

'93中美能源会议论文集

'93 China-US Energy Conference Proceedings

主办单位: 中国国家科学技术委员会
美国美洲华侨工程科技学会

Co-Sponsor: The State Science and
Technology Commission P. R. China
The Chinese American Institute
of Engineers and Scientists

承办单位: 中国能源研究会
Organizer: China Energy Research Society

1993年11月15~17日 北京
15~17, November, 1993 Beijing

中国国务委员兼国家科学技术委员会主任宋健博士
致'93 中美能源会议贺信

值此'93 中美能源会议在北京召开之际,我代表中国政府表示衷心祝贺,并向远道而来的美国各界朋友表示热烈的欢迎。

中国实行改革开放以来,经济迅速发展,对外交往日益扩大,这为国外来华投资和科技、经贸合作提供了良好的环境。特别是在能源领域,技术交流与合作,以及资金市场的引入都具有良好的开发前景。

我相信,中美两国与会代表欢聚一堂,交流共同关心的问题,将促进两国在能源领域科技交流与经济贸易合作的进一步发展,增进相互了解和友谊。

预祝会议取得圆满成功。

中华人民共和国 国务委员
国家科学技术委员会 主 任
一九九三年十一月十五日

宋健

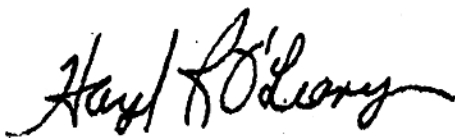
**Letter of Congratulation
on '93 China-US Energy Conference
by Hazel R. O'Leary, Secretary
of US Department of Energy**

November 8, 1993

On behalf of the Department of Energy, I extend my best wishes to the Chinese American Institute of Engineers and Scientists for a very successful China-U.S. Energy Conference in Beijing, China, November 15-17, 1993.

This jointly sponsored conference plays a very important role in promoting the cooperative activities in the energy field between China and the United States. Due to prior commitments, I will not be able to participate in this very important conference however, I am planning to visit China early next year. I am pleased to announce that the Department of Energy Acting Assistant Secretary for Fossil Energy will give the keynote address in my stead.

I also extend my best wishes to the Chinese American Institute of Engineers and Scientists on the observance of their 50th Anniversary.

A handwritten signature in dark ink, appearing to read 'Hazel R. O'Leary', with a stylized, flowing script.

Hazel R. O'Leary

'93 中美能源会议开幕式致词

黄齐陶

(国家科委副主任)

尊敬的主席先生：

女士们、先生们：

由中国国家科委和美国美洲华侨工程科技学会主办的、中国能源研究会协办的'93 中美能源会议，在各方面的共同努力下今天如期开幕了。首先，请允许我代表国家科委向所有与会的中美代表表示热烈欢迎。

我们高兴地看到，出席今天会议的既有中美两国政府的高级官员，也有企业界和科技界的人士，这反映了中美双方对这次会议的重视。

这次会议为中美能源界决策人员、技术部门及企业界人士之间的直接对话提供了一个机会，双方将交流探讨中美两国在能源领域共同关心的问题，增强相互理解，推动中美双方在能源领域的科技和经贸合作。

当前，中国正在朝着建设有中国特色的社会主义市场经济的方向迈进，呈现出政治稳定，社会稳定和经济持续发展的大好形势。随着经济体制、政治体制的深化改革，中国将进一步扩大对外开放。同时，从世界范围看，整个亚太地区呈现出少有的和平友好合作和经济高速增长的区域形势。这无疑为'93 中美能源会议的顺利召开和今后的中美能源合作提供了良好的国内外环境。

中国作为发展中国家，制定了国民经济发展分三步走的宏伟目标：第一步在 1990 年前，解决人民生活的温饱问题，这一步已基本实现；第二步在 2000 年，达到小康水平；第三步在下世纪中叶赶上中等发达国家水平。毋庸置疑，社会经济的发展必将伴随巨大的能源消费需求。根据我国国情，在相当长的时期内，中国的能源生产和消费结构将仍然以煤炭为主，这将对交通运输和环境构成巨大的压力。中国的能源事业面临着环境和持续发展的挑战。为此，中国政府制定了经济—能源—环境持续协调发展的各项战略和方针政策，在自力更生大力发展能源工业的同时，十分重视在技术、产品和资金方面的国际合作，特别是中美间的国际合作。

