



我国北方地区正在大力推广秸秆清洁供暖

（中国农业工程学会农村能源专委会 供稿）

我国具有丰富的农作物秸秆资源，据统计，2018 年我国可利用资源量约 8.56 亿吨，约 1.24 亿吨没有被有效利用。近年来，各级政府高度重视北方地区清洁取暖问题，鼓励在农村地区重点推广秸秆等生物质供暖技术，替代传统散煤燃烧，缓解大气污染。

农业农村部规划设计研究院、北京化工大学、河南农业大学等研究单位，针对中国北方不同类型村镇，提出了分散型村落单户供暖、中心村集中供暖、城郊型村镇社区集中供气等三种模式和技术路径，突破了秸秆热解、捆烧，以及清洁供暖等关键技术，研发出系列成套装备，并制定了行业标准，为北方村镇秸秆清洁供暖提供了系统解决方案。



项目团队在河北省邢台县建立了秸秆炭气联产清洁示范工程，为 550 户农户供气供暖，热解气热值 18.8MJ/m³、燃气焦油灰尘含量 2.4mg/Nm³。在辽宁省朝阳县建立了秸秆捆烧清洁供暖示范工程，为周边小学及 80 户农户供暖，热效率 84.6%、NO_x 排放浓度 93 mg/m³、烟尘颗粒物浓度 22 mg/m³，实现了清洁供暖。据专业机构评价，主要技术经济指标达到了国际先进水平。该技术成果的推广应用推动了北方村镇地区清洁供暖，促进了我国北方地区秸秆的综合利用，有利于改善农村人居环境。



Straw clean-heating is being promoted in Northern China

China has abundant crop straw resources. According to statistics, the annual resource utilization is about 837 million tons, and about 137 million tons are not effectively utilized. In recent years, the Chinese government has attached great importance to the problem of clean-heating in the northern regions and encouraged the promotion of biomass heating technologies such as straw in rural areas to replace traditional raw coal combustion and alleviate air pollution.

Institute of planning and design of the Ministry of Agriculture, Beijing University of Chemical Technology, Henan Agricultural University and other research units have proposed three types of villages and towns in northern China, such as single-family heating in decentralized villages, central heating in central villages, and centralized gas supply in suburban villages and towns. The mode and technology path have broken through the key technologies of straw pyrolysis, bundling, and clean heating developed a series of complete sets of equipment and formulated industry standards to provide a systematic solution for straw clean heating in northern villages and towns.



The project team established a straw charcoal cogeneration clean-heating demonstration project in Xingtai County, Hebei Province, to supply gas to 550 households, with a pyrolysis gas calorific value of 18.8 MJ/m³ and a gas tar dust content of 2.4 mg/Nm³. In the Chaoyang County of Liaoning Province, a demonstration project of straw-bundled clean-heating was established to heat the surrounding primary schools and 80 households. The thermal efficiency was 84.6%, the NO_x emission concentration was 93 mg/m³, and the concentration of soot particles was 22 mg/m³, which achieved clean heating. According to the evaluation of professional institutions, the main technical and economic indicators have reached the international advanced level. The promotion and application of this technological achievement promoted the clean heating in the northern villages and towns, promoted the comprehensive utilization of straw in northern China, and was conducive to improving the rural living environment.