



Empowered lives.  
Resilient nations.

# 甘肃省卓尼县农牧社区离网“零碳”照明 及其他应用示范项目

Demonstration Project on Off-grid Zero Carbon Lighting and other Application  
at Farming and Pastoral Communities in Zhuoni County, Gansu Province



北京半导体照明科技促进中心  
Beijing SSL S&T Promotion Center



项目执行机构：北京半导体照明科技促进中心

Local CBO: Beijing SSL S&T Promotion Center

#### 项目成员及专家 [Project Staff & Experts](#)

岳瑞生 项目负责人

[Ruisheng Yue](#) Project Responsible Leader

黎明 项目协调、管理、评估汇报

[Ming Li](#) Project Coordination, Management, Assessment and Report

刘春明 项目财务实施人员

[Chunming Liu](#) Project Finance Staff

王国华 项目技术咨询、培训专家

[Guohua Wang](#) Project Technical Consultant and Training Expert

王小江 项目现场执行协调、培训专家

[Xiaojiang Wang](#) Project Onsite Implementation Coordination and Training Expert

周正 项目技术专家

[Zheng Zhou](#) Project Technical Expert

项目配套资金及技术支持单位：北京高科能光电技术有限公司

Project Co-financing & Technical Support: Beijing Gaokeneng Photoelectric Technology co., LTD

本项目照片版权所有，未经许可不得转载

All rights of the photos in this project are reserved.

## 项目简介 • Project Introduction

甘肃省卓尼县农牧社区户外道路、学校公共区域和家庭院落 90% 没有照明，由于缺乏公共区域照明，当地居民夜间基本无法出行，生活极为不便。牧区居民居住分散，80% 的居民无电网覆盖，使用煤油灯、蜡烛照明。半农半牧区 50% 的居民无电网覆盖，使用白炽灯作为公共区域照明，无电农牧民使用煤油灯和蜡烛照明。当地家庭 1-2% 使用小型柴油发电机作为日常用能和饭馆、小商店能源来源，成本较高，污染较大。

There is no lighting in 90% of local roads, public areas of schools and family compounds in the farming and pastoral communities in Zhuoni county of Gansu Province. Due to the lack of lighting in public areas, local residents basically are unable to go out at night, which is a huge inconvenience. Pastoral residents live far away from each other, 80% of them has no access to electricity thus have to use kerosene lamps and candles for lighting. Fifty percent of population in half farming-half pastoral region has no access to electricity, and have to use incandescent lamp as lighting for public areas, and use kerosene lamps and candles for lighting at home. One to two percent of local families use small diesel generators as the daily energy source and the energy source for small restaurants and stores, which costs a lot of money and cause a lot of pollution.

本项目旨在通过在社区公共区域安装 LED 太阳能路灯，解决公共区域照明问题，总结提出农牧区散户公共区域照明的模式和方案。通过便携式太阳能 LED 灯应用示范，减少乃至最后引导消除煤油灯在社区的使用。通过太阳能小型供电系统应用示范，解决中小型家电离网使用问题。同时在示范过程中对社区居民进行相关产品使用维护培训以及气候变化知识培训。最后总结离网农牧社区照明、生活用电的可持续模式并提交政策建议以便复制和推广。

This project aims to solve the problem of public area lighting, and to propose public lighting mode and solutions in farming and pastoral areas through installing LED solar street lamps in the public areas of the community. Through demonstrating portable LED lamps application, to reduce and finally lead to eliminate the use of kerosene lamp in the community. Through the demonstration of small solar power supply systems, to enable the use of small and middle home appliances in offgrid area. Meanwhile the use and maintenance training on those products has been conducted, as well as the climate change knowledge training to local community. Finally the sustainable pattern of off grid lighting solutions for farming and pastoral communities is proposed for replication and promotion.

## 项目主要成果概览 • Project major achievements overview

成功安装 20 盏太阳能 LED 路灯，带动了 152 盏 LED 路灯安装。每年减少约 66 吨 CO2 排放，带动减少 502 吨 CO2 排放，200 户增加收入 24000 元。

提供便携式 LED 灯 135 套，每年减少约 78 吨 CO2 排放，100 户增加收入总计 94350 元。

小型太阳 LED 供电系统 3 套，每年减少约 2.7 吨 CO2 排放。

为 111 户 / 人次提供了便携式太阳能 LED 灯使用和日常维护培训工作。

举办了气候变化知识集中培训会 2 场，集中培训 134 人，入户培训 10 户 / 次，400 份培训资料发放完毕。

完成离网农牧社区照明、生活用电的可持续模式报告及政策建议一份。

Successfully installed 20 solar LED street lights, reduces 66 tons of CO2 emissions annually, additional 152 installations were made by local government after witnessing the results of the first 20, reduces 502 tons of CO2 emissions annually. 200 households received 24000 yuan of income increase.

Provided 135 portable LED lights, reduces 78 tons of CO2 emissions annually, 100 households receive 94350 yuan of income increase.

Provided 3 small solar power supply systems, reduces 2.7 tons of CO2 emissions annually.

Provided training on the use and daily maintenance of portable solar LED lights for 111 households.

Held two concentrated trainings on climate change knowledge, 134 people received training, conducted 10 in house training, 400 copies of training material were distributed.

Completed a report and policy suggestions on the sustainable modes of electricity supply for off grid lighting at farming and pastoral communities

项目实施前后对比 • Before and after project implementation

项目实施前照明状况 Lighting conditions before project implementation



煤油灯照明 Kerosene lights



马灯照明 Barn lantern



蜡烛照明 Candles

项目实施后照明状况 Lighting conditions after project implementation



太阳能 LED 照明 Solar LED lighting



安装路灯前：公共区域无照明  
 Before installation: no lighting in public areas



安装路灯后：公共区域有了照明保障  
 After installation: lighting is available in public areas

项目实施前照明状况

Lighting conditions before project implementation



项目实施前：牧区居民没有电网覆盖，夜间生活和黎明时分工作，如挤牛奶、接生牛、羊羔等受到影响

Before project: no electricity coverage for pastoral residents, the work at night and dawn, such as milking, deliver baby cattle and goats, were affected.



项目实施前：室内光线不足，活动不便

Before project: insufficient indoor lighting, inconvenient for activities



项目实施后：牧区居民使用太阳能 LED 产品，即使在随水草迁移的情况下也有照明保障

After project, pastoral residents use solar LED products, lighting is guaranteed even when they move with water and grass.



项目实施后：太阳能 LED 产品提供充足照明

After project: solar LED products providing sufficient lighting