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# 中国中心2022年工作回顾及2023年工作计划

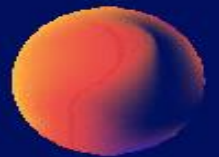
Work Review of 2022 and Work Plan for 2023 of ICE-China

中国国际卓越煤矿瓦斯治理中心主席  
中国工程院院士

Chairman of ICE-CMM  
Academician of CAE

金智新

Jin Zhixin





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## 1. 第一部分 中国中心2022年度工作回顾

Part I: Work Review of ICE CMM in China in 2022

## 2. 第二部分 中国中心2023年工作计划

Part II: Work Plan of ICE CMM in China for 2023



# 第一部分中国中心2022年度工作回顾

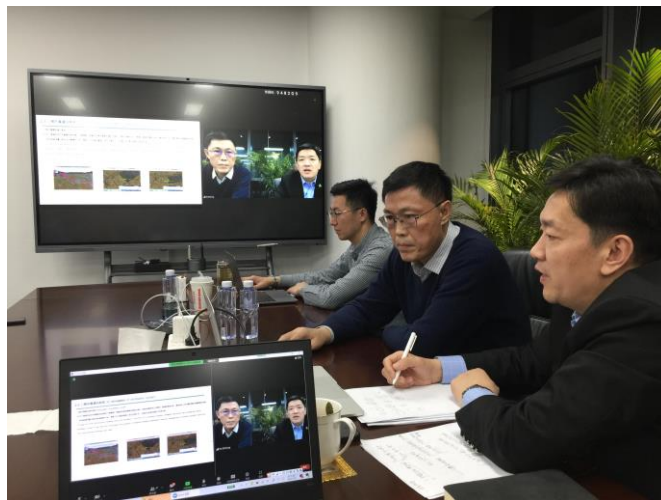
## Part I: Work Review of ICE CMM in China in 2022

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- **1.中心能力建设 Capacity building**
  - **2.业务开展情况 Business development**
  - **3.推广“最佳实践” Promote "best practice"**

# 1.中心能力建设Capacity building

## 1.1在瓦斯专家委员会指导下开展工作Work under the guidance of GOE

- 2022年3月21-22日瓦斯专家委员会第十七届全体会议（视频），并向会议提交了中国中心年度工作报告  
March 21-22, 2022 , Attended 17th Session of GOE (on line), and submitted the work report of ICE CMM in China.
- 2022年3月23日参加瓦斯专家委员会、全球甲烷行动倡议（GMI）煤矿小组委员会第十二次联席会议（视频）  
March 23, 2022, Participated the 12th Joint Meeting of UNECE GOE and GMI Coal Subcommittee



