

Lawrence Berkeley National Laboratory

Recent Work

Title

China Energy Group

Permalink

<https://escholarship.org/uc/item/36s4c3rv>

Author

Lawrence Berkeley National Laboratory

Publication Date

1997-06-13

CHINA ENERGY GROUP

中国能源与环境研究室



1997-98

Energy Analysis Program
Environmental Energy Technologies Division



Lawrence Berkeley National Laboratory

REFERENCE COPY
Does Not
Circulate

Bldeg. 50 Library - Ref.
Lawrence Berkeley National Laboratory

Copy 1

PUB-796

WHO WE ARE

The China Energy Group at the Lawrence Berkeley National Laboratory is committed to working collaboratively with energy researchers, suppliers, regulators, and consumers in China:

- to better understand the dynamics of energy use in China, and
- to develop and enhance the capabilities of institutions that promote energy efficiency in that country.

Our involvement began in 1988, with the joint organization of a symposium on energy markets, in Nanjing. This led to a formal collaborative agreement with the Energy Research Institute of China's State Planning Commission—a relationship that continues to provide a strong foundation for our work.

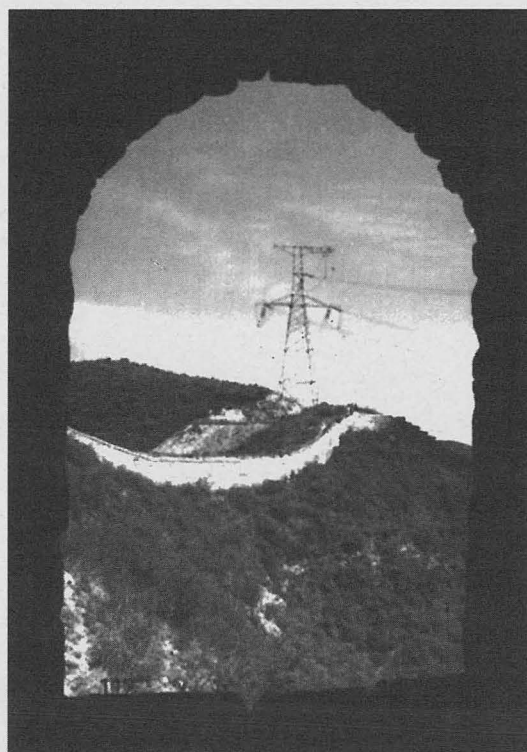
We have since expanded our network to include other research organizations in China, central and local government offices, and enterprises. Our projects—supported mainly by the Department of Energy and the Environmental Protection Agency—have also led to cooperation with other national laboratories, U.S. businesses, non-governmental organizations, and multilateral agencies.

We are now leaders in analysis of China's Energy system, and unique in our focus on energy demand issues.

WHAT WE DO

Our primary contributions to date fall into six major categories:

- Data Compilation and Evaluation
- Energy and Energy-Efficiency Policy Evaluation
- Energy-Demand Analysis and Forecasting
- Industrial and Building Energy-Use Analysis
- Appliance Efficiency and Standards
- Institutional Support for and Exchanges with China.



LAWRENCE BERKELEY NATIONAL LABORATORY

1988

Major China-U.S. conference on energy demand, markets, and policy, Nanjing.

1989

Exchange Program with Energy Research Institute established.

1990

First-ever assessment of China's energy conservation outside of China—revealing remarkable achievements in efficiency.

1991

Initial studies on 3 industries—iron & steel, building materials, and chemicals—revealed large energy-efficiency opportunities.

