

Government of China

United Nations Development Programme Global Environment Facility

Primary partners:

**National Development and Reform Commission, People's Republic of China (NDRC/PRC)
Ministry of Construction, People's Republic of China (MOC/PRC)
Ministry of Finance, People's Republic of China (MOF/PRC)**

Project title:

China End Use Energy Efficiency Project (PIMS # 2003)

The China End Use Energy Efficiency Project (EUEEP) is designed in support of the first phase of a 4-phase, 12-year strategic plan developed by the Chinese government to dramatically improve the efficiency of its major end-use sectors, buildings and industry. The project fosters a strategic approach to developing, implementing and enforcing a comprehensive and effective energy conservation policy and regulatory system consistent with the objectives of the Energy Conservation Law of 1998. The project's purpose is the removal of barriers to the widespread application and practice of energy conservation and energy efficiency in the major energy consuming sectors (buildings and industrial) in China. This will be achieved through partnerships with donors in assisting China establish a sustainable and market-based energy efficiency focus, which will lead to improved economic productivity, reduced greenhouse gas emissions and an improved global environment. Success in implementing such partnerships will strengthen China's capabilities to aggressively pursue energy efficiency as it makes the transition from a centrally planned economy to a market-based economic system. For the 3-year EUEEP, carbon emissions reductions of approximately 12 million tonnes will be reduced on a cumulative basis (equivalent to over 42 million tonnes of CO₂). This will be achieved by reducing energy consumption in these sectors by nearly 19 million tonnes of coal equivalent (tce) over this 3-year time period. If the full 12-year Chinese programme is implemented, the cumulative carbon emissions reduction will be about 76 million tonnes (279 million tonnes of carbon dioxide) over the 12-year programme lifetime.

Country: People's Republic of China

UNDAF Outcome(s)/Indicator(s): Support the implementation of the consensus of the UN conventions and conferences by the Government and civil society; Strengthen the rule of law, from legislation to law enforcement and throughout the administrative system.

CP Outcome(s)/Indicator(s): Incorporation into macroeconomic and sector policies approaches of new and renewable energy sources and end-use energy efficiency that have been pilot tested and shown to be effective.
MYFF Goal: Energy and Environment for Sustainable Development; Service Line: Access to Sustainable Energy Services (National policies and frameworks for sustainable energy development strengthened).

CP Output(s)/Indicator(s):

Implementing Partner:

(Designated Institution/Executing Agency)

Department of Environment and Resources Conservation (DERC), National Development and Reform Commission (NDRC)

Other Primary Partners:

Ministry of Finance, Ministry of Construction

Project Title: China End-Use Energy Efficiency Project
Project Number: CPR/02/G32/A/1G/99;
Award ID: 00033990;
Project ID: 00035738;
Project Duration: 2005-2007
Management Arrangement: National Execution

| | |
|-----------------|-----------------------|
| GEF Budget: | US\$17,000,000 |
| Co-Financing: | |
| Government | US\$31,350,000 |
| Private Sector: | US\$32,000,000 |
| Total: | US\$80,375,000 |

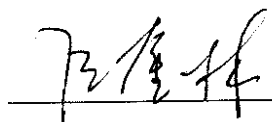
Agreed by:

Signature

Date

Name and Title

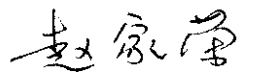
Government:
(Ministry of Finance)



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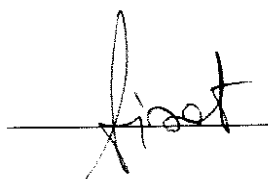
Implementing Partner:
(NDRC)



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UNDP:



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TABLE OF CONTENTS

| | |
|--|--------------|
| ACRONYMS | 3 |
| SECTION 1..... | 4 |
| Part I – Situation Analysis | 4 |
| Part II - Strategy | 4 |
| Part III - Management Arrangements | 17 |
| Part IV – Monitoring and Evaluation | 21 |
| Part V - Legal Context..... | 21 |
| SECTION II: Total Work Plan and Budget | 39 |
| SECTION III: Other Agreements | 777 |
| SECTION IV: Approved brief..... | 78 |
| SECTION V: Response to Technical Comments | 78 |
| Annexes..... | 80 |
| Annex 1-Terms of Reference | 81 |
| Annex 2 – Estimated Project Co-financing Plan | 24040 |

ACRONYMS

| | |
|------------------|---|
| APR | Annual Project Report |
| BEE | Building energy efficiency |
| BES | Building Energy Standards |
| B&Ts | Benchmarks and targets |
| CEEP | China Energy Efficiency Programme |
| CTA | Chief Technical Advisor |
| DERC | Department of Environment and Resources Conservation |
| DRC | Department of Resource Conservation and Comprehensive Utilization |
| DSA | Daily Subsistence Allowance |
| EA | Executing Agency |
| EC&EE | Energy conservation and energy efficiency |
| ECL | Energy Conservation Law |
| ECC | Energy Conservation Centre |
| ECA | Energy Conservation Association |
| EMC | Energy Management Company |
| EUEEP | End-use Energy Efficiency Project |
| ERI | Energy Research Institute |
| FFEM | Fond Française por l'Environnement Mondial (French GEF) |
| GEF | Global Environmental Facility |
| IA | Implementing Agency |
| LFA | Logical Framework Analysis |
| M & E | Monitoring and Evaluation |
| Mtce | Million tonnes of coal equivalent |
| NDRC | National Development and Reform Commission |
| NEA | National Executing Agency |
| NEX | National Execution |
| NGO | Non-governmental organization |
| NPD | National Project Director |
| NPM | National Project Manager |
| PAC | Project Appraisal Committee |
| PDF-A/B | Project Development Fund (Block A or B) |
| PIR | Project Implementation Report |
| PMO | Programme Management Office |
| PSC | Programme Steering Committee |
| QPR | Quarterly progress report |
| SETC | State Economic and Trade Commission |
| SDPC | State Development Planning Commission |
| S & Ls | Standards and Labels |
| tC | Tonne of Carbon |
| tce | Tonne of coal equivalent |
| tCO ₂ | Tonnes of carbon dioxide |
| TOR | Terms of Reference |
| TPR | Tripartite Project Review |
| UNDP | United Nation Development Programme |
| UNDP CO | UNDP Country Office |
| VA | Voluntary Agreement |

SECTION 1

Part I – Situation Analysis

Project Objectives

The China: End-Use Energy Efficiency Project (EUEEP) is designed to support the first phase of a 4-phase, 12-year strategic plan developed by the Chinese government to significantly improve the efficiency of its major end-use sectors, buildings and industry. Phases 2-4 will focus on expanding the scope of the policies, standards, enforcement, and outreach activities in buildings, industry, transportation, and other end-use sectors. Ongoing and final evaluations of Phase 1 will be used to design Phase 2 activities. Annex E of the attached Project Brief (Annex 3) provides additional information on the types of activities that will be conducted to expand Phase 1 components and sub-activities in Phases 2 through 4.

The project fosters a strategic approach to developing, implementing and enforcing a comprehensive and effective energy conservation policy and regulatory system consistent with the objectives of the Energy Conservation Law of 1998. The project's purpose is the removal of barriers to the widespread application and practice of energy conservation and energy efficiency in the major energy consuming sectors (buildings and industrial) in China. This will be achieved through partnerships with donors in assisting China establish a sustainable and market-based energy efficiency focus, which will lead to improved economic productivity, reduced greenhouse gas emissions and an improved global environment. A detailed description of the problem to be addressed is provided in Part 2bi of Section 2 of this document. It also includes a description of the baseline scenario, and the project scenario that would emerge from GEF intervention.

The relevant and intended outcomes in the Country Programme (Strategic Results Framework – SRF) are (1) Environment and energy sustainability objectives integrated in macro-economic and sector policies, and (2) improved national capacity to negotiate and implement global environmental commitments. The national institutional and legal framework is described in the Baseline section of the attached Project Brief. An independent review of the project design is provided in Annex C of the Project Brief.

A complete listing of all the lessons learned from various energy projects and utilized in the design of the EUEEP is in Section B of the attached Project Brief (Section 2fi of the cover note).

Part II - Strategy

China's approach to sustainable development while addressing climate change and its national commitment to its sustainable development goals are described in Part 1b of Section 2. UNDP's programme in support to these goals is described in Part 4ai of Section 2, while the specific activities undertaken through this project in support of policy development and strengthened national capacities are described in a condensed form below. This description of activities modifies that in the Project Brief (Section H and Annex B), in order to reflect new information that emerged during the formulation of the Project Document.

The project activities described below focus on the industrial and buildings sectors and are supplemented by crosscutting activities that will benefit both sectors.

Component A: Industry

A.1. Voluntary Agreements: Eight enterprises (four in iron and steel and two each in cement and petrochemicals) will be encouraged to sign and implement voluntary agreements (VAs) to improve their efficiency of energy use. The project would short list at least 12 enterprises in these 3 industry sub-sectors, develop and use criteria to select six of these for VA implementation. The project will also support the VA implementation in two additional iron and steel enterprises that have already signed VAs. Energy efficiency benchmarks and targets will be set and achieved by these enterprises with the support of the EUEEP.

A.2. Energy Efficiency Design Codes for New and Existing Facilities and Equipment: This activity will involve the development and/or revision, preparation and promotion of energy efficiency (EE) design codes to cement and petrochemical enterprises through relevant industry design institutes. For the petrochemical sub-sector, one type of petrochemical industry will be selected for this purpose.)

A.3. Energy Efficiency Standards for Industrial, Residential and Service Equipment: This sub-activity will focus on both energy performance standards and labels in the industrial, residential and commercial sectors.

A.3.1. China Motor Systems Market Transformation Program: The outcome of this activity will be a significant savings (about 2 Mtce) in the energy use of electric motor systems. The project will establish design criteria, develop labels, enhance capacity of five motor systems service organizations, revise the practices of design institutes, and promote the use of improved motor systems in China in order to achieve the expected energy savings.