# 1.中心能力建设Capacity building

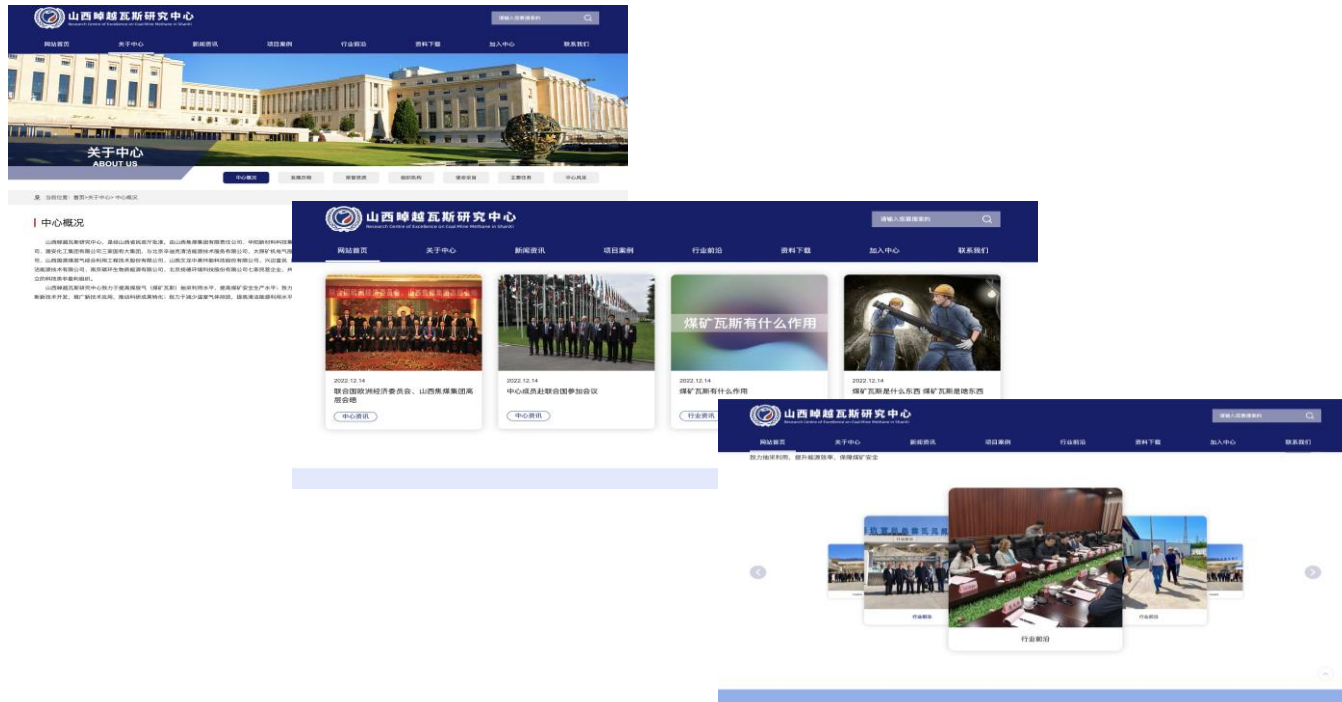
## 1.2设立网站 Establish a website

- 中心网站设立已基本完成，正在进行调试和后续完善工作，网站页面可实现PC端、手机端同时浏览。

网站域名为：<http://xincailaowu.test.dongbo.ren/>

The website of the Center has been established, and the debugging and follow-up improvement work are under way. The website page can be viewed simultaneously on PC terminals and mobile phones.

The website domain name is: <http://xincailaowu.test.dongbo.ren/>



# 1.中心能力建设Capacity building

## 1.3 按时完成政府的年度考核工作 Complete the annual assessment work of the government on time

- 按时向山西省政府提交“社会组织2021年度工作报告”考核结果为合格并已公布。 Submit the "2021 Annual Work Report of Social Organizations" to Shanxi Government on time. The assessment results were qualified and published

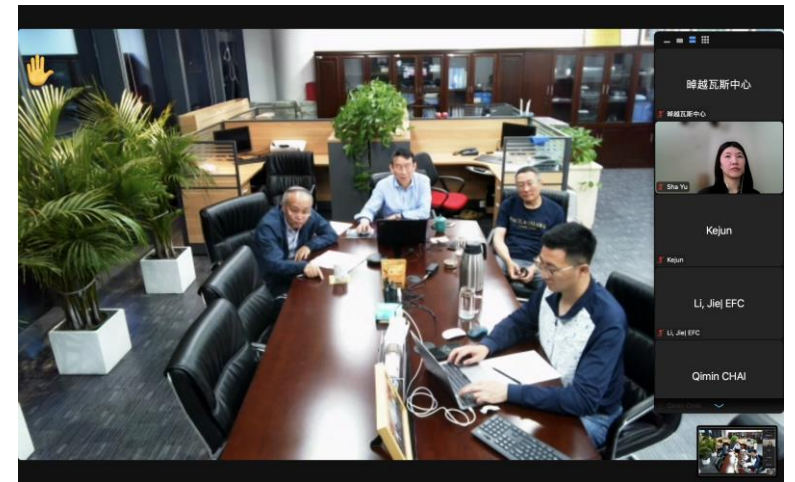
## 1.4 保持财务状况良好 Maintain good financial position



## 2. 业务开展情况 Business conditions

### 2.1 开展学术交流活动 Carry out academic exchange activities

- 2022年3月30日参加由由国际能源署（IEA）召开的“减少化石能源甲烷排放”研讨会，并向会议提交题为“煤矿瓦斯抽采利用减排最佳实践及其政策引导”专项意见/建议。Participate in the seminar "Reducing methane Emissions from Fossil Energy" held by the IEA on 30 March 2022, and submit a special opinion / proposal entitled "Best Practices for extraction and Utilization of Coal Mine Gas and its Policy Guidance".
- 参加2022年5月25日召开的中国能源规划与环境影响评价及管理政策研究框架下的能源领域中美甲烷合作专题研讨会，并提交“煤矿瓦斯抽采利用减排最佳实践”专题报告。25 May, 2022, Joined the workshop of China's energy planning and environmental impact assessment and management policy research under the framework of the energy methane cooperation. Submitted the project report entitled "coal mine gas extraction using emissions best practices".

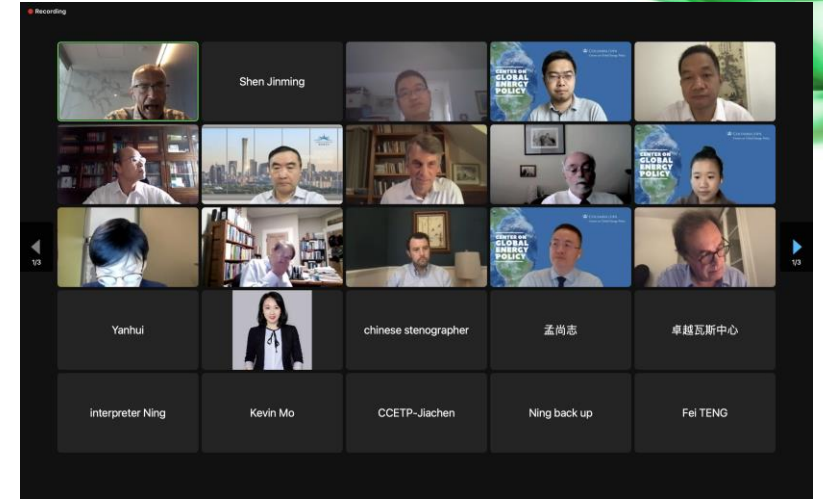




## 2. 业务开展情况 Business conditions

### 2.1 开展学术交流活动 Carry out academic exchange activities

- 参加2022年7月21日哥伦比亚大学和北京大学联合召开的“2022中美甲烷减排系列对话—煤矿行业甲烷减排圆桌会”，并向会议提交题为“中国煤矿有效抽采利用减排煤矿瓦斯最佳实践”专题报告。Participated in the “2022 China-US Methane Emission Reduction Series Dialogue - Coal Mine Industry Methane Emission Reduction Roundtable” hosted by Columbia University and Peking University on 21 July 2022, and submitted the special report entitled "Best Practice of Effective extraction and Utilization of Coal Mine Gas Reduction in China" to the conference.



### 2.2 为传统能源企业提供“双碳”服务 Provide "dual-carbon" services for traditional energy enterprises

- 2021年8月，中国中心与北京辛迪克清洁能源技术服务有限公司联合启动了“西山煤电（集团）有限责任公司实现双碳目标减排场景控制措施及低碳发展路径研究”前期工作。In August 2021, China Center and Beijing Sindicatum jointly launched the preliminary work of "Xishan Coal and Power (Group) Co., Ltd. to achieve dual-carbon target emission reduction scenario control measures and low-carbon development path research".



# 3. 推广“最佳实践” Promote "best practices"

## 3.1提高清洁能源利用水平 Improve efficiency of clean energy utilization

- 由中国中心与北京辛迪克清洁能源技术服务有限公司联合开展的“华晋焦煤瓦斯发电厂二期工程提质增效技术研究及应用”项目，已完成招投标工作。项目将于2023年上半年实施，预计项目投产运营后可提高发电效率15%
- The bidding project of "Research and Application of Improving Quality and Efficiency technology of Phase II Huajin Coking Coal CMM Power Plant Project" jointly launched by China Center and Beijing Sindicatum has been completed. The project will be implemented in the first half of 2023, and it is expected to improve the power generation efficiency by 15% when it is put into operation.

## 3.2提供温室气体减排服务 Provide greenhouse gas emission reduction services

- 中心理事单位南京碳环生物质能源有限公司是瓦斯、沼气、二氯甲烷、环氧丙烷、异丁烷、二氯甲烷、正己烷、甲苯、四氢呋喃等有机溶剂化工尾气综合利用气体预处理的专业化公司，经过近20年的努力，该公司已成长为行业内少数几家技术领先的科技类公司。 China ICE member, Nanjing carbon ring biomass energy Co., Ltd., has expertise in treatment of a wide range of organic gases and liquids developed over nearly 20 years and is now a leading technology company.

2021年，南京碳环公司制造完成瓦斯/沼气/VOCs回收利用装置80台/套，向社会提供温室气体减排能力366.6万吨/a。 In 2021, Nanjing Carbon Ring Company manufactured 80 sets of gas / biogas / VOCs recovery and utilization devices, providing society with a greenhouse gas emission reduction capacity of 3.666 million tons per year.



# 3. 推广“最佳实践” Promote "best practices"

## 3.3推动风排瓦斯利用 Promote the use of VAM

- 中心理事单位兴边富民（北京）清洁能源技术有限公司是超低浓度瓦斯综合利用专业化公司，由该公司开发的桑掌乏风氧化发电余热利用项目运行情况良好，2022年发电4746.91万度，为矿井供热1.7万蒸吨，利用瓦斯1977万NM<sup>3</sup>，实现二氧化碳减排35万吨。China ICE member, Fortman energy Company is a specialist provider of comprehensive ultra low gas concentration (VAM) utilization technology. The waste heat utilization project developed by the company is a success, generating over 47 million kWh of electricity in 2022, supplying 17,000 tons of steam to the mine, using 19.77 million NM<sup>3</sup> of gas, and achieving a carbon dioxide emission reduction of 350,000 tons.
- 同时，该公司与上海申欣环保实业有限公司（申能集团子公司）共同开发的，山西潞安集团古城煤矿乏风氧化发电余热利用项目已完成投资2.8亿元，已进入联调联试阶段。At the same time, the Company and Shanghai Shenxin Environmental Protection Industrial Co., LTD. (a subsidiary of Shenneng Group), the waste heat utilization project of Shanxi Luan Group has completed an investment of 280 million yuan and has entered the stage of joint trial investigation.