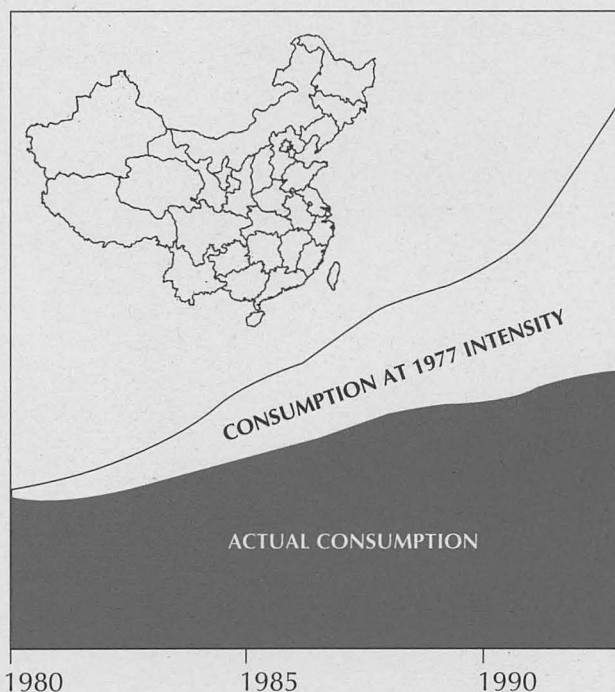
DISCLAIMER

This document was prepared as an account of work sponsored by the United States Government. While this document is believed to contain correct information, neither the United States Government nor any agency thereof, nor the Regents of the University of California, nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by its trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or the Regents of the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof or the Regents of the University of California.

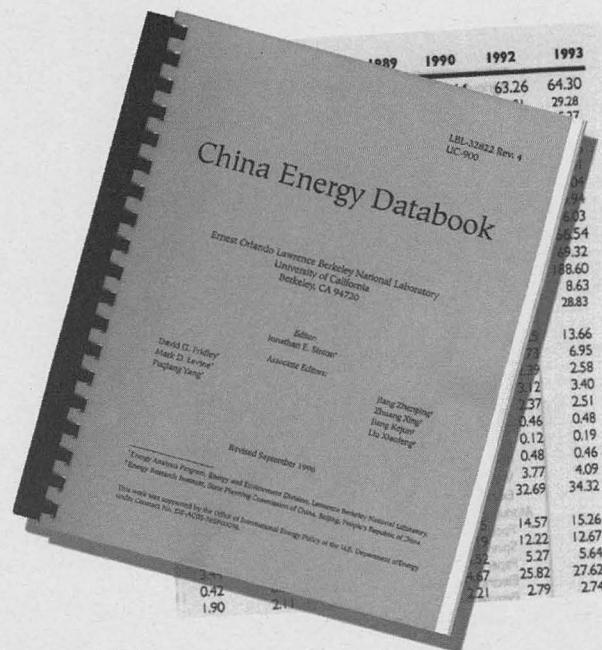
DATA COMPILATION AND EVALUATION

Reliable and accurate data are critical to good analysis for policy and business. In 1992, we released the first edition of the *China Energy Databook* acknowledged to be the most comprehensive and authoritative sourcebook of its kind. We continue to collaborate with Chinese researchers, and a revised and expanded edition (470 pages, with 185 tables and 127 figures) is now available.

We are seeking ways to further expand our data collection capacity, and exploring ways to provide better services, such as more frequent updates, greater regional and sectoral depth, and online database services.



Predicted and Actual Commercial Energy Consumption



POLICY EVALUATION

The China Energy Group is a leader in analyzing Chinese energy policy. We released the first studies outside China on its extensive programs to promote energy efficiency, showing a well funded program of investments in cost-effective energy-efficiency projects. This and other programs were crucial to decoupling economic and energy growth in China—a remarkable achievement for an industrializing country.

Ironically, economic reforms have swept away much of the apparatus developed in the 1980s—including market-based incentives. We are analyzing the challenges China now faces in promoting efficiency.

1992

Scholarly review of China's energy system showed major achievements in energy efficiency and petroleum, but severe environmental and financing problems.

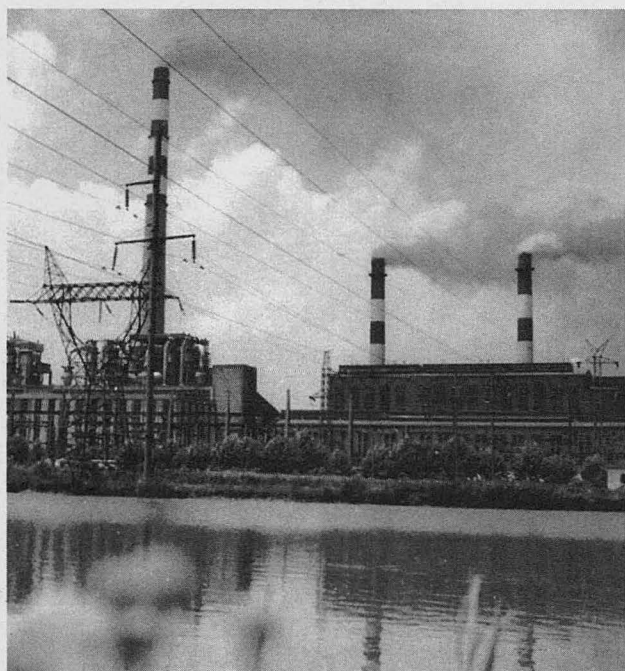
Published first edition of the *China Energy Databook*, acknowledged to be most authoritative sourcebook of its kind.

