

# “中美新能源科技论坛暨 煤层气回收利用会议”开幕式上主题报告

Theme Lecture of Sino-US New Energy Science & Technology Forum and  
Conference on CMM Recovery & Utilization

晋城市市长 王茂设

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尊敬的温特先生；尊敬的各位嘉宾、女士们、先生们、朋友们：  
下午好！

Good afternoon! Respected Mr. Wendt, Respected every guest,  
ladies and gentlemen and friends:

首先，我代表晋城市人民政府向参加这次会议的温特先生和美国杰克逊·候全球事务中心的专家、官员，向来自北京中国人民外交学会、世界杰出华商协会、清华大学、煤层气国际工程研究中心的嘉宾，向来自山西省外事、科技、煤炭、环保部门的代表，表示热烈的欢迎和诚挚的问候！各位能够来到我们晋城，就煤层气开发利用进行交流、探讨，为我们搭建了一个向世界展示晋城、让世界了解晋城的平台。有机会与各位煤层气方面的专家、学者一起畅叙合作友谊，共谋投资发展，我感到非常高兴。

Firstly, I'd like to extend my best wishes , greetings and warmly welcome to Mr. Wendt, experts and officials with Jackson

Hole Center for Global Affairs, all guests from World Outstanding Chinese Entrepreneur Association, Chinese People's Institute of Foreign Affairs, Qinghua University and International Research Center for Coal Bed Methane Project, and representatives from Provincial Foreign Affairs Office, Science and Technology Department, Coal Department and Environmental Protection Department on behalf of Jincheng Municipal People's Government. I am very pleased for all of you come to Jincheng to exchange and discuss development and utilization of coal bed methane. Thank you for building this platform for us, which shows Jincheng to the world and makes the world know Jincheng. I am very pleased to be able to join with CBM experts and scholars discussing cooperation and development.

晋城市历史悠久、山川秀美、交通便捷、资源丰富。近年来我们坚持“大开放、大发展”的理念，依托区位、资源和产业优势，利用国际国内两个市场，加强同国内外的经济技术合作与交流，促进了经济社会的快速、健康和可持续发展。全市综合经济实力显著增强，生产总值、财政总收入、城镇居民人均可支配收入和农民人均纯收入等主要经济指标位居山西省前列；各项社会事业全面发展，成为中部地区一座充满经济活力、富有人文魅力的新兴现代化城市。

Jincheng City has a long history, beautiful mountains and rivers,

convenient transportation, and plentiful resources. In recent years, we have been insisting on the concept of “broad opening –up, and grand development”. By relying on its advantages in terms of location, resources and industries, utilizing both domestic and abroad markets, and strengthening economic and technical cooperation and exchange with foreign countries and domestic cities, its economy and society develop rapidly, healthily and sustainably. Its comprehensive economic strength increases dramatically. And its main economic indicators such as total output value, financial gross income, urban per capita disposable income and rural per capita net income rank in front in Shanxi Province. All kinds of social undertakings are fully developed. Jincheng is now a emerging modern city with economic vitality and human glamour.

晋城市煤炭资源储量大，品质优，享誉全国。全市含煤面积占总面积的 49%，无烟煤探明储量 272 亿吨，占全国的 1/4 多，山西的 1/2 多。地处我市的沁水煤田煤层气储量达 6.8 万亿立方米，占全国的近 1/4，且纯度高、埋藏浅、可采性好，甲烷纯度高等特点。我市境内煤层气主要集中在沁水县，阳城县和高平市境内，目前，全市煤层气勘探开发面积达 2638 平方公里，其中沁水境内 1770 平方公里；是全国勘探程度最高、储量条件稳定、开发潜力最好的煤层气气田。

Jincheng City has huge coal reserves which is renowned for its

high quality around China. The coal-bearing area accounts for 49% of its total area. The proved anthracite reserves is 27.2 billion tons, which accounts for over 1/4 of the anthracite reserves in China and over 1/2 of the reserves in Shanxi province. The CBM reserves of Qinshui coalfield locating in Jincheng City is up to 6.8 trillion cubic meters, which accounts for about 1/4 of the national reserves. Moreover, our CBM has a high purity, low buried depth and good accessibility. The CBM of our city mainly locates in Qinshui County, Yangcheng County and Gaoping City. At present, the area being explored and developed for CBM is up to 2638 km<sup>2</sup>. And Qinshui County contributes 1770 km<sup>2</sup> to it. Gas field in Qinshui is one that is highly explored, stable in reserves and conditions, and has great potential for development.