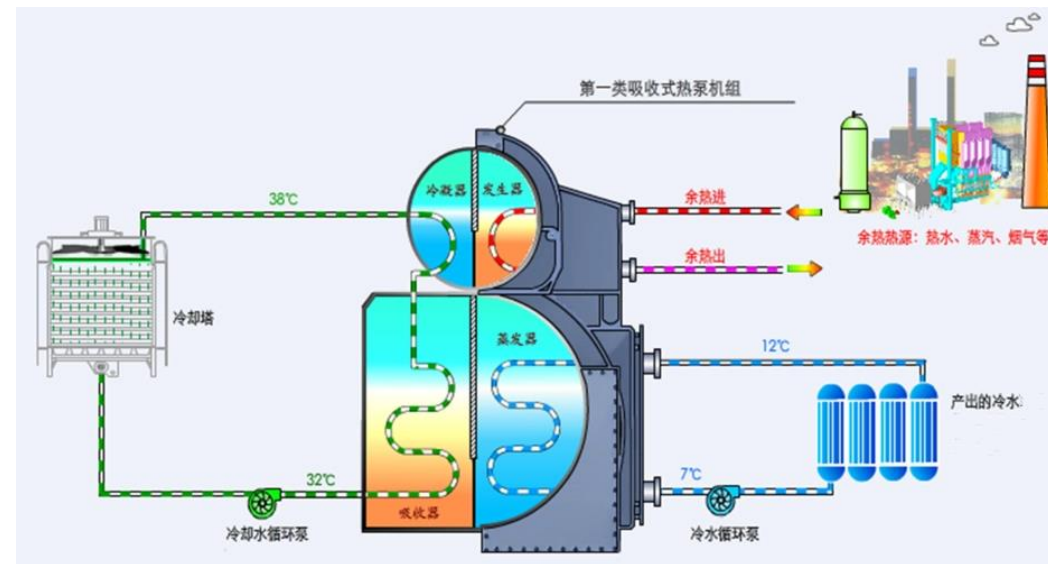


### 3. 推广“最佳实践” Promote "best practices"

#### 3.4 拓展碳减排渠道 Expand channels for carbon emission reduction

中心理事单位山西文龙中美环能科技股份有限公司是煤矿瓦斯、工业余热、风源/地源热回收利用专业化公司，截止2022年末，文龙中美公司共设计建设风源/地源热回收利用装置68套（项），供热装机能力243.4MW，为社会提供二氧化碳减排能力66万吨/a，有效拓展了煤矿瓦斯综合利用以外的碳减排路径。

China ICE member Shanxi Wenlong Ring Technology Co., Ltd., is a CMM, industrial waste heat, air source / ground source heat recovery specialized company. By late 2022, the company designed and constructed 68 sets of heat recycling devices with a heating capacity of 243.4MW, providing a carbon dioxide emission reduction capacity of 66000 tons per year.





## 第二部分 中国中心2023工作计划

## Part II: Work Plan of ICE CMM in China for 2023

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- **1.工作背景 Work background**
  - **2.工作重点 Key work**
  - **3.中国中心2023年工作计划 Work plan for 2023**

# 1. 工作背景 Work background

## 1.1 实现碳达峰碳中和是中国经济社会系统性变革 Carbon neutrality requires a systematic change in China's economy and society

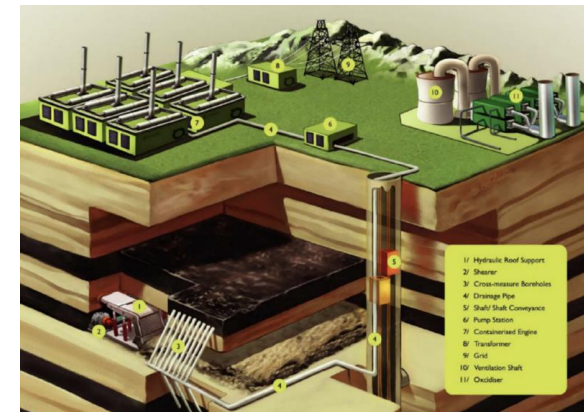
- 中国“实现碳达峰碳中和是一场广泛而深刻的经济社会系统性变革”，显著的变革领域包含了对能源结构的优化和对产业结构的调整。China "achieving carbon neutrality is an extensive and profound systematic economic and social change", the significant areas of change include the optimization of energy structure and the adjustment of industrial structure.
- 能源结构优化：优化高碳的能源结构，减少化石能源的比例，提高可再生能源使用比率，减少能源领域的碳排放；Energy structure optimization: optimize the high-carbon energy structure, reduce the proportion of fossil energy, improve the use ratio of renewable energy, and reduce carbon emissions in the energy sector;
- 产业结构调整：优化高碳的产业结构，减少高耗能产业比重，加大“双控”工作力度；Industrial structure adjustment: optimize the high-carbon industrial structure, reduce the proportion of energy-intensive industries, and increase the work of "double control";
- 消费结构调整：倡导低碳生活，调和发展经济与节能降耗的矛盾，放缓提高生活水平带来的对能源消费的增长速度。Adjustment of consumption structure: advocate low-carbon life, reconcile the contradiction between economic development and energy conservation and consumption reduction, and slow down the growth rate of energy consumption brought about by improving living standards.