中国国家科委是中国政府主管科技工作的最高行政机构，直接负责组织、

制定和实施中国科技发展的战略方针、政策法规和计划,指导和协调政府各部门和地方政府的科技活动,以及负责建立与外国政府的双边和多边的科技合作计划。在国家科委组织实施的一系列科技计划中,如国家科技攻关计划、“863”高科技计划、国家中长期科技发展纲要、21世纪议程纲要等等,能源领域处于十分重要的战略地位。

国家科委高度评价’93中美能源会议的共同发起者——美国美洲华侨工程科技学会在保证会议的组织成功、促进中美合作关系方面所做出的积极贡献。同时,中国政府对广大海外侨胞在支援中国经济建设,促进中国对外合作方面所做的可贵努力和重要贡献给予了高度赞扬。

我们最近注意到,美国政府已多次表示要与中国建立全面、长期的合作关系,我们对此表示赞赏。这不仅符合中美两国政府和人民之间的长远利益,也有利于世界局势的和平和稳定。这次’93中美能源会议的召开必将为促进中美对话和建立长期的合作关系起到积极的推动作用。

最后,让我们共同祝愿这次’93中美能源会议成功!祝愿与会中外代表在京生活愉快、身体健康!

谢谢主席先生!

ADDRESS AT THE OPENING CEREMONY OF '93 CHINA-US ENERGY CONFERENCE

Huang Qitao

(Vice Chairman State Science and Technology Commission)

Respected Mr. Chairman,

Ladies and gentlemen,

The '93 China-US Energy Conference, sponsored by the State Science and Technology Commission and the Chinese-American Institute of Engineers and Scientists, and organized by the Chinese Energy Research Society, opens today as scheduled. First of all, please allow me to express, on behalf of the State Science and Technology Commission, my warm welcome to all Chinese and foreign participants presented here.

We are happy that represented at the Conference are not only high level Chinese and US government officials, but also entrepreneurs and scientists. This clearly demonstrates that the two sides have attached great importance to the event.

This Conference is a good opportunity whereby Chinese and US decision-makers, scientists, technicians and entrepreneurs in the field of energy can talk directly, and exchange views on energy-related issues of common interest, with a view to understanding each other better, and promoting scientific, technological, economic and trade cooperation on energy.

Currently, China is marching towards the establishment of a socialist market economy with Chinese characteristics in the context of social and economic stability and sustained economic development. With its deepening process of economic and political restructuring, China will open more to the outside world in the future. Meanwhile, another development in the global situation shows that a peaceful and friendly partnership is being built up and rapid economic development is taking place in the Asian and Pacific region, as is rare in this part of the world. This has undoubtedly provided a favorable international and domestic environment for the successful convening of this Conference and the future energy-related cooperation between China and the United States.

China, as a developing country, has decided that its national economic devel-

opment will be achieved by three moves: first, by 1990, the problem of clothing and food will be solved, the objective of which has already been achieved; secondly, by 2000, the level of fairly well-off living standards will be obtained; thirdly, by the middle of the next century, China will try to catch up with the intermediate developed countries. It is out of question that social and economic development will be followed by immense demand on energy consumption. According to China's actual situation, the main source of energy production and consumption for China will remain to be coal in the long time to come, which will certainly exert great pressure on transportation and the environment. China's energy undertaking thus meets with the challenge of environment protection and sustainable development. To address this problem, the Chinese government has formulated a series of strategies, policies and guidelines to safeguard the development of economy-energy-environment in a sustainable and coordinated manner. In this endeavor of self-reliance in energy industrial development, great importance is also given to international cooperation, in particular, bilateral Sino-US cooperation, in terms of technologies, products and funds.

The State Science and Technology Commission is the highest administrative body in the Chinese government responsible for science and technology undertaking. It is directly in charge of organization, formulation and implementation of the strategic guideline policies, legislations and programs of China's science and technological development. It performs the functions of guiding and coordinating relevant governmental departments and localities in their science and technology related activities. It is also responsible for working out bilateral and multilateral cooperative programs on science and technology with foreign governments. The on-going programs of the State Science and Technology Commission include the National Key Technical Problem Tackling Program, the High Technology Research and Development Program, the National Long and Medium-term Science and Technology Development Program, Outline of China's Agenda 21 and so on, among the priority fields of which energy development is put at a very important strategic position.

The State Science and Technology Commission highly appreciates the positive contribution made by the Chinese-American Institute of Engineers and Scientists-co-sponsor of the '93 China-US Energy Conference-to the success of the conference and to the promotion of the Sino-US cooperative partnership. The Chinese government also pays tribute to the vast overseas Chinese for their valuable efforts in support of China's economic construction and their important contribution to

promoting China's international cooperation.

We have noted lately with appreciation that the US government has on several occasions expressed wishes to establish full and long-term cooperative partnership with China. This is not only in conformity with the long-term interest of the two governments and peoples, but also conducive to the peace and stability of the world. This Conference will play a positive role in promoting the Sino-US dialogue and the establishment of longterm partnership.

Finally, let us jointly wish a complete success of the '93 China-US Energy Conference! I wish all the Chinese and foreign participants a pleasant stay in Beijing and a good health!

Thank you ,Mr. Chairman!

'93 中美能源会议纪要

为促进中美两国能源界的相互了解,加强两国能源部门和企业之间的直接联系,推进双方能源技术经济合作,由中国国家科委和美国美洲华侨工程科技学会主办、中国能源研究会承办的'93 中美能源会议,1993 年 11 月 15~17 日在北京国际会议中心举行。与会的美方代表 48 人,中方代表 174 人。美方代表有:美国能源部副部长 Jack S. Siegel,美国美洲华侨工程科技学会会长梁友平,美国 Enron 公司董事长 kenneth Lay,美国 Texaco 总公司副总裁 Dave Crikelair,以及美国近 30 家主要能源公司的领导人和有关大学、科研机构的专家学者。中方代表有:国家科委副主任黄齐陶,全国人大环境保护委员会副主任、中国能源研究会理事长杨纪珂,电力工业部副部长陆延昌,煤炭工业部副部长范维唐,机械工业部副部长孙昌基,国家能源投资公司总经理王文泽,以及国家科委、国家计委、国家经贸委、经贸部、电力部、机械部、建设部、国家能源投资公司、中国石油天然气总公司、中国海洋石油总公司、华能国际电力开发公司等部门和企业的领导,以及大学、科研设计部门的专家学者和地方能源公司的代表等。

此次会议是近几年来中美两国能源界的一次高层次的盛会。中国国务委员、国家科委主任宋健和美国能源部部长 O'Leary 女士写来贺信。会议期间,国务院副总理邹家华和国务委员、国家科委主任宋健分别会见了美方代表。

会议期间,双方代表就能源发展,能源战略、体制改革、政策和法规、先进的能源技术以及扩大中美能源领域的交流和合作等共同感兴趣的问题进行了广泛的学术交流和热烈的讨论。

通过共同探讨和接触,双方取得以下共识:

——双方代表一致认为,这是一次成功的会议,表达了两国能源界加强双方能源科技与经贸合作的强烈愿望,并为此作出了积极的贡献。

——双方一致认为,中美两国能源领域的交流和合作有广阔的前景,美国的电力技术、石油天然气技术、可再生能源技术、节能技术,特别是洁净煤技术在中国有很大的市场;中国的小水电等技术与美国的高技术相结合,会有更强的市场竞争力。

——会议认为,中美双方应为加强两国能源领域的合作创造条件。中方应在改善投资环境、法律规章等方面作出努力;美方应在技术转让、资金筹措等方面作出努力。

——为促进中美两国能源领域的交流和合作,会议建议:

(1)在中美两国能源界支持下成立中美能源合作与发展促进会。

(2)加快双方能源科技合作步伐,增加能源合作项目,扩大合作领域。

(3)加强双方能源部门和企业之间的直接联系和信息交流,增加人员互访,进行合作研究,举行专题研讨会。

会议代表高度评价中国国家科委和美国美洲华侨工程科技学会在保证会议的成功召开、促进中美能源合作所作出的贡献,对中国能源研究会为会议所做的辛勤工作表示衷心感谢。

'93 中美能源会议

1993年11月17日,北京

'93 CHINA-U. S. ENERGY CONFERENCE SUMMARY'