晋城是山西省最早进行煤层气开发利用的城市，早在 1994 年，晋城煤业集团就与国外合作，在国内率先进行煤层气的地面开采，建成我国第一口煤层气地面抽采示范井。经过多年的探索和实践，现已掌握了拥有自主知识产权，包括钻井、压裂、排采、集输等技术在内的自成体系的煤层气地面抽采成套技术，同时建成了国内最大规模的地面煤层气抽采井群，走向了规模化、商业化发展道路，逐步实现了煤层气的综合利用。一是实现煤层气规模化、商业化开发。目前，全市已建成地面煤层气抽采井 2621 口，地面煤层气年抽采能力达到 22 亿立方米以上。此外，中联

公司、大宁公司、中石油公司、格瑞克公司也在晋城从事煤层气的地面抽采，是目前国内最大的井网。晋城煤业集团寺河煤矿 12 万千瓦煤层气发电厂成为亚洲最大的煤层气发电企业。二是实现对煤层气的综合利用。在煤层气发电、煤层气汽车，以及煤层气民用和工业利用等方面进行了有益的探索。目前，晋城市已建成的煤层气发电厂（站）有 24 座，总装机容量 20 万千瓦，是全国利用煤层气发电规模最大的地区；利用亚洲开发银行贷款，选用煤层气作为气源，建设城市燃气输配系统，市煤层气居民用户已有 8 万多户，市区内出租车、部分公交车和大型运输车，部分宾馆、饭店、洗浴等行业也改用煤层气为燃料，年用气规模达到 2000 万立方米以上；在保证本地市民用煤层气的基础上，还把煤层气压缩后，用专用运输槽车，向长治、太原、焦作、洛阳、济源和郑州等城市供气，日供气超过 10 万立方米。晋城的工业用煤层气也开始起步，九州玻璃、富基新材料等玻璃、陶瓷企业用煤层气替代煤和电作为新燃料，年用气规模达到 5000 万立方米左右，煤层气开发利用进入崭新发展时期。

Jincheng City is the pioneer in CBM exploitation and utilization in Shanxi province. As early as 1994, Jincheng Mining Group had started cooperation with foreign company, constructed the first aboveground degassing hole in China, and pioneered in aboveground exploitation of CBM. After years of exploration and practice, we develop a whole set of technology with independent

intellectual property rights for CBM aboveground exploitation, which includes drilling, fracturing, pumping, collecting and conveying techniques. At the same time, we build group of degassing holes aboveground with the largest scale in China. By expanding in the direction of large scale and commercialization, we achieve comprehensive utilization of CBM in the end. The first step is to achieve large-scale and commercial development of CBM. At present, we have constructed 2621 degassing holes aboveground. The annual degassing capacity is up to 2.2 billion cubic meters. And besides, China United CBM Corporation, Daning Corporation, China Petroleum Company and Gericke cooperation have engaged in CBM aboveground exploitation. 120 thousand kilowatts CBM-fired power plant is the biggest CBM-fired power enterprise in Asia. The second step is to realize comprehensive utilization of CBM. We conduct rewarding exploration in terms of CBM-fired power generation, CBM buses and cars, civil utilization and industrial utilization of CBM. At present, 24 CBM-fired power plants with 200 thousand kilowatt of installed gross capacity have been built in Jincheng city and becomes one that has the largest scale of power generation with CBM in China. We are offered loan by Asian Development Bank. It is employed to construct urban gas transportation and distribution system. There are more than 80

thousand households using CBM. Taxis, many buses and larger transport vehicles and some hotels, restaurants and bathrooms downtown use CBM as fuel. Its yearly gas consumption is up to 20 million m<sup>3</sup>. With demand of local citizens for CBM satisfied, Jincheng also supplies liquefied gas to Changzhi, Taiyuan, Jiaozuo, Luoyang, Jiyuan and Zhengzhou by special tank trucks, and supply gas more than 100 thousands m<sup>3</sup> a day. And Industrial utilization of CBM also starts up in Jincheng. Some glass-making and ceramic-making companies, such as Jiuzhou Glass Corporation and Fuji New Materials Corporation employ CBM as fuel instead of coal and electricity. Its yearly gas consumption is up to 50 million m<sup>3</sup>. Exploitation and utilization of CBM step into a new development era.

