

ASIA CLEAN ENERGY FORUM 2025

Empowering the Future: Clean Energy Innovations,
Regional Cooperation and Integration, and Financing Solutions

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净零碳发展综合解决方案

Crossing Borders: Integrated Solutions for Net Zero-Carbon Development

京津冀及周边地区空气质量改善—中国河南省清洁燃料转换投资项目经验分享
**Air Quality Improvement in the Greater Beijing–Tianjin–Hebei Region—Henan
Of Chian Cleaner Fuel Switch Investment Program Experience Sharing**

Speaker: Liu Fenglin
June 2025

目录 Contents

01

项目概况
Program Overview

02

项目推广意义
Significance of Program
Promotion

03

绿色循环产业链
Green Circular Industry Chain




项目概况—豫天商水生物质气工业园

Program Overview - Yu-tian Shangshui Biogas Industrial Park



豫天商水生物质气工业园总投资5.8亿元，占地面积165亩，采用横向塞流式干式厌氧发酵玉米秸秆。目前是中国同类型行业规模最大，生产规模：

The total investment of Yu-Tian Shangshui Biogas Industrial Park is RMB 580 million, covering an area of 165 acres. It uses horizontal plug flow dry anaerobic fermentation of corn stalks. It is currently the largest industry of its kind in China, with a production scale:

 20万吨 200,000 tons	1878万立方米 18.78 million cubic meters	7.5万吨 75,000 tons
农作物秸秆 Crop straw	生物天然气 Biogas	生物颗粒有机肥 Biological granular organic fertilizer
2.2万吨 22,000 tons	35万吨 350,000 tons	1.8万吨 18,000 tons
液体二氧化碳 Liquid carbon dioxide	碳减排（全口径） Carbon emission reduction (full caliber)	液体有机肥 Liquid organic fertilizer



农业废弃物综合利用生产天然气项目
Natural Gas Production Program by Comprehensive Utilization of Agricultural Wastes

豫天商水生物质气项目

Yu-Tian Shangshui Biogas Program

累计收储玉米秸秆35万吨、向天然气管网输送生物天然气约2000万立方米、生物有机肥约8万吨。

A total of 350,000 tons of corn stalks have been harvested and stored, about 20 million cubic meters of biogas have been transported to the natural gas pipeline network, and about 80,000 tons of bio-organic fertilizer have been delivered.

优化各生产节点，高效稳定生产生物天然气
Optimisation of various production nodes for efficient and stable production of biomethane.



玉米秸秆标准化离田收集、处理、运输、储存，补齐农业社会化服务短板
Maize straw collectoin, pre-treatment, transportation and storage.



天然气输送农户家庭，有机肥还田，改善县域供能和乡村生态环境
Biomethane for domestic use, organic digestate for fertilizing, improving county energy supply and rural ecology.





创新的秸秆离田示范杜绝了秸秆焚烧现象，减少了大气污染和环保压力。

The innovative straw off-field demonstration eliminates the phenomenon of straw burning, reduces air pollution and environmental pressure.



统一的机械化作业，减轻了农民低效的重复性劳动，降低作物的收割成本。Unified mechanized operations reduce farmers' inefficient and repetitive labor and reduce the cost of harvesting crops.



生产的有机肥全部返田，改善了土壤板结现象，提升土壤肥力，提高作物的产量。

All the organic fertilizer produced is returned to the fields, which improves soil compaction, improves soil fertility and increases crop yields.



生物天然气入户改善居民生活环境，降低了散煤的使用，改善了空气质量，大大推进了对农村煤改气的进度。

The introduction of biogas into households has improved the living environment of residents, reduced the use of bulk coal, improved air quality, and greatly promoted the progress of coal-to-gas conversion in rural areas.

项目推广意义-社会效益

Significance of Program Promotion - Social Benefits



给农民居民提供新的就业机会，每年秸秆收储能够给当地带来约3000万元的经济收入，按照参与作业的人数约1000余人计算，每人每季可获得3万元的收入。降低种植成本，每年收割15万亩地计算，每年可为当地居民节约750万元种植成本。

It provides new employment opportunities for farmers and residents. The annual straw harvesting and storage can bring about RMB 30 million in economic income to the local area. Based on the number of more than 1,000 people involved in the operation, each person can earn RMB 30,000 per quarter. Reducing planting costs, harvesting 150,000 acres of land each year can save local residents 7.5 million yuan in planting costs each year.

项目 Item	原有种植成本 Original planting cost	目前种植成本 Current planting cost
玉米收割成本 Corn harvesting cost	90元/亩 RMB 90/mu	60元/亩 RMB 60/mu
秸秆粉碎，翻地成本 Cost of straw crushing and tillage	40元/亩 RMB 40/mu	20元/亩 RMB 20/mu
成本合计 Total cost	130元/亩 RMB 130/mu	80元/亩 RMB 80/mu
成本节约 Cost savings	50元/亩 RMB 50/mu	



商水项目提供以绿色生态为导向，贯穿粮食生产全链条的完整社会化服务，推进农业废弃物资源化利用，打造了“粮—气—粮”小循环和“粮—气—村”大循环，改变了传统农业生产单向价值链形式，构建“农业产业链+能源产业链”的环形价值圈，助力**粮食安全**。河南豫天新能源有限公司秸秆循环利用案例》荣获第五届全球**最佳减贫案例**。

The Shangshui program provides complete social services guided by green ecology throughout the entire food production chain, promotes the resource utilization of agricultural waste, creates a small cycle of "grain-gas-grain" and a large cycle of "grain-gas-village", changes the traditional one-way value chain form of agricultural production, builds a circular value circle of "agricultural industry chain + energy industry chain", and helps **food security**. "Straw Recycling Case of Henan Yu-Tian New Energy Co., Ltd." won the 5th Global **Best Poverty Reduction Case**.

项目推广意义-增值效益

Significance of Program Promotion - Added Benefits



生物质气项目
Biogas program



屋顶光伏
Rooftop photovoltaic



国家电网
State grid

利用项目屋顶搭建光伏发电，配合周边风电资源，打造新型的绿色源网荷储试点，将绿色电能通过生物天然气
的形式进行存储，形成“生物质储能电池”

Use the roof of the program to build photovoltaic power generation, cooperate with surrounding wind power resources, create a new type of green source-grid-load-storage pilot, and store green electricity in the form of biogas to form a "biomass energy storage battery"



火电厂
Thermal power plant



粉煤灰
Fly ash



绿色建材
Green building materials

采用新型的CO2矿化技术（CCUS），将项目产生的绿色CO2与火电厂的粉煤灰（一般固废）结合，加工成绿色低碳的建材产品，实现固废处理和CO2矿化的双重效果。

The new CO2 mineralization technology (CCUS) is adopted to combine the green CO2 generated by the program with fly ash (general solid waste) from thermal power plants and process it into green and low-carbon building materials products, achieving the dual effects of solid waste treatment and CO2 mineralization.

通过生物质气项目产业链的延伸，拓展在生物质储能、固碳及负碳方面新的发展方向。

By extending the industrial chain of biogas programs, we will expand new development directions in biomass energy storage, carbon sequestration and negative carbon.