15-17, November, 1993, Beijing

The '93 China-U. S. Energy Conference, Jointly sponsored by the State Science and Technology Commission (SSTC) of China and the Chinese-American Institute of Engineers and Scientists (CAIES) of U. S. and organized by the Energy Research Society (CERS) of China was held on 15-17, November, 1993, in Beijing International Conference Center. The Conference was held in the environment of rapidly growing Chinese national economy. The growth has been fostered by China's transition to a market economy and the deepening reforms of its institutional system which has provided opening to the outside world. In addition, there has been an increase focus to the energy & environmental issues.

48 American participants and 174 Chinese participants attended the Conference, among which, in particular on the U. S. side, are Mr. Jack S. Siegel, Acting Assistant Secretary (Deputy Director) of DOE; Mr. Joseph Leung, the President of CAIES, Mr. Kenneth Lay, Chairman of Enron Corporation, Mr. Dave Crikelair, Vice President of Texaco Development and presidents and managers from several energy companies, as well as experts and scholars from universities and research institutions.

Also attending on the Chinese side, were, Mr. Huang Qitao, the Vice Chairman of SSTC, Mr. Yang Jike, the Vice Chairman of the State Congress Environment Protection Commission and the President of CERS, Mr. Lu Yanchang, Vice Minister of the Electrical Power Industry Ministry; Mr. Fan Weitang, Vice Minister of the Coal Industry Ministry; Mr. Sun Changji, Vice Minister of the Machinery Building Industry Ministry, Mr. Wang Wenzhe, General Manager of the State Energy Investment Corporation, and other leaders from many authorities and companies, such as SSTC, SPC SETC, the Economic Trade Ministry, Electric Power Industry Ministry, Coal Industry Ministry, Machinery Building Industry Ministry, Construction Ministry, the State Energy Investment Corporation, the

• Originally written in Chinese and subject final edit.

China Petroleum and Natural Gas Corporation, China Oceanic Petroleum Corporation, HuaNeng International Electric Power Development Corporation and local energy companies, plus energy experts and scholars from universities and scientific research & design institutions.

This conference was a high-ranking and larger scale conference, held by China and the U. S. on energy matters in recent years. The conference objectives were to promote mutual understanding in energy policies of both countries and to enhance communication between U. S. and Chinese authorities in charge of energy policy, planning, technology and economic trade, as well as contacts among enterprises of both countries. This was accomplished by facilitating direct access and cooperation in energy technology transfer and market trade.

The Commissioner of SSTC Mr. Song Jian, and the Secretary of DOE, of the U. S. Ms. O'Leary, each forwarded a congratulatory letter to the conference.

During the Conference the Vice Premier of the State Council Mr. Zou Jiahua and Mr. Song Jian each met American participants.

At the opening ceremony, Vice Chairman of the SSTC Mr. Huang Qitao and President of CAIES, U. S. Mr. Joseph Leung made opening remarks. Later Mr. Yang Jike, Mr. Lu Yanchang, Mr. Jack S. Siegel, Mr. Kenneth Lay and Mr. Dave Crikelair delivered important speeches.

In subsequent sessions many energy related issues of common interest were addressed, such as energy development and institutional reforms, energy strategy, policy and regulations; advanced energy technology dissemination; energy technology options and feasibility analysis; and Sino-U. S. partnerships and financings.

Based on the exchange of views, common consensus was reached by China and U. S. participants with respect to the following items:

1. The participants highly appreciate the positive contribution made by the SSTC of China and CAIES of the U. S. to the success of the conference and to the promotion of the Sino-U. S. cooperative partnership. The participants also pay tribute to the CERS for their valuable efforts in organizing the conference.

2. With the rapid growth of Chinese economy, which has been fueled by China's policy to open itself to the outside world, energy demand represents a potential bottleneck to sustainable economic growth. To help solve China's energy problems, it is essential to use the successful experience of other countries and to import the advanced technologies and capital from abroad, while many domestic measures are also being undertaken, such as energy institutional reform, industrial structure

adjustment, legislation of energy conservation and other similar measures.

