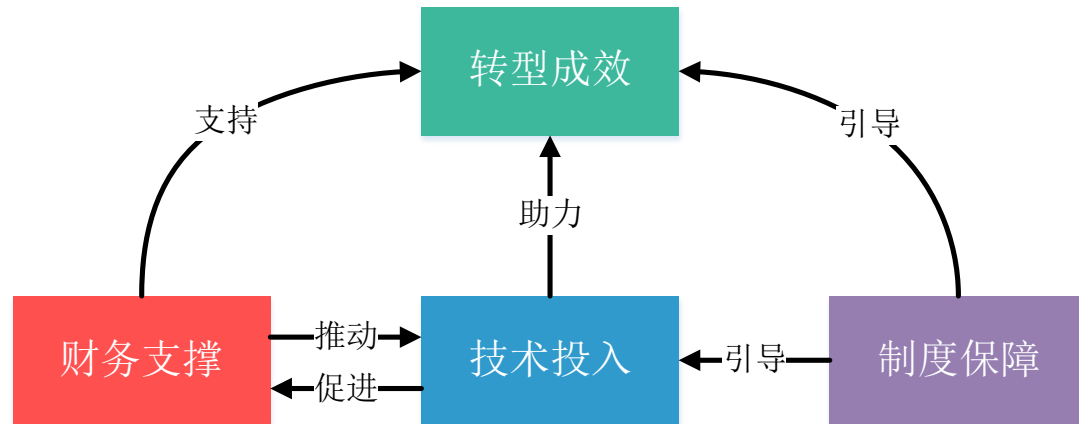


火电上市公司低碳转型绩效评价



火电上市公司低碳转型指数由北京绿源碳和科技有限公司、公众环境研究中心 (IPE) 于2022年合作研发。针对“十三五”期间低碳转型绩效评价，构建了包含转型成效、财务支撑、技术投入和制度保障等四个维度、14个二级指标的评价指标体系，以公司年度发展报告、社会责任报告和可持续发展报告等公开信息为数据基础，生成火电上市公司低碳转型绩效排行榜。



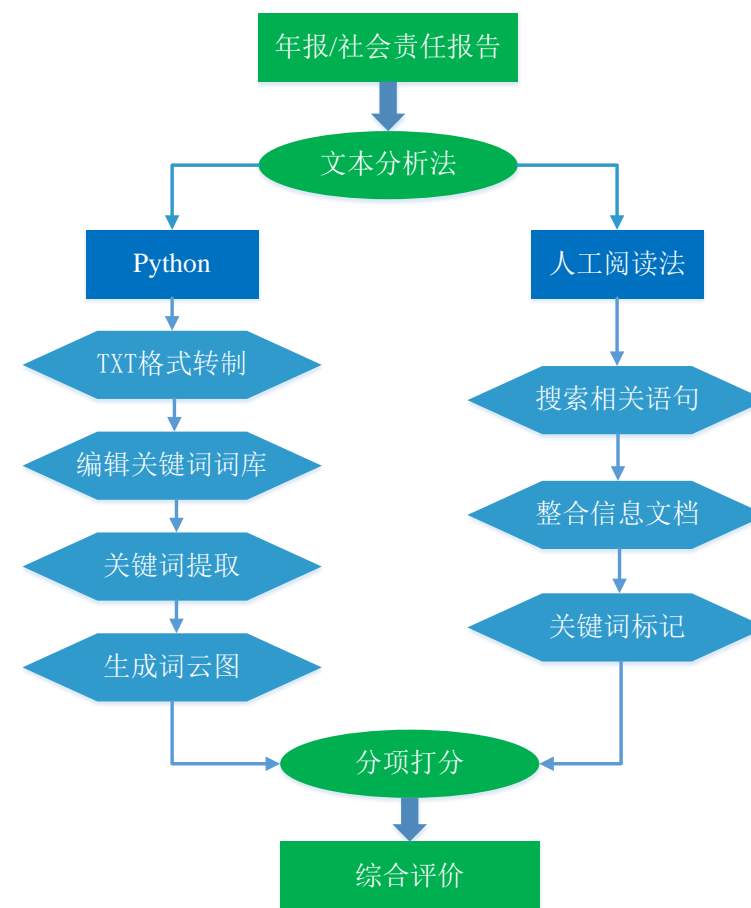
火电上市公司低碳转型绩效评价作为一个复杂的系统，用单一的指标很难充分评估此系统运行的状况，因此有必要建立一个指标体系。指标的构建需要有一定的关联性，即研究所选四个维度需要符合火电上市公司低碳转型战略的原则。

- **转型成效**直接反映火电上市公司低碳转型绩效，是低碳转型的最终目的；
- **财务支撑**是低碳转型的财务绩效，是支持低碳转型的重要基础，为低碳转型提供资金保障，从而影响转型成效，同时良好的财务能力能够推动公司加大技术投入，提高低碳技术水平；
- **技术创新**是低碳转型的重要动力，有效的技术投入支持公司低碳关键技术攻关，从而助力公司低碳转型，另外，技术投入促使公司研发新产品，增加新收益，促进公司经济发展；
- **制度保障**是公司低碳转型的核心基调，提供低碳转型发展的总体方向和规划目标，从而影响转型成效，同时引导公司提高研发能力，实现技术突破，例如节能改造目标等。

“十三五”期间低碳转型绩效评价指标体系

一级指标	权重	二级指标
转型成效 (C1)	60%	火电装机占比 (C11)
		可再生能源增长率 (C12)
		度电碳排放因子 (C13)
		碳生产率 (C14)
财务支撑 (C2)	20%	每股收益 (C21)
		总资产周转率 (C22)
		发电量与EVA弹性系数 (C23)
		每股经营现金流 (C24)
技术投入 (C3)	10%	研发投入强度 (C31)
		供电煤耗 (C32)
制度保障 (C4)	10%	低碳承诺清晰程度 (C41)
		社会责任报告完善程度 (C42)
		低碳发展相关制度政策的执行程度 (C43)
		公司是否设立战略委员会 (C44)

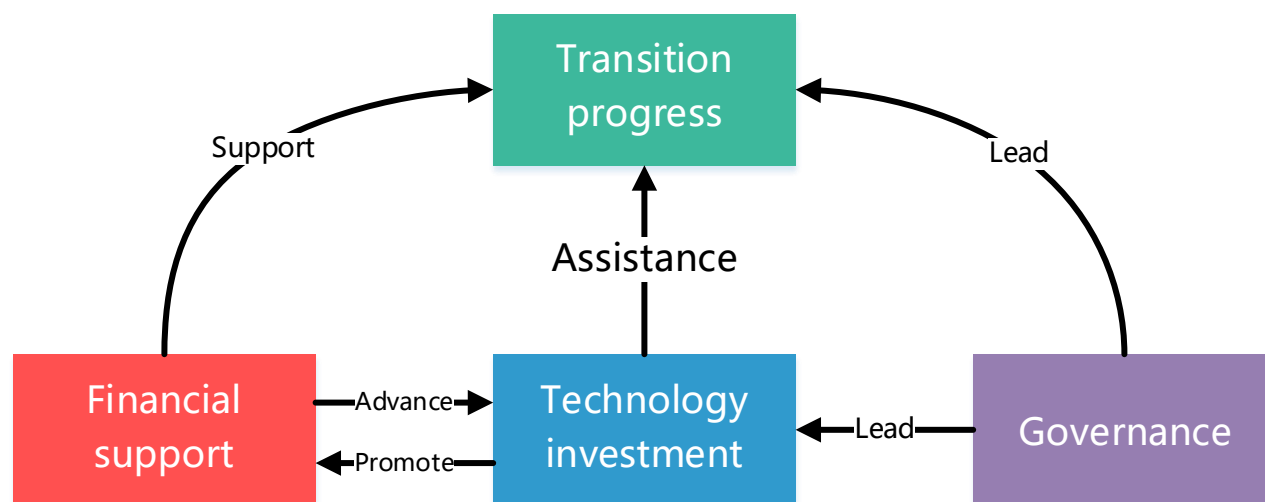
定性指标文本分析方法



Tracking the low-carbon transition performance of China's thermal power listed companies



Developed jointly by Beijing Green Energy and Carbon Neutrality Technology Co., LTD and the Institute of Public & Environmental Affairs (IPE) in 2022. For the evaluation of low-carbon transition performance during the 13th Five-Year Plan period, an evaluation index system with four dimensions and 14 secondary indicators was constructed, which includes dimensions such as transition progress, financial support, technology investment, and governance. Publicly available information including annual development reports, social responsibility reports, and sustainable development reports were used as the basis to generate a low-carbon transformation performance ranking of listed thermal power companies.



The evaluation of low-carbon transition performance of thermal power listed companies is a complex system, so it is difficult to fully evaluate the operation of this system with a single indicator, and it is necessary to establish an indicator system. The construction of the indicators needs to have a certain correlation, with the four dimensions selected for study in line with the principles of low-carbon transition strategy of thermal power listed companies.

- **Transition progress** directly reflects the low carbon transition performance of thermal power listed companies, which is the ultimate purpose of low carbon transition;
- **Financial support** refers to the financial performance of low-carbon transition, which is an important foundation to support and provide the financial guarantee for low-carbon transition, thus affecting the effectiveness of transition, while strong financial capability can drive companies to increase technology investment and improve low-carbon technology;
- **Technology innovation** is an important driving force for low carbon transition. Effective technology investment supports the company's low-carbon key technology research and development, thus helping the company's low-carbon transition. In addition, technology investment drives the company to develop new products, increase new revenue and promote the company's economic development;
- **Governance** is the core keynote of the company's low-carbon transformation, providing the overall direction and planning objectives for the development of low-carbon transition, thus influencing the effectiveness of the transition, while guiding the company to improve its R&D capabilities and achieve technological breakthroughs, such as energy-saving retrofit targets, etc..

Low-Carbon Transition Performance Assessment Indicator System during the 13th Five-Year Plan period

Guideline	Weights	Indicator
Transition progress (C1)	60%	Share of thermal power capacity (C11)
		Renewable energy growth rate (C12)
		Carbon emission factor of power supply (C13)
		Carbon productivity (C14)
Financial support (C2)	20%	Earnings per share (C21)
		Total asset turnover ratio (C22)
		EVA elasticity to power generation (C23)
		Operating cash flow per share (C24)
Technology investment (C3)	10%	R&D investment intensity (C31)
		Coal consumption intensity of power supply (C32)
Governance (C4)	10%	Clarity of low-carbon commitment (C41)
		Completeness of Social Responsibility Report (C42)
		Implementation of low-carbon systems/policies (C43)
		Establishment of strategy committee (C44)

Qualitative index text analysis method