众所周知，能源问题早已成为世界各国十分关注的重大问题之一，它关系到国家安全、世界和平与安宁，关系到人类社会可持续发展。煤层气是在煤层中赋存的高热值非常规天然气，也是优质洁净能源、重要的化工原料和在全球范围内崛起的新型能源。在当今世界能源短缺与环境压力并存的情况下，煤层气的开发利用，对改善煤矿安全生产条件、减少温室气体排放、保护生态环境、优化能源产业结构、增加清洁能源供应，培育新的经济增长点均具有重要的现实意义和深远的战略意义。在世界范围内，石油价格的持续上涨和供求关系的变化刺激了投资者对煤层

气开发的关注，同时也引起了煤层气开发者以及政府对煤层气科技研究投入的增加，从而促进了煤层气勘探开发新技术的不断涌现和应用。在中国，国家已明确今后 15 年的科技工作将遵循“自主创新，重点跨越，制成发展，引领未来”的指导方针，确定到 2020 年，全社会研究开发投入占国内生产总值的比重提高到 2.5%以上，力争科技进步贡献率达到 60%以上。为贯彻落实国家中长期科技发展的指导方针和目标，煤层气开发已被列为 16 个国家中长期科技重大专项之一。通过煤层气科技重大专项的实施，中国煤层气科技成果将更加丰富，煤层气勘探开发新技术将广泛应用，科技进步对煤层气产业发展的支撑作用将进一步增强，中国煤层气产业也将获得跨越式发展。这必将成为煤层气科技项目成果的转化和自主创新提供良好平台，也必将为煤层气科技发挥支撑作用提供条件。

As we all know, the energy problem has been one of the important problems that every country pays attention to. It has a bearing on national security, world peace, and sustainable development of human society. CBM, an unconventional natural gas with high heating value, exists in the coal seam. It is not only a clean energy with good quality, but also an important raw material for chemical industry and a new type of energy which emerges all over the world. Under the current situation that the world is short of energy and is faced with heavy environmental protection pressure,

exploitation and utilization of CBM have important practical significance and great strategic significance in terms of improving safety production of coalmines, reducing greenhouse gases emission, protecting ecological environment, optimizing energy & industry structures, increasing supply of clean energy, and fostering new economic growth engine. Continuous rise of oil price and change on supply-demand relation draw investors' attention to the development of CBM. CBM developers and governments increase the investment in research of CBM science and technology, which greatly boosts the emergence and application of new technologies for CBM exploration and exploitation. In china, the government has nailed down the guidelines for science and technology development in the next 15 years, they are as follows: "independent innovation, leapfrog development in key areas, sustainable development, and leading the future". The research and development investment of the whole society will account for above 2.5% of gross domestic product, and contribution rate of science and technology progress will reach above 60% by the year of 2020. In order to fulfill mid-and-long term guidelines and objectives set by the government for development of science and technology, CBM development has been named as one of the 16 significant science & technology projects. Through implementation of this CBM development project, China will make

abundant science & technology achievements in CBM. New technologies for CBM exploration and exploitation will be applied widely. Support of Science & technology progress to the development of CBM industry will be further strengthened. And CBM industry of China will achieve leap-frog development. This will definitely provide a good platform for independent innovation and transfer of science & technology achievements in CBM, and will definitely create conditions so that CBM science & technology can play a support role.

晋城市政府长期以来，一直非常重视和支持煤层气等可再生能源领域的研究、开发和利用，而且期望在世界各国的支持与帮助下，在国内和国际煤层气技术领域里有所作为，为推动全球新能源事业做出应有的贡献。近几年我市煤层气产业在国家和省政府的大力扶持下，在国内外投资机构、科研单位和企业的共同努力下，已经呈现出强劲的发展势头。特别是我市在现有勘探利用的基础上，紧紧抓住“十一五”国家和我省重视开发煤层气的机遇，利用国内外煤层气开发利用的各种先进技术加强科学研究，认真研究探索节约资源能源的有效途径，坚持走科学发展的道路，力争使我市在“十一五”期间煤层气开发利用上有突破性的大发展。但是，我市煤层气开发与先进发达国家相比起步晚，基础理论和技术上都无法与常规天然气相比。尤其是我市煤层气储层仍还存在低压、低渗、低饱和的“三低”现象，从理论和技术

方面都存在若干关键性难题。在新农村建设的进程中我市现存在大量关闭煤矿，大都存在开采权率低、煤矿气大量闲置浪费的现象，还有大批的废井和采空区需要回收利用，对大、中型高浓度煤层气的煤矿，需要积极减少污染及温室气体的排放总量，保障采煤安全、提供新能源，如果可借鉴采用先进技术和设备将此类煤矿气采集加以利用，不仅可以解决当地群众的燃料来源问题，也可在煤矿气发电，煤矿气转化其他化工产品方面大力发展，此举将大大有利于环境保护，为节能减排，降低大气污染，缓解世界温室效应作出贡献，取得良好的社会和生态效应。因此，我市的煤层气研究在关键技术的攻关、已有成果的推广应用以及成果转化方面还有诸多工作要做，还需要在相应的政策上给予支持，积极探索煤层气互利合作、联合开发的有效途径和模式，携手共创合作共赢新格局就成了这个行业的当务之急。

Jincheng municipal government has been attaching importance to the research, development and utilization of CBM all the time. We expect to accomplish something in the area of CBM science & technology with support and help from all over the world to make a contribution to the development of new energy. In recent years, under the great support of the state, provincial party committee and government, with concerted efforts of both home and abroad investment organizations, research institutes and companies, CBM industry of Jincheng city presents a strong trend of development.

Basing on existing exploration and utilization, Jincheng city will take the opportunity that central government's eleventh 5-year plan and provincial government attach great importance to CBM development, employ a variety of advanced technologies on CBM exploitation and utilization both from home and abroad, strengthen scientific research, explore an effective means on saving resources and energy, implement scientific development concept, and endeavor to make breakthrough in terms of CBM exploitation & utilization during the eleventh 5-year plan. However, CBM development and utilization of Jincheng City started later than developed countries. The fundamental theory and technology can't contrast with conventional natural gas. Moreover, our CBM storage layers have such phenomena as low pressure, low permeability and low saturation. We are faced with some key difficulties in terms of theory and technology. In the course of building new socialist countryside, a lot of mines are closed. These mines have low extraction rate and a large amount of CMM is left unused and wasted. In addition, there are many abandoned mines and mined-out areas that we can extract methane from. As to medium and large scale high gassy coalmines, we need to reduce the pollution and greenhouse emission, guarantee the mining safety, and supply new energy. If the advanced technology and equipment will

be introduced and utilized, we not only can provide local people new source of fuel, but also can benefit from such applications as CMM power generation, CMM conversion to chemical products. All of these will contribute to environmental protection, energy saving, emission and air pollution reduction, and relief of global greenhouse effect. Therefore, we will have a lot of work to do in terms of tackling key technical problems, applying available achievements and transferring the achievements. The most urgent affair for us in this industry is to work out the effective approach and mode for mutual-benefit cooperation and united exploitation.

当前正值全球金融危机之时，我们期望以这次能源科技论坛为平台，共同分享各国成熟的技术与经验，为全球煤层气能源研究、利用与推广做出贡献。我们也热诚欢迎国内外大公司到晋城投资，共同运用科技来引领科学发展，运用科技来带动经济发展，运用科技战胜全球金融危机。为保护生态，减少环境污染和社会、经济可持续协调发展做出贡献。

At the time of global financial crisis, We expect this new energy science and technology forum would serve as a platform, on which we can share proven technologies and experience from every county to make contribution for global CBM research, utilization and expansion. We'd like to welcome large companies invest to Jincheng, all of us will apply science and technology to guide

scientific development, to promote economic development and to overcome the global financial crisis and to make contribution for eco-environmental protection and sustainable and harmonious development of society and economy.

最后预祝大会圆满成功！

At last, I wish a success of this convention!

谢谢大家！

Thank you!