Exchange program continued: 8 researchers at LBNL for 27 person-months.

DEMAND ANALYSIS AND FORECASTING

Our analysis of changing energy demand has led to some results counter to prevailing opinion. We found, for instance, that only a small part of the rapid decline in China's energy intensity came from structural changes in the economy. Over 75% of the change came from improvements in technical energy efficiency and product quality.

We have also evaluated forecasts of China's energy supply and demand, and energy-related pollution. We are now extending World Bank and other studies to assess the potential of economic and policy decisions in China and support from industrialized countries to reduce growth in greenhouse gas emissions.



ENERGY USE IN INDUSTRY AND BUILDINGS

With in-depth studies of energy-efficiency in industrial and buildings sectors, we have shown what China has already accomplished, and what practical, cost-effective opportunities remain.

Our recent market assessments—including cogeneration and building technologies—provide important information for U.S. businesses that want to enter Chinese markets for efficient equipment.

We have examined options in the largest energy-consuming industries—like iron and steel, building materials, and chemicals—and have analyzed the complex, and sometimes contrary influences that economic system reforms have had on incentives to adopt energy-efficient technologies.

We have also produced the most comprehensive assessment to date on energy efficiency in buildings.

LAWRENCE BERKELEY NATIONAL LABORATORY

1993

With collaborators founded the Beijing Energy Efficiency Center (BECon).

Released comprehensive assessment of energy use in residential and commercial buildings in China.

Published major analysis of causes of reduced energy intensity in Chinese industry.

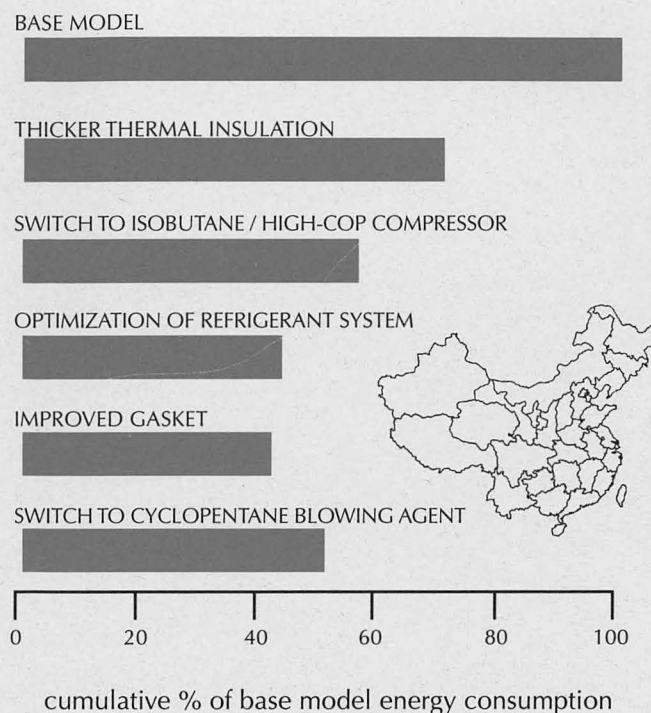
Exchange program continued: 9 researchers at LBNL for 28 person-months.

APPLIANCE EFFICIENCY AND STANDARDS

One of the fastest growing end uses for electricity in China is home appliances, particularly refrigerators and air conditioners.

In 1995, the China Energy Group assumed leadership of an EPA project to promote the development of an energy-efficient, CFC-free refrigerator in China. LBNL's work was crucial in obtaining initial Global Environmental Facility funding to prepare a market transformation project, expanding this effort to China's entire refrigerator sector.

In addition, we have trained Chinese experts in support of the creation of an efficiency standard for refrigerators, which will be phased in beginning in 1998.



Energy Savings from Refrigerator Improvements
(source: U.S. Environmental Protection Agency, Arthur D. Little)

EXCHANGES WITH AND SUPPORT FOR CHINA

Some of our most important work has been to strengthen institutional capabilities in China. Since 1989, we have hosted more than 20 researchers for over 60 person-months for joint research and training. Each year we brief numerous delegations from China.