# 1.工作背景Work background

## 1.2 完全取消超低浓度瓦斯难度较大 It is very difficult to completely eliminate low concentration gas drainage

- 中国地域辽阔，煤炭地质条件复杂，以煤炭大省山西为例，其西山、阳泉、武夏、潞安、晋城、霍东、离柳7主力煤田全部是煤层气高含量区块，除晋城矿区外的6个区块均存在煤层透气性差、吸附性强、碎软煤层易塌孔的问题。如山西焦煤，其瓦斯赋存呈现“三低一高”的特点，即“低透气、低渗透、低饱和、高吸附”。按照现阶段的采煤工艺、瓦斯抽采工艺和安全规范的要求，高瓦斯、高突矿井的上隅角瓦斯均采用低负压开放式抽采方式，因此完全取消超低浓度瓦斯难度较大。
- The reasons are:
  - Wide range of geological conditions within the extensive territory of China
  - Large coalfields with high gas contents, low permeability seams and soft coal.
  - For example, the gas occurrence of Shanxi coking coal presents the characteristics of "three low and one high", that is, "low permeability, low permeability, low saturation and high adsorption".
  - According to the requirements of coal mining technology, gas extraction technology and safety specifications at the present stage, the upper corner gas of high gas and high outburst mines adopts low negative pressure open extraction method. This method produces low concentration methane. If not carefully managed, gas within the explosive range is drained.





# 1.工作背景Work background

## ● 1.3通风瓦斯浓度低资源量丰富Large volume of VAM with low concentration

从井工矿井瓦斯排放的经验数据看，正常生产矿井的通风瓦斯排放总量与抽采瓦斯的抽放总量相当。这样，通风瓦斯就具备了总量大、浓度低的特点。

有一项对S省117个高瓦斯矿井和89个低瓦斯矿井回风井瓦斯浓度的调查数据显示，高瓦斯矿井通风瓦斯浓度范围在0.02~0.5%之间，其中85%的矿井通风瓦斯浓度大于0.1%；而低瓦斯矿井的回风井瓦斯浓度则大部分在0.05%以下，仅有12%的回风井瓦斯浓度大于0.1%，高瓦斯矿井的通风瓦斯浓度要明显高于低瓦斯矿井。浓度在0.1%以上的通风瓦斯占70%，浓度在0.3%以上的通风瓦斯占10%。

Empirical data indicates the pure methane flow equivalent in drained is roughly equal to the pure methane flow in VAM from normal production mines.

A survey of methane concentration of exhaust shafts in 117 high gas mines and 89 low gas mines in Shanxi province shows:

- VAM in high gas mines concentration ranges between 0.02 and 0.5%; VAM concentration more than 0.1% accounts for 70% and with concentration of more than 0.3% accounts for 10%.
- 85% of the VAM concentration of low gas mines is less than 0.05%, only 12% is more than 0.1%



# 1.工作背景Work background

**1.4废弃矿井瓦斯资源量大回收难** It is difficult to recover the large amount of gas resources from abandoned mines

- **废弃矿井瓦斯资源丰富** AMM are rich in gas resources

随着煤炭产业的优化升级和对落后产能淘汰力度的不断加大，中国煤矿数量大幅度减少，同时废弃矿井数量大幅增加。With the optimization and upgrading of the coal industry and the increasing elimination of backward production capacity, the number of coal mines in China has been greatly reduced, while the number of abandoned mines has increased significantly.

- **政府出台支持废弃矿井瓦斯回收利用政策** The government has issued policies to support AMM recovery

为有效推进废弃矿井瓦斯回收利用，山西先后出台了《关于开展煤炭采空区（废弃矿井）煤层气抽采试验有关事项的通知》、《煤矿采空区（废弃矿井）煤层气地面抽采安全规范》《山西省煤层气勘查开采管理办法》等支持政策。

To effectively promote the waste mine gas recycling, Shanxi has issued "about the coal goaf (abandoned mine) methane extraction test related matters notice," coal mine goaf (abandoned mine) CBM ground extraction safety specification "" Shanxi Province CBM exploration management method " and other support policies.

- **煤炭主产区积极推进废弃矿井瓦斯回收利用** Major coal producing areas actively promote the recycling of gas in abandoned mines

山西省废弃矿井采空区已累计施工抽采井100余口，抽采利用煤层气1.28亿立方米，相当于减排二氧化碳192万吨。At present, Shanxi has wide experience of CMM extraction from goaf areas. More than 100 extraction wells have been constructed in abandoned mines in Shanxi Province, producing 128 million cubic meters, equivalent to emission reductions of 1.92 million tonnes.