3. Participants from both sides reviewed experiences learned from past Sino-U. S. cooperation and agreed that there are vast and bright prospects for future exchange and cooperation between both countries in the energy field; Technologies affecting petroleum, natural gas and coal seam gas, hydro-power, nuclear power, renewable resources and energy conservation, especially clean coal technologies developed in the U. S. These alternatives will find a vast potential market in China.

4. Both side agreed that they should actively try to create a good environment for further cooperation in the energy field; On the Chinese side, by taking steps to improve the investment environment, the formulation of a legal framework, and the provision of preferential terms. On the U. S. side, by taking action in development and transfer of advanced energy technologies that meet China's specific needs and by promoting energy investment in China.

5. Both sides agreed that should expand their understanding of each other to help to facilitate the cooperation between the two countries in the energy field.

Therefore we propose, the following recommendations:

(1) To establish a CHINA-US Energy Cooperation and Development Promotion Council with support from energy sectors of both countries.

(2) To accelerate the progress of China-U. S. cooperation in energy science and technologies by selecting prioritized energy cooperation projects, such as IGCC and coal seam methane gas technologies.

(3) To increase the frequency and depth of Sinc-U. S. exchanges in the energy field, we propose to sponsor a series of regular seminars on such matters as energy management, legal framework, institutional structure, financing, forms of cooperation, priorities of technology options, and energy prices,

All participants agree that this conference has contributed to the cooperation in technology, economic, and trade between the two Nations in the energy field.

93'中美能源会议

会议主席:

中 方:石定寰 中国国家科学技术委员会工业科技司 司长

美 方:梁友平 美国美洲华侨工程科技学会 会长

中方组织工作委员会:

黄齐陶 国家科学技术委员会 副主任

杨纪珂 中国能源研究会 理事长

石定寰 国家科学技术委员会工业科技司 司 长

靳晓明 国家科学技术委员会国际合作司 副司长

周凤起 国家计委能源研究所 所 长

李增义 国家经贸委资源司 司 长

郑企仁 电力部科技司 司 长

胡省三 煤炭部科教司 副司长

曹正彦 国家计委交通能源司 副司长

张续超 国家计委能源投资公司外事局 副局长

会 议 秘 书 长:周凤起

会议秘书处负责人:张国成 陈硕翼

会议会务处负责人:李 卫

编者的话

'93 中美能源会议是由中国国家科学技术委员会与美国美洲华侨工程科学会共同发起组织的大型双边国际能源会议。会议由中国能源研究会承办。

此次国际会议是在中国经济体制逐步向市场经济过渡,国民经济持续高速增长,能源问题日益重要以及国际能源与环境问题受到普遍重视的背景下召开的。会议就中美两国在能源领域里共同关心的问题进行了交流和探讨。

会议宗旨是促进中美能源界对两国能源政策的彼此理解并加强两国各级能源决策、规划、技术部门和企业间的密切联系,推动中美双方能源主管部门及与会者在能源技术工艺转让和市场贸易方面的直接交往,增强中国国家科委及其它能源部门与美国美洲华侨工程科技学会及美国能源部门的合作关系。

此次会议的主题是“市场经济与中美能源领域合作”,中美双方与会者在能源政策及发展战略;能源供需平衡;能源与环境问题;能源工艺技术选择;能源资源前景评价;市场经济与能源持续发展;能源利用效率及节能;能源转换与输送;市场机制与能源价格及国际贸易;中美两国在能源领域的合作,包括技术、产品、项目、贸易、投资、信贷、合营、培训、优惠政策诸方面进行了研讨。

此次会议中方提交会议论文 50 余篇,美方提交论文 22 篇。由于篇幅有限,我们进行了分类并经过专家评审,选取具有综合性的论文 50 余篇汇编成集。在此我们对为本论文集的编辑、出版和曾给予过支持的诸位深表感谢。

由于我们经验不足和水平有限,如有不妥之处,敬请读者指正。

编者

1994 年 5 月 22 日

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