

Renewable Energy
/ PV for
Desertification Control
新能源 / 光伏治沙

Desertification Control
Along Transmission Lines
输电线路治沙

Engineering Construction
and Land Protection
工程建设与土地保护

Mine Land Restoration
and Rehabilitation
矿山修复与土地利用

Land Restoration
and Water Management
土地修复与水资源管理

Green Industrial
Transition and Sustainable
Land Management
产业绿色转型
与可持续土地管理

01

How Can Renewable Energy Drive Land Restoration?

Desertification-prone areas face multiple challenges, including fragile ecosystems, land degradation, and limited drivers for development. As the renewable energy industry expands, photovoltaic (PV) projects are moving beyond traditional energy development models by integrating energy production with land restoration, offering a new pathway for combating desertification.

This approach demonstrates how companies can integrate nature and land considerations into business decision-making. Through science-based planning, ecological development, and long-term operations, renewable energy infrastructure can evolve from facilities focused solely on power generation into integrated platforms that support ecological restoration and regional development.

From "PV for desertification control" to "PV-pastoral synergy," companies are exploring a collaborative model that integrates renewable energy development, land restoration, industrial integration, and community benefits. By transforming degraded land into spaces that generate energy, ecological, and economic value, this approach offers practical insights for advancing land restoration and green development in arid and semi-arid regions around the world.





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新能源开发如何成为 土地恢复的新动力？

荒漠化地区面临生态脆弱、土地退化和发展动力不足等多重挑战。随着新能源产业发展，光伏项目正在突破传统能源开发模式，将能源生产与土地恢复结合起来，成为推动荒漠化治理的新路径。

这一实践体现了企业将自然和土地因素融入商业决策，通过科学规划、生态建设和长期运营，使新能源基础设施从单一能源生产设施转变为支持生态恢复和区域发展的综合平台。

从“光伏治沙”到“牧光互补”，企业探索形成“新能源开发—土地恢复—产业融合—社区受益”的协同模式，将退化土地转化为兼具能源、生态和经济价值的发展空间，为全球干旱和半干旱地区实现土地恢复与绿色发展提供实践经验。



Harnessing Renewable Energy for Land Restoration and Pastoral Green Transition

BOE Energy's 200MW Pasture and PV-Storage + Sand Control Comprehensive Project

以新能源开发赋能土地恢复与牧区绿色转型

京东方能源 20 万千瓦牧光储 + 治沙综合项目

Keywords

- Renewable energy transition
- Land restoration
- PV-pastoral synergy
- Ecological-industrial synergy

Key Messages

Desertification-prone areas often face overlapping challenges, including fragile ecosystems, limited industrial development, and the need for an energy transition. Renewable energy development can provide new economic momentum for restoring degraded land. By developing innovative business models that integrate energy investment with ecological restoration and community development, manufacturing companies can help transform these areas from sites of resource extraction into spaces where ecological and economic value are created together.

Corporate Solution

The 200MW Pasture and PV-Storage + Sand Control Comprehensive Project of BOE Energy Technology Co., Ltd. is located in Sunite Right Banner, Xilingol League, Inner Mongolia. The project is developing an integrated model that combines PV, energy storage, desertification control and pastoral activities. Ecological functions are considered throughout

PV development. Raising panel height enables both power generation above and grazing below. The shade and windbreak effects of the panels improve the surface microclimate, promoting vegetation recovery while advancing renewable energy development and desertification control in tandem. The project also includes an energy storage system to improve renewable energy accommodation. Through operations and maintenance services and pastoral integration, it creates local jobs and promotes the coordinated development of ecological restoration and pastoral industries.

Innovative Approaches

Breaking with the traditional divide between renewable energy and ecological restoration, this project integrates land restoration across the full lifecycle, from planning and construction to operation. It represents a shift from "minimizing land impacts" to "generating land gains." In this model, renewable energy becomes more than a clean power source—it serves as a lasting engine for ecological restoration and sustainable development in desertification-prone areas.

Global Implications

BOE Energy incorporates nature and land considerations into business decisions, using innovative technologies and value chain models to reduce land degradation risks while creating shared value for people and nature. For arid and semi-arid regions worldwide, this integrated model of "renewable energy development + land restoration + livelihood improvement" offers a replicable pathway for private sector engagement in global land restoration efforts.

关键词

· 新能源转型 · 土地恢复 · 牧光互补 · 生态与产业协同

🔍 核心观点

荒漠化地区往往同时面临生态脆弱、产业发展受限和能源转型需求等挑战。新能源开发为退化土地恢复提供了新的经济动力。制造业企业通过创新商业模式，将能源投资与生态修复、社区发展相结合，可以推动土地从“资源利用空间”转变为“生态与经济价值共创空间”。

📋 企业实践

位于内蒙古锡林郭勒盟苏尼特右旗的京东方能源 20 万千瓦牧光储能 + 治沙综合项目，探索形成“光伏 + 储能 + 治沙 + 牧业”融合模式。项目在光伏建设过程中同步考虑土地生态功能，通过提升光伏支架高度，实现“板上发电、板下放牧”，利用光伏板形成的遮阴和防风效应改善地表微环境，促进植被恢复，实现新能源开发与荒漠化治理协同推进。同时，项目配套储能系统提升新能源消纳能力，并通过发展运维服务、牧业融合等方式，为当地创造就业机会，推动生态治理与牧区产业发展相结合。

💎 模式亮点

该实践突破了传统新能源项目与生态治理相分离的模式，将土地恢复理念融入项目规划、建设和运营全过程，实现从“减少土地影响”到“创造土地增益”的转变。新能源产业不仅提供清洁能源，也成为支持荒漠化地区生态恢复和可持续发展的长期动力。

💡 全球启示

京东方能源将自然和土地因素融入商业决策，通过创新技术和价值链模式降低土地退化风险，并创造人与自然共享价值。对于全球干旱和半干旱地区而言，“新能源开发 + 土地恢复 + 生计改善”的融合模式，为企业参与全球土地恢复行动提供了可复制的实践路径。