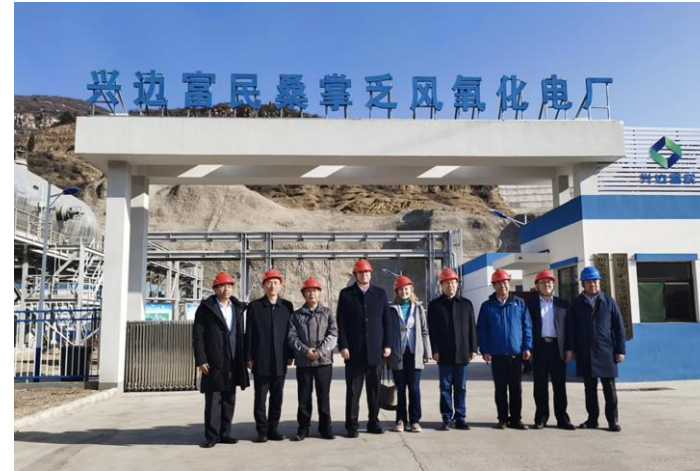
## 2. 工作重点 Key Work

- 为能源企业低碳转型服务Low-carbon transformation services for energy enterprises
- 为能源产出区域政府服务Serving regional governments of energy region
- 推动煤矿安全监测监控系统向多功能型转变Promote the coal mine safety monitoring and monitoring system to the multi-functional transformation
- 推动通风瓦斯利用率提高Promote the utilization rate of VAM
- 推动废弃矿井瓦斯回收利用Promote AMM recovery and utilization



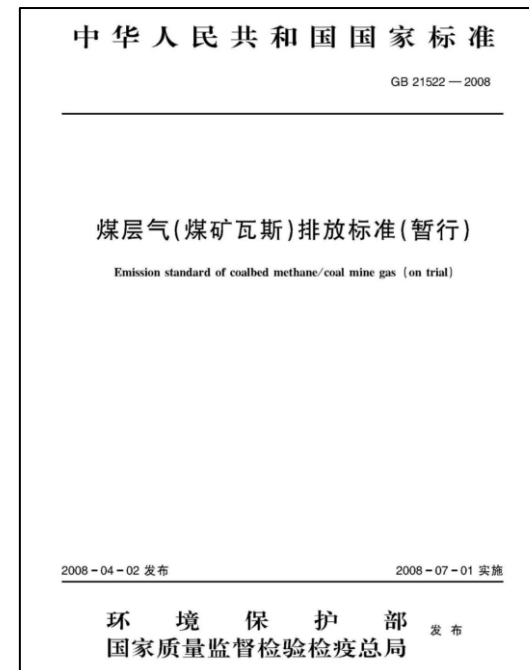
### 3 中国中心2023年工作计划 Work plan for 2023

- 在瓦斯专家委员会的指导下开展工作 Work under the guidance of the GOE
- 能力建设 Capability building  
扩大与大型能源集团的合作，寻求社会更广泛的支持。 Expand cooperation with large energy groups to seek broader social support.
- 业务工作计划 Business work plan
  - I. 择机召开“能源转型与低碳化发展最佳实践国际论坛”； Holding an International Forum on Best Practices for Energy Transformation and Low-carbon Development;
  - II. 完成山西省XS煤炭集团的碳盘查，编制低碳发展规划 Completing the carbon inventory of Shanxi XS Coal Group, and compiling a low-carbon development plan;



### 3 中国中心2023年工作计划 Work plan for 2023

- I. 推动由兴边富民公司开发的，山西潞安古城煤矿乏风氧化发电余热利用项目投产发电，为煤矿提供热源保障；Promote the development of Fortman Energy Company, Shanxi Lu'an Gucheng coal mine VAM generation and waste heat recovery project;
- II. 与北京辛迪克公司合作，完成山西省HJ煤炭企业的瓦斯发电提质增效技术研究及应用课题研究；Cooperate with Beijing Sindicatum to complete the research and application project of gas power generation quality and efficiency improvement technology of HJ coal enterprises in Shanxi Province;
- III. 参与“GB 21522-2008煤层气（煤矿瓦斯）排放标准（暂行）”修订工作。Participate in the revision of "GB 21522-2008 Coal bed methane (Coal Mine Gas) Emission Standard (provisional)".





**谢谢！ THANKS**