In 1993, LBNL helped China to establish a vital new, market-oriented organization to promote energy efficiency: the Beijing Energy Efficiency Center (BECon). BECon links China and the outside world, providing energy consulting and marketing services to businesses and others.

BECon has helped initiate China's Green Lights Program—which promotes manufacture and use of efficient lights—and a major GEF project to build a commercial energy-efficiency industry in China.



北京能源效率中心

The Beijing Energy Efficiency Center

CHINA ENERGY GROUP

1995

Assumed leadership of EPA project to transform market to produce energy-efficient, CFC-free refrigerator in China.

Published scholarly reviews of energy efficiency policy in China.

1996

Promoted investment in cogeneration by co-sponsoring workshops and producing market assessment of cogeneration in China.

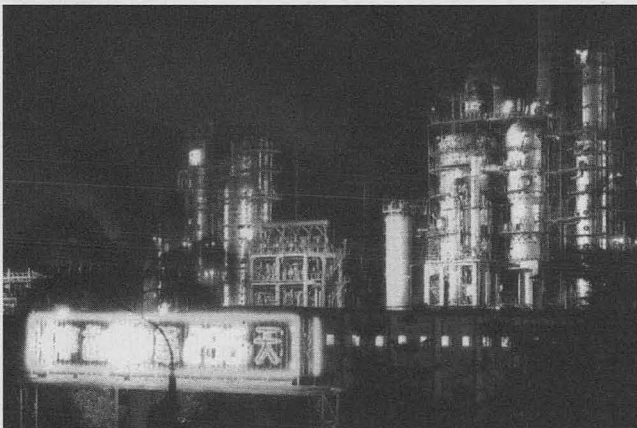
Performed financial analysis of 6 projects to reduce greenhouse gas emissions in China; identified others.

CURRENT PROJECTS

(FY 1997)

We currently have the following efforts underway in China:

- Working to transform the market to production and sale of energy-efficient, CFC-free refrigerators
- Evaluating business opportunities in industrial energy efficiency
- Determining energy use and energy-efficiency opportunities in key industrial sectors and in buildings
- Evaluating energy supply and demand forecasts
- Assessing potential reductions in greenhouse gas emissions
- Leading the Energy Policy Team, China-U.S. Energy Efficiency Working Group



ANTICIPATED PROJECTS

(FY 1997-1998)

Looking ahead, we are preparing to undertake the following new work in China:

- Providing technical assistance to China's Green Lights Program
- Assisting China's efforts to establish and strengthen standards for air conditioners and lighting equipment
- Assessing China's prospective Energy Conservation Law

LAWRENCE BERKELEY NATIONAL LABORATORY

1996

Participated in 1995 Presidential Mission on Sustainable Development and Trade to China; now lead Energy Policy Team, China-U.S. Energy Efficiency Working Group.

Produced a new, expanded version of the China Energy Databook.

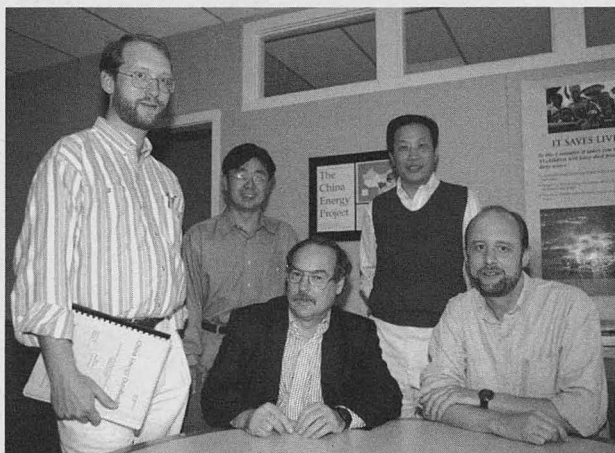
Analyzed in depth energy decision-making in industry: cement industry case studies.

Exchange program continued: 3 researchers at LBNL for 6 person-months.

NEW INITIATIVES

We anticipate launching several new ventures in the next two to three years, including:

- Securing long-term support for the *China Energy Databook* and diversifying modes of distribution
- Multiclient study on transport and oil demand in China
- Expansion of business intelligence and assessment activities
- Annual client presentations and workshops in Berkeley, California USA



Jonathan Sinton, Jiang Lin, Mark Levine, Fuqiang Yang, and David Fridley of the LBNL China Energy Group.

