total of the other three provinces/regions



# 山西省煤炭行业就业岗位预计损失最大，成为全球受就业冲击最严重地区

## Shanxi Faces Largest Coal Job Losses Global

- **According to Global Energy Monitor:**
- **根据全球能源观察的预测:**
  - By 2050, Shanxi Province will experience 241,900 job losses due to the energy transition and coal mine closures without climate policies.
  - 到2050年，即使没有气候政策影响，山西省将会因为能源转型和煤矿关停造成24.19万人失业。
- **According to Coshare Environment:**
- **根据科城研究院预测:**
  - By 2060, coal mining jobs in Shanxi are projected to decrease by 739,700 to 914,800 under the "Dual Carbon" policy.
  - 在“双碳”政策下，到2060年山西省煤炭采选就业人数将下降73.97万-91.48万人。
  - Indirect jobs in coal-related industries in Shanxi are expected to decline by 2.68 million to 3.31 million.
  - 山西省煤炭相关行业间接就业人数将下降268万-331万人。

State or Province 州或省	Workforce Size 劳动力规模	Production (million tonnes) 产量 (百万吨)	Country	Potential Layoffs from 'Life of Mine' Closures to 2050
Shanxi	587,900	1,085	China	241,900
East Kalimantan	62,100	289	Indonesia	16,900
Queensland	29,600	263	Australia	16,600
Kemerovo	67,000	228	Russia	7,500
Mpumalanga	53,900	217	South Africa	35,100
West Virginia	12,500	78	United States	2,000
Karaganda	19,600	345	Kazakhstan	14,400
Silesia	69,600	33	Poland	35,300
West Bengal	70,800	30	India	5,200
Saxony	2,500	22	Germany	1,900

Table 1. The provinces or states with the highest coal mining employment in the world's 10 largest coal-producing countries

Sources: Global Energy Monitor

表1 在世界十大产煤国中，煤矿工人就业率最高的省份或州

来源：全球能源观察



# 中国类公正转型政策实践

## China's Just Transition Practices

以共同富裕为目标，坚持以人民为中心的发展思想，中国类公正转型政策呈现中央政府主导、社会保障和就业优先等特征。

With the goal of common prosperity and adhering to a people-centered development approach, China's just transition-like policies are characterized by central government leadership, social protection, and employment prioritization.

相关政策 Relevant Policies	时间 Time	目的 Goal
中央转移支付政策 Central Transfer Payment Policy	From 1994	促进区域协调发展和基本公共服务均等化 Promote regional coordinated development and equalization of basic public services
国企下岗工人就业安置政策 SOE Worker Layoff Employment and Resettlement Policy	from 1990s	保障下岗职工就业 ensuring a smooth transition for employees.
淘汰落后产能政策 Policies for Phasing Out Obsolete Production Capacity	From 1996	引导企业有序退出，保障员工平稳转型。 Guide enterprises to exit in an orderly manner while ensuring a smooth transition for employees.
东北老工业基地振兴战略 Northeast China Old Industrial Base Revitalization Strategy	from 2003	促进资源型地区可持续发展 Promote sustainable development in resource-based regions
粮食主产区利益补偿机制 Benefit Compensation Mechanism for Major Grain-Producing Regions	from 2004	缩小产销区粮食与非粮产业的收益差距 narrow the income gap between grain and non-grain industries in production and consumption areas.
4050社保补贴政策 4050 Social Insurance Subsidy Policy	from 2008	解决50周岁以上男性，40周岁以上女性中下岗失业人员、就业困难人员的社保缴费困难问题 Address the difficulty of paying social insurance for laid-off or unemployed individuals aged over 50 for men and over 40 for women,
易地搬迁就业保障政策 Employment Guarantee Policy for Relocated Populations	from 2015	促进有劳动能力和就业意愿的搬迁贫困劳动力就业创业 Promote employment and entrepreneurship for relocated poor laborers who are capable of working and willing to work



山西煤炭公正转型政策实践

Shanxi Coal Just Transition Practices

	煤炭城市转型政策试点阶段 Coal City Transition Policy Pilot 2008	国家资源型经济转型综合配套改革 实验 Coal City Transition Policy Pilot Phase 2012	产能过剩阶段 Capacity Reduction Phase 2016	智能化煤矿推进阶段 Intelligent Mining Advancement 2020
背景 Backgr- ound	采煤机械化程度的提高，矿井资源枯竭 Increased mechanization of coal mining and depletion of mine resources	加快建立促进资源型经济转型的体 制机制 Accelerate the establishment of systems and mechanisms to promote the transformation of resource-based economies	煤炭产能严重过剩 Severe coal overcapacity	2030年各类煤矿基本实现智能 化 All coal mines largely achieve automation by 2030
相关 政策 Policy	《关于印发山西省煤炭企业转产煤炭城市转型政策试点 实施方案的通知》 Notice on Printing and Distributing the Pilot Implementation Plan for Coal Enterprise Conversion and Coal City Transition Policies in Shanxi Province 《金融机构支持山西资源型经济转型发展实施意见》 Implementation Opinions on Financial Institutions Supporting the Transformation and Development of Shanxi's Resource-Based Economy	《山西省国家资源型经济转型综合 配套改革试验总体方案》 Overall Plan for the Comprehensive Supporting Reform Pilot of the National Resource-Based Economic Transformation in Shanxi Province	《关于做好化解煤炭 钢铁行业过剩产能职 工安置工作实施意见》 Implementation Opinions on the Employment Resettlement of Workers in the Coal and Steel Industries Amid Overcapacity Reduction	《关于做好煤矿智能化建设中 富余职工安置工作的指导意见》 Guiding Opinions on the Resettlement of Surplus Workers in Coal Mine Intelligentization Projects
内容 Content	政策包含就业安置、产业多元化、生态环境修复机财政金融支持政策，对未来地区公正转型具有一定借鉴作用 The policies include employment resettlement, industrial diversification, ecological restoration, and fiscal and financial support, providing valuable lessons for future just transitions in the regions.			



