



谅解备忘录

MEMORANDUM OF UNDERSTANDING

签署方

Among

美国能源部国家能源技术实验室

**UNITED STATES DEPARTMENT OF ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY**

和

and

中国神华煤制油化工有限公司

CHINA SHENHUA COAL TO LIQUID AND CHEMICAL COMPANY LIMITED

美国能源部国家能源技术实验室和中国神华煤制油化工有限公司共同作为参与方。

The United States Department of Energy's (USDOE's) National Energy Technology Laboratory and the China Shenhua Coal To Liquid And Chemical Company Limited (CSCLC) collectively herein the "Participants,"

提示：基于双方在化石能源领域提升技术水平、环境论和性价比的合作兴趣，

SHARING an interest in collaborating to advance the technical, environmental, and cost performance of fossil energy technologies,

达成以下谅解：

HAVE REACHED THE FOLLOWING UNDERSTANDING:

I. 目标 OBJECTIVE

参与方意图共同工作以形成一种机制和方法，这将促进和维持双方在基础研发、可用技术、技术选择和经济性评价等方面的联合行动。

The Participants intend to work together to develop the mechanisms and processes that will promote and sustain collaborative efforts for research and development (R&D) on base and enabling technologies, and assessments of technology options and economics.

II. 合作领域 AREAS OF COOPERATION

参与方提出的合作主题包括，但不限于以下内容：

Topics of the Participants' proposed collaboration may include, but are not limited to, the following:

1. 清洁 - 低碳煤转化技术，包括煤制氢、煤加氢液化、煤基费托合成间接液化、煤气化、煤制天然气、合成气制乙醇、整体煤气化联合循环。

Clean and low carbon conversion of coal technology, including coal hydrogenating liquefaction, coalbased Fisher Tropsch (FT) liquids synthesis, coal gasification, coal to natural gas, syngas to ethanol, and integrated gasification combined cycle (IGCC).

2. CO₂ 捕集或利用技术，包括但不限于，CO₂ 的富集、地质或盐水层埋藏、油田驱油和其它应用。

CO₂ capture, or utilization technologies including, but not limited, to CO₂ enrichment, geological or saline storage, oil driving in oil field, and other utilization.

3. 通过技术 - 经济分析和综合研究来确定和评价先进的基于化石能源的工艺和体系，包括定义涉及到的先进工厂，比如煤发电、煤化工，和/或煤制清洁燃料，尤其是 CO₂ 捕集与封存，以及环境评价。

Techno-economic analysis and integration studies to identify and assess advanced fossil energy-based processes and systems, including definition of advanced "reference" coal plants for production of power, chemicals, and /or clean fuels, especially with carbon capture and storage (CCS), and environmental evaluation

经参与方共同书面同意，也可以增加其它合作领域。

Other areas of collaboration may be added by the Participants' mutual consent in writing.

III. 合作形式

FORMS OF COOPERATION

合作包括但不限于：

Cooperation may include, but is not limited to:

- 1 . 交换信息、出版物、报告、技术数据、样品和材料。
Exchange of information, publications, reports, technical data, samples, and materials;
- 2 . 交换科学家、工程师和其他专家，参与培训、项目界定活动、研究、能耗分析和技术传递。每个交换的人员在进行所分配的工作时，都要遵守当地一方的健康、安全、环保要求。
Exchange of scientists, engineers, and other specialists for participation in training, project definition activities, research, energy analyses, and technology transfer. Each Participant is to abide by the health, safety, and environmental requirements of the host Participant when on an exchange assignment at the host Participant's facility;
- 3 . 按照第 II 部分合作领域的范围，制定合作研究项目的计划，应该遵照书面协议来展开研究。
Planning of joint research projects in the Areas of Cooperation cited in Section II, such R&D to be undertaken pursuant to an appropriate written agreement therefor.

IV. 合作机制

MECHANISMS OF COOPERATION

1 . 领导协调人

Lead Coordinators

每个参与方都应该指定一个或几个领导协调人，作为主要负责人，来管理在该备忘录下的所有活动，包括确定合作领域、对其团队在特定合作领域的关注点做出快速反应、协调参与方之间的合作，以及确定在该备忘录下进行合作的可用资源（包括资金）。

Each Participant should designate one or more Lead Coordinators, to serve as its principal representative(s) for all activities conducted under this MOU, including identifying areas of cooperation, providing rapid response concerning its organization's interest in specific areas of cooperation, coordinating cooperation among the Participants, and identifying available resources (including funding) for collaborative activities under this MOU.

2. 联合指导委员会

Joint Steering Committee

参与方之间应该成立一个联合指导委员会，由领导协调人共同担任主席，由已定合作领域指派的代表组成。联合指导委员会应该定期回顾在该备忘录下的合作、讨论和确定新的合作领域，并确定资金需求。

A Joint Steering Committee should be formed among the Participants, to be co-chaired by the Lead Coordinators and composed of designated representatives in the mutually determined areas of cooperation. The Joint Steering Committee should meet regularly to review the cooperation under this MOU, discuss and identify new collaborative areas, and define funding requirements.

3. 技术小组

Technical Groups

由联合指导委员会成立技术小组，来执行由委员会确定的合作项目。技术小组应该由合作领域的专家组成，并在委员会领导下工作，定期召开会议，总结正在进行的工作，考虑新的合作机会，制定以后的工作计划，向委员会汇报每个合作项目的进展。

Technical Groups may be established by the Joint Steering Committee to implement the cooperative projects determined by the Joint Steering Committee. The Technical Groups should consist of experts in the mutually determined areas of collaboration. Working under the Joint Steering Committee, the Technical Groups should meet regularly to review ongoing activities, consider new opportunities for collaboration, plan future activities, and report on the progress of each cooperative project under this MOU to the Joint Steering Committee.

V. 基本规定

GENERAL PROVISIONS

1. 该备忘录不会在参与方之间产生任何法律效力。

This MOU does not create any legally binding obligations between or among the Participants.

2. 在该备忘录下进行的预期的合作行为，应该遵从资金、人员和其它资源的有效性。

The conduct of cooperative activities contemplated by this MOU is subject to the availability of funding, personnel, and other resources.

3. 每个参与方在该备忘录下的合作行为，应该符合本国政府的法律法规，并遵守其政府作为成员的国际规定。

Each Participant should conduct the cooperation under this MOU in accordance with applicable laws and regulations to which it is subject, and international agreements to which its Government is party.

4. 每个参与方应承担在该备忘录下产生的合作费用。

Each Participant is responsible for the costs it incurs in participating in cooperative activities under this MOU

VI. 开始、修改和终止

COMMENCEMENT, MODIFICATION AND DISCONTINUATION

1. 在该备忘录下的合作行为，应该在参与方签署之后开始持续 5 年，除非合作按照第 VI 部分第 2 段的条款终止。

Cooperative activities under this MOU may commence upon signature by the Participants and continue for a 5-year period unless discontinued in accordance with paragraph 2 of this Section VI.

2. 参与方可以在任何时候以书面方式终止此备忘录。如果一方想终止该备忘录下的合作，应提前至少 90 天向另一方提供书面通知。任一方的退出都认定此备忘录终止。

The Participants may discontinue this MOU at any time in writing. A Participant that wishes to discontinue its participation in this MOU should endeavor to provide at least ninety (90) days written notice to the other Participants. The withdrawal of either Participant constitutes discontinuation of this MOU.

3. 参与方共同同意后可以以书面形式修改此备忘录，也可以延长周期。

This MOU may be modified in writing by mutual consent of the Participants, and may be extended for additional periods.

签署地： 共三份，于 2009 年 10 月 日，文件为中、英双语。

Signed at XXX, in triplicate, on the XXth day of October 2009, in the English and Chinese languages.

副本为中、英双语，每个版本具有同等效力。

Done in duplicate in the English and Chinese languages, each text being equally authentic.

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