A.3.2. Energy Efficiency Standards, Labeling and Promotion for Major Energy-Consuming Equipment for Industry: This activity will involve interventions that will improve the energy performance of locally made versions of two typical industrial equipment to make them on par with imported equipment. The project will set criteria and select four types of equipment for which standards will be set, and for two (of these four) energy labels will be designed and implemented. Training programs, and sharing of international experience will assist in achieving these goals. Various procurement modalities to help accelerate the penetration of above equipment will be investigated and promoted.

A.3.3. Energy Efficiency Standards and Labeling for Equipment in Residential and Service Sectors: This activity will support the market penetration of five or more energy efficient appliances and by end of the EUEEP, about 10% of new sales for each appliance will be achieved. This activity will involve product selection, data collection, techno-economic analyses, information dissemination to consumers and manufacturers, and the feasibility study on harmonization of labels across countries.

A.4. Energy Management Information System and Reporting Programme (EMISRP) for Key Energy-intensive Enterprises: This activity will involve the development of tools, techniques, and procedures to establish the EMISRP and conduct trial operation in selected enterprises. An EMISRP will be operational in more than 50% of 7000 energy-intensive enterprises by the end of the project.

Component B: Buildings

B.1. Collection of Data on Building Energy Use As a Basis for Setting and Assessing Impacts of Standards: This activity entails the development of a survey instrument, gathering of data, performance of measurements on selected buildings, establishment of baseline data for setting standards, and performance of measurements and surveys to assess the impact of the standards in at least one city. Full surveys to collect data on building energy use will be performed in Beijing, Shanghai, Shenzhen, and Chongqing, and the data analysis will be completed for one year by end of EUEEP project.

B.2. Development of Policies and Standards for Building Energy Performance: This activity includes reviews of existing standards, codification of standards into regulations, development of incentive policies to go beyond standards, and development of a rating system for buildings that substantially exceed standards. By end of this activity, the following outputs are expected: (1) Revised standards in the heating zone; (2) Developed and enforced regulations in the hot summer warm winter zone; and, (3) Regulations for retrofitting of office buildings.

B.3. Standards Implementation and Incentives for Buildings to Exceed the Standards: This activity involves provision of extensive training to building code officials in the four cities mentioned in B1; assessment of the experience in Shanghai; preparation and introduction of a computer model for use in one city, creation of trial programs to promote green buildings concepts: and, experimentation with pilot systems, such as the Moscow Energy Passport.

B.4. Energy Efficiency Information Dissemination: . This activity will entail the creation of a dissemination programme to provide information about building EE to a widespread network of stakeholders, and an EE training network for the promulgation of information on building EE.

B.5. Technology Advancement: This activity will involve the conduct of a research on different materials to improve insulation and wall systems, and to seek low-cost materials and equipment. The immediate output of the research effort will be the development of at least one commercially viable product. More importantly this sub-activity will point towards target standards that will help push a faster improvement in buildings EE.

Component C: Cross-cutting activities

C.1. Strengthening the Energy Conservation Centers (ECCs): The ECCs continue to play an important role in all facets of training, capacity building, enforcement, certification of buildings and products etc. The EUEEP will assist them so that they can continue to function as before despite the cutbacks due to government restructuring and market reform. The following are the major activities that will be conducted under this component of the EUEEP:

C.1.1 Energy Auditing and New Building Design Inspecting Capacity: Based on the outputs of activities A and B, energy audits will be conducted in selected companies in the industrial and buildings sectors and train energy professionals to play a role in standards enforcement. This activity will result in at least 100 high quality audits, and in-depth foreign training of selected staff on audits.

C.1.2 Capacity Building for Conducting Training: In this activity, at least two ECCs and one Energy Conservation Association (ECA) will be trained to conducting training on advanced energy efficiency courses. .

C.1.3 Capacity Building for Information Dissemination: Several ECCs will be established as leaders in the dissemination of energy efficiency information in this activity.

C.2. Implementation of the Energy Conservation Law (ECL): This major activity will involve the development of detailed regulations and enforcement guidelines that will assist the implementation of the ECL. Particular emphasis will be placed on reducing the use of petroleum fuels that are used for transportation.

C.3 Policy Development on Energy Efficiency Financing Options: This EUEEP activity review existing business models for financing of energy efficiency worldwide. It will also involve the piloting at least one such model for use in China. A strategy and plan will be developed for the pilot implementation in 2-3 local regions.

Component D: Management, Monitoring and evaluation

D.1 Management: The management of the project will include the recruitment of international and national consultants, the procurement of appropriate and required equipment, the selection of subcontractors through a transparent and clearly defined bidding process, the resolution of conflicts and overlaps between sub-activities, ensuring the timely delivery of all project outputs, and reporting of data and information on a predetermined periodic basis.

D.2 Monitoring and Evaluation: This activity will involