

**CHINA-US COOPERATION ON ENERGY EFFICIENCY
PROPOSED COMMITMENTS MATRIX**
(Revised June 16, 1997)

ENERGY POLICY TEAM

Team Leaders: Wu Changlun, China; Mark Levine, US

OBJECTIVE	ACTIONS	RESPONSIBILITY/STATUS	RELATED INFORMATION
<p>Collaborate on policies to promote energy efficiency</p>	<ul style="list-style-type: none"> • Describe collaborations on energy policy that are currently underway between the US and China • Identify new opportunities for collaborations <p>New opportunities identified at the May '97 team leaders' meeting:</p> <ul style="list-style-type: none"> • Assess the applicability of US energy policy to China, based on China's interest in market-based policies to promote energy efficiency <ul style="list-style-type: none"> - Collect relevant information on laws, regulations, and policy implementation - Arrange visit to China by US energy efficiency policy experts - Arrange visit to US by Chinese legislators and other experts • Collaborate to develop guidelines and standards for key products: refrigerators, air conditioners, ballasts and fluorescent lamps 	<p>The US team described 7 collaborative projects on energy policy</p> <p>Completed</p> <p>Project initiated in Spring 1997, to be completed ASAP</p> <p>To be completed ASAP</p>	<p>In his December 1996 Trip Report, Bill Chandler stated that although the national Energy Conservation Law has not passed the People's Congress, as an interim measure, the State Council is issuing guidelines for conservation development in China. The guidelines will effectively serve as the law and will replace the temporary regulations imposed in 1986.</p> <p>The China State Bureau of Technical Supervision's schedule for promulgating energy efficiency standards is: refrigerators, due in 1997; air conditioners, due in 1998; and ballasts and fluorescent lamps, due 1998 or 1999.</p> <p>In June 1996, 3 Chinese researchers spent 2 months at Lawrence Berkeley National Laboratory, where they studied the use of analysis tools. The laboratory hosted the researchers in order to assist China in developing refrigerator energy efficiency standards.</p>

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INFORMATION EXCHANGE AND BUSINESS OUTREACH TEAM

Team Leaders: Shui Bin (liaison), China; Jeffrey Logan, US

OBJECTIVE	ACTIONS	RESPONSIBILITY/STATUS	RELATED INFORMATION
<p>Act as a focal point for information collection and dissemination for all the US-China energy efficiency teams and publicly distribute information on China energy efficiency issues</p>	<ul style="list-style-type: none"> • Exchange information relating to technologies and market conditions on an as-needed basis • Disseminate relevant information electronically • Research and publish papers of interest to both sides; attempt to restore funding for the <i>China Energy Bulletin</i> • Conduct public outreach in China regarding the benefits of energy efficiency 	<p>Ongoing</p> <p>Ongoing</p> <ul style="list-style-type: none"> • WWW sites for China information were created at Pacific Northwest National Laboratory and Beijing Energy Efficiency Center. Sites will be updated to include technical papers, links to other sites, and newsletters. • The monthly <i>China EE Info</i> newsletter on market conditions and business in China is sent to professionals and posted on the Internet. <p>Ongoing</p> <ul style="list-style-type: none"> • The team updated the <i>China Energy Data Book</i>, market surveys of top 10 energy efficiency technologies for industrial and buildings sectors • The quarterly <i>China Energy Bulletin</i>, containing economic and energy data on China, was published 5 times before funding expired in 1996. It was distributed to interested companies and organizations. • US firms have expressed interest in how electricity prices are determined in China; BECon and PNNL would like to publish a technical paper on this topic. <p>Project initiated in May '97. The team plans to work with US and Chinese organizations to inform Chinese consumers of the benefits of energy efficiency.</p>	

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DISTRICT HEATING TEAM

Team Leaders: Huai Litian, China; Susan Rochford, US

OBJECTIVE	ACTIONS	RESPONSIBILITY/STATUS	RELATED INFORMATION
<p>Implement retrofits in 5 district heating sites in China and document the experience one year after completion of the retrofits</p>	<ul style="list-style-type: none"> • Identify sites for retrofits • Conduct retrofits: <ul style="list-style-type: none"> - Thermal Regulating Valve (TRV) Demonstration in Yantai; heat meters will be installed in two apartment buildings, TRVs in one <ul style="list-style-type: none"> ◦ Conduct planning meetings in Beijing and Yantai ◦ Hold Yantai Assessment Workshop - Hangzhou Demonstration Project <ul style="list-style-type: none"> ◦ Hangzhou planning meeting • Conduct DOE-sponsored workshop on district heating • Complete survey to define factors affecting district heating in China • Conduct US study tour for Chinese team; the purpose is to inform the decision-makers regarding equipment purchases 	<p>The China team conducted preliminary research and gave data on 5 sites to the US team; the item was a topic at the May '97 team leaders' meeting</p> <p>Begin retrofits by early 1998</p> <p>Summer 1997</p> <p>Spring 1998</p> <p>Autumn 1997</p> <p>In conjunction with a US energy efficiency organization/September '97, in Beijing; teams plan to select 2 additional retrofit sites at the workshop.</p> <p>This action item will be a topic at the September workshop.</p> <p>Second half of 1998. This action item will be a topic at the September workshop.</p>	<p>Honeywell has a contract to retrofit a district heating system in Beijing.</p>

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COGENERATION TEAM

Team Leaders: Huai Litian, China; John Pietruszkiewicz, US

OBJECTIVE	ACTIONS	RESPONSIBILITY/SCHEDULE	RELATED INFORMATION
<p>Promote cogeneration projects in China with US investors and partners</p>	<ul style="list-style-type: none"> • Conduct business exchanges on cogeneration • Develop information to facilitate joint US-China cogeneration projects <ul style="list-style-type: none"> - Prepare guidebook for those investing in cogeneration in China - Provide sample contract agreement for cogeneration - Arrange visit to China by US delegation to detail terms for a model contract - Arrange site visits for US investors • Conduct cogeneration conference in Beijing 	<p>Ongoing. In June '96, a US-China Cogeneration Experts' Seminar, in Washington, DC, was organized by CECIC, Energy Resources International, and Lawrence Berkeley National Laboratory. Key Chinese cogeneration developers and policy staff met with interested US private sector partners.</p> <p>Tentative schedule proposes to have contract for first pilot by May '98</p> <p>CECIC</p> <p>US team</p> <p>Tbd</p>	

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ENERGY-EFFICIENT BUILDING DEMONSTRATION TEAM

Team Leaders: Huai Litian, China; Joe Huang, US

OBJECTIVE	ACTIONS	RESPONSIBILITY/STATUS	RELATED INFORMATION
<p>Promote collaborative China-US activities to encourage energy efficiency in buildings</p>	<ul style="list-style-type: none"> • Draft and agree on action plan <p>Proposed action items:</p> <ul style="list-style-type: none"> • Gather and discuss data on US energy-efficient building technologies and standards • Formulate energy efficiency buildings to suit the Chinese context • Seek opportunities to jointly implement energy-efficient building demonstrations • Develop approaches to marketing energy efficiency in buildings in China • Promote joint ventures to produce, in China, building and insulation materials like those in the US • Strengthen information and personnel exchanges 	<p>At the May '97 team leaders' meeting, the team agreed to have a draft action plan within 4 months</p>	<p>Proposed building demonstrations have been discussed in several occasions including a workshop on Energy-Efficient Commercial Buildings in Beijing in November '95 and during Abe Haspell's visits to China in 1995 and 1996. Potentially located in Beijing, a building demonstration could include an educational laboratory, energy-efficient product exhibits, and meeting space.</p>

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ENERGY-EFFICIENT ELECTRIC MOTOR SYSTEMS TEAM

Team Leaders: Huai Litian, China; Steve Nadel, US

OBJECTIVE	ACTIONS	RESPONSIBILITY/STATUS	RELATED INFORMATION
<p>Facilitate the development, commercialization and use in China of high-efficiency motors, motor speed controls, and other technologies and practices to improve motor system efficiency</p>	<ul style="list-style-type: none"> •Prepare study on Chinese motor market •Provide information on US efficient motor products and programs to the Chinese team •Conduct study tour to US •Help US motor manufacturers assess opportunities for joint ventures in China •Conduct Chinese Motor Challenge Program: <ul style="list-style-type: none"> - Compose lead teams - Draft action plans for program - Exchange data on fans, compressors, and pump systems - Conduct showcase demonstrations - Develop funding plan 	<p>March 1997. A market study, funded by OIT/DOE, was conducted by the American Council for an Energy-Efficient Economy (ACEEE) in conjunction with BECon and Shanghai Electric Apparatus Institute. The published study is available from the ACEEE.</p> <p>US team/ongoing</p> <p>Autumn '95 The China Energy Conservation Investment Corporation conducted a study tour of the US to learn more about US variable speed drive technologies and innovative financing that can help promote use of the drives.</p> <p>Ongoing</p> <p>Ongoing</p> <p>By June 7, 1997</p> <p>Exchange plans by June 7, 1997</p>	

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INDUSTRIAL PROCESS CONTROLS TEAM
Team Leaders: Li Baoshan and Wang Qingtian, China; Susan Rochford, US

OBJECTIVE	ACTIONS	RESPONSIBILITY/STATUS	RELATED INFORMATION
<p>By early 1998, begin to implement process improvements in at least 9 different industrial firms in China, and document the experience one year after the installations are complete</p>	<ul style="list-style-type: none"> • Agree on action plan • Identify at least 3 plant facilities within 3 process industries which could be candidates for process improvements • Conduct workshops and site visits • Conduct contract negotiations and installations • Write experience report 	<p>The teams discussed the action plan at the May '97 team leaders' meeting and are working to resolve the issue of how to fund the evaluations required to implement the plan.</p> <p>One year after completion of each installation</p>	<p>After visiting China in December '96, Bill Chandler reported that the Chongqing Science and Technology Commission has a special office to promote the use of controls for furnaces and boilers and other industrial controls. He stated that Chongqing is willing to buy imported industrial and energy control equipment.</p> <p>Honeywell, Inc. and Yangzi Petrochemical Company (subsidiary of Sinopec) signed a commercial contract for a Yangzi PTA Plant Distributed Control System Upgrade. Honeywell and Sinopec signed a 5-year strategic alliance agreement in August 1995 which builds on their previous cooperative joint venture.</p> <p>On February 14, 1995, Armstrong International established a US-China joint venture, Kangsen-Armstrong Company, Ltd., to produce high-efficiency steam traps in Beijing.</p>

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LIGHTING TEAM

Team Leaders: Feng Yan, China; Tim Olson, US

OBJECTIVE	ACTIONS	RESPONSIBILITY/STATUS	RELATED INFORMATION
<p>Provide technical assistance to the China Green Lights Program</p>	<p>Identify priority projects and develop a schedule for the following:</p> <ul style="list-style-type: none"> •Training: <ul style="list-style-type: none"> - Arrange a study tour of US for Chinese Green Lights team - Provide lectures in conjunction with annual Green Lights conference - Conduct training in areas identified by teams •Assist in developing a product testing, certification, and labeling program •Help develop public information materials on efficient lighting •Help develop local Green Lights program by: <ul style="list-style-type: none"> - Participating in international workshop on programs for efficient lighting - Providing direct technical assistance to at least one local Green Lights program selected by the teams •Help develop lighting efficiency standards <ul style="list-style-type: none"> - Review lighting quality standards being developed by SBTS - Work with SBTS to develop minimum efficiency standards for magnetic ballasts and fluorescent tubes. •Promote joint ventures to produce efficient lighting products in China 	<p>China and US team, in conjunction with China Green Lights Office/ongoing</p> <p>A study tour, part of a UNDP project, is planned for Summer 1997</p>	<p>The China Green Lighting program is funded through BECon with a \$1 million grant from the United Nations Development Program. In October 1996, the China Green Lights Center opened in Beijing. It exhibits products from 60 manufacturers.</p> <p>Jonathan Sinton and Fuqiang Yang from LBL visited China to attend a Green Lights conference on October 10 and 11, 1996. Also, a Chinese Green Lighting delegation traveled to the US in December 1996, visiting energy equipment manufacturers and LBL.</p> <p>BECon is developing standards for lighting products and planning to conduct lighting demonstrations. BECon will also make recommendations for the use of 250 million RMB (approx. \$31 million) in loans to enterprises from the SETC. The loans are intended to help improve the technical quality of lighting manufacturing.</p> <p>A GE-Jiabao joint venture in Shanghai began marketing new products in July of 1995.</p> <p>ACEEE and BECon completed a report on the Chinese lighting market.</p> <p>BECon, General Electric, and the Shenzhen Energy Corporation initiated a lighting CFL/shared savings demonstration project; lamps were delivered in Autumn of '95.</p>