## 煤炭主产区公正转型政策挑战

### Challenges of Just Transition Policies in Major Coal-Producing Regions

- 缺乏统领性、系统性公正转型指导。
- Lacking overarching and systematic guidance for just transition.
- 煤炭地区正同时面临结构性就业矛盾、经济增速放缓、资源逐渐枯竭及人才持续流失等多重挑战。
- Coal-producing regions are facing multiple challenges, including structural employment contradictions, slowing economic growth, gradual resource depletion, and continuous talent outflow
- 煤炭地区转型政策的持续性和长期规划不足。
- The transition policies in these regions lack long-term planning and sustainability.
- 煤炭转型地区在生态修复、再就业引导、金融支持等方面的创新政策不足。
- Innovative policies in areas such as ecological restoration, reemployment guidance, and financial support remain insufficient.
- 财政金融协同机制不健全，部分政策落实缓慢。
- The fiscal and financial coordination mechanisms are underdeveloped, and some policies progress slowly in implementation.



## 构建面向未来的公正转型政策体系

## Building a Forward-Looking Just Transition Policy Framework

- **中央措施：**将公正转型纳入我国气候治理框架，加强区域、产业间的发展利益协调机制，推动区域合作，实现全国能源结构的整体优化。
- **National Approach:** Integrate just transition into China's climate governance framework, strengthen coordination mechanisms for development interests across regions and industries, promote regional cooperation, and advance the overall optimization of the national energy structure.
- **地区措施：**制定差异化的公正转型政策，加强其与地区资源禀赋和阶段性发展特征的协调，提升政策的可持续性。
- **Regional Approach:** Develop differentiated just transition policies, enhance their alignment with regional resource endowments and stage-specific development characteristics, and improve policy sustainability.
- **人本措施：**完善适应新形势的社会保障与就业支持体系。
- **People-Oriented Approach:** Improve social protection and employment support systems adapted to the new context.
- **资金措施：**加大中央资金对煤炭生产衰落地区的公正转型支持，设立国家公正转型基金，引导社会和金融资金支持煤炭生产地区公正转型。
- **Financial Approach:** Increase central government funding to support just transition in declining coal-producing regions, establish a national just transition fund, and guide social and financial capital to back just transition .



目标：推动多方协同，构建包容、公平、可持续的能源转型治理体系。

Objective: Promote multi-stakeholder collaboration to build an inclusive, fair, and sustainable energy transition governance system.

Launch Meeting of the Coal Just Transition Partnership Platform on August 27 2025

## 煤炭公正转型交流合作平台启动会

2025年8月27日



### 平台启动成员单位

#### Founding Member Organizations

山西科城能源环境创新研究院

山西大学绿色发展研究中心

北京大学国家发展研究院宏观与绿色金融实验室

山西大学碳达峰碳中和学院

山西省能源研究会

太原理工大学煤炭产业科学发展研究中心

太原科技大学企业社会责任研究中心

山西财经大学经济学院

晋青可持续发展公益服务中心



# 平台重点工作领域 Key Work Areas of the Platform

## 科学支撑 Scientific Support

加强理论研究，明晰煤炭公正转型概念、监测评估指标，建设数字信息平台  
Enhance theoretical research to clarify coal just transition concepts and assessment indicators, develop a digital information platform

## 决策支持 Decision Support

开展经济产业、生态环境、就业支持等领域协同政策机制研究，持续跟踪“双碳”目标下煤炭地区公正转型成效。  
Research collaborative policy mechanisms across economic, environmental, and employment sectors, and continuously monitor the effectiveness of just transition in coal regions under the dual-carbon goals

## 协同治理 Collaborative Governance

推动建立多方参与治理机制，推动政策、资金、技术和人才的有机对接，确保公正转型举措高效落地。  
Foster multi-stakeholder governance, coordinate policies, financing, technology, and talent, and ensure efficient implementation of just transition initiatives

## 能力建设 Capacity Building

为煤炭地区利益方搭建交流学习平台，促进了解国内外公正转型政策与实践  
Build a platform for stakeholders in coal regions to exchange and learn, promoting understanding of domestic and international just transition policies and practices

## 示范推广 Demonstration and Promotion

与利益相关方在不同领域共建公正转型实验室，总结相关路径与经验，形成试点案例对外传播  
Collaborate with stakeholders to set up just transition labs, capture key pathways and experiences, and disseminate pilot cases externally



# 共建一个兼具韧性和包容性的绿色低碳未来

## Build a lowcarbon and green future with full resilience and inclusivity



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