COLLABORATORS

As part of LBNL's Energy Analysis Program, we can draw upon the extensive expertise of other Groups in the Program, as well as outside consultants. With our broad network of collaborators and partners in China, we have direct access to the best information available from China to support our work. Among our many collaborators, we maintain particularly close ties with:

In China—

- Energy Research Institute
- Beijing Energy Efficiency Center
- State Planning Commission
- State Economic and Trade Commission
- China Energy Conservation Investment Corporation

In the United States—

- American Council for an Energy-Efficient Economy
- Pacific Northwest National Laboratory
- Energy Resources International

This document was prepared as an account of work sponsored by the United States Government. While this document is believed to contain correct information, neither the United States Government nor any agency thereof, nor The Regents of the University of California, nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by its trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or The Regents of the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof, or The Regents of the University of California.

Produced for DOE's Office of Energy Efficiency and Renewable Energy by the Lawrence Berkeley National Laboratory, a DOE national laboratory.

DOE/GO-DE-AC03-76SF00098
PUB-796 June 1997 - 1000

CHINA ENERGY GROUP

Anticipated for 1997-98

Assessment of China's potential to reduce growth in greenhouse gas emissions.

Initiation of project at the Global Environmental Facility to upgrade efficiency of Chinese refrigerators.

Determinants of energy use and energy efficiency opportunities in key industrial sectors and in buildings.

Technical support, including training, for China's Green Lights Program.

LBNL China Energy Group Staff

David Fridley

(510) 486-7318 DGFRidley@lbl.gov

Mr. Fridley is a staff scientist with 15 years experience in China, primarily in petroleum supply and demand, including refinery analysis and modeling and international oil trade. He has consulted for multinational oil companies and Asian governments, was refining and marketing development manager for Caltex China, and is the author of numerous studies on the downstream oil market in China. Currently, he is technical manager of the US-China Refrigerator project. He speaks fluent Mandarin.

Mark D. Levine

(510) 486-5238 MDLevine@lbl.gov

Dr. Levine is Director, Environmental Energy Technologies Division, a research and analysis division at LBNL with over 300 staff members working in the following areas: building energy research; U.S. and international energy policy studies; environmentally friendly energy technology R&D; and indoor and urban/regional air quality and combustion research. In 1988, he initiated the LBNL China Energy Group, and is a co-founder of the Beijing Energy Efficiency Center (BECon). He has been involved in China and global energy demand studies, and has expertise in energy modeling and energy-efficiency policy analysis.

Jiang Lin

(510) 486-4516 J_Lin@lbl.gov

Since coming to LBNL as a postdoctoral fellow, Dr. Lin has worked on end-use forecasting models for the Appliances Group, Energy Analysis Program. Currently he is also contributing to the effort to promote China's Green Lights program. Prior to coming to LBNL, he worked on utilities long-term planning for the Environmental Defense Fund, and consulted on China's rural energy programs for the World Bank. He earned his Ph.D. in demographics at the University of California, Berkeley. He is a native speaker of Chinese.

Jonathan Sinton

(510) 486-7762 JESinton@lbl.gov

Dr. Sinton, a scientist with the Energy Analysis Program, has worked extensively in China and with Chinese researchers on a wide variety of projects. He has published assessments of China's energy efficiency policies and programs, in-depth analyses of energy demand in industry, a comprehensive volume of data and information on China's energy system, and studies of energy-related environmental problems. He earned his Ph.D. at the Energy and Resources Group at the University of California, Berkeley. He is fluent in Mandarin.

Fuqiang Yang

(510) 486-6828 FQYang@lbl.gov

Dr. Yang is a principal research associate who has worked on Chinese energy issues since the late 1970s. As one of the first staff members of China's Energy Research Institute, he has an extensive network of contacts in research and government. He came to LBNL after earning his Ph.D. at West Virginia University. His recent work has included market and project assessments of energy-efficient and renewable-energy technologies, including a major study of China's cogeneration market. He has evaluated energy policy and forecasts, and costs of reducing greenhouse gas emissions. He is a native speaker of Chinese.

Others

Andrea Denver, Joe Huang, Steve Johnson, Nathan Martin, Jim McMahon, Alan Meier, Evan Mills, Steve Meyers, Lynn Price, Jayant Sathaye, Lee Schipper, Isaac Turiel, Steve Wiel, and others. Each has specialties available for China projects at LBNL.

Lawrence Berkeley National Laboratory, Mailstop: 90-4000, Berkeley, California 94720 USA

fax: (510) 486-6996 world-wide web: <http://eande.lbl.gov/EAP/China>