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AMORPHOUS CORE TRANSFORMER TEAM

Team Leaders: Yang Ziwei, China; Jeff Lilley, US

OBJECTIVE	ACTIONS	RESPONSIBILITY/STATUS	RELATED INFORMATION
<p>Raise the design and manufacturing level of amorphous metal cores and transformers in China and promote the application of amorphous metal distribution transformers (AMDTs) in China, reducing energy loss and increasing energy efficiency</p>	<ul style="list-style-type: none"> •Make prototypes of transformers and conduct field tests to assess energy efficiency •Calculate the accurate economic value of core and coil losses in transformers, including the use of total owning cost •Promote cooperation between US and China to reduce production costs to acceptable level •Select prototype locations and conduct economic benefit study for AMDTs in China •Organize a conference to summarize and verify the prototype economic data •Research preferential policies for encouraging the application of AMDTs and explore financing from international sources 	<p>Allied Signal has built prototype amorphous metal transformers with six Chinese distribution transformer makers. Through sponsorship of the China Working Committee (SPC, SETC, SSTC, Ministries of Power, Machinery Building, and Metallurgy) the company demonstrated a >75% reduction in transformer core loss with amorphous metal; results were verified at an August 1995 conference in Beijing.</p>	<p>In Pudong, AlliedSignal is manufacturing amorphous cores for transformers using ribbon from their South Carolina plant. The plant has 15 customers in addition to exporting to Taiwan and Korea and will export to Japan when Pudong is ISO certified at end of 1997.</p> <p>As a result of AlliedSignal's manufacturing commitment to the Pudong area, the Pudong administration agreed to promote AlliedSignal's products to companies in Pudong by coordinating a seminar on efficient transformers and inviting the companies in the Pudong industrial parks to attend.</p> <p>Allied Signal is working with Chinese transformer makers and the China Working Committee to reduce the price premium for transformers from 70% - 100% in 1995 to 25% - 40% in 1997.</p>

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FINANCE TEAM

Team Leaders: Huai Litian, China; Bill Chandler, US

OBJECTIVE	ACTIONS	RESPONSIBILITY/STATUS	RELATED INFORMATION
<p>Identify issues constraining energy efficiency finance in China, advise the US and Chinese governments on the findings, and recommend explicit options to create lines of credit for energy efficiency financing. The team will address three key issues:</p> <ul style="list-style-type: none"> - transparency, <i>i.e.</i>, how can companies identify the parties with authority to implement contracts and projects - security, <i>i.e.</i>, how can repayment be guaranteed and how can financial security be provided, and - initial project support, <i>i.e.</i>, how can companies find sources of support for feasibility studies and other initial project costs 	<ul style="list-style-type: none"> • Provide a guidebook on the project approval process in China for US companies • Invite one or more Chinese specialists to work on financial issues in Washington, DC for 3-6 months • Identify 3-5 suitable energy efficiency projects, as well as appropriate sources of financing and guarantees of financing for each • Work with ExIm Bank, which has offered to establish a \$50 million credit facility to finance energy efficiency projects 	<p>CECIC/tbd</p> <p>PNNL/tbd</p> <p>Tbd</p> <p>Ongoing. At the US-China Bilateral Energy Consultation on May 28-29, 1997, the State Planning Commission agreed to cooperate in implementing the \$50 million export credit facility.</p>	<p>As part of a multi-million dollar effort to introduce energy service companies (ESCOs) to China, a Global Environmental Facility (GEF) grant for \$35 million will create 3 demonstration ESCOs in Beijing, Liaoning, and Shandong to show how ESCOs can deliver efficiency services through market-oriented mechanisms. The funding will also support analysis to be conducted through an information dissemination center; technical assistance to develop institutional capacity in the government and project office; and ESCO promotion. Initial funding of \$4.5 million from a European Union grant in April '97 will maintain the project until the GEF funds are available in 1998. An additional component is a World Bank loan for \$65 million to be available in FY 1998. The loan would provide customer finance for the ESCOs. Projects will be co-funded by the Chinese government.</p> <p>Three Chinese government agencies are working with US EPA to develop a “golden carrot” program to promote technology transfer of energy-efficient equipment. BECon is developing a “golden carrot” proposal and implementation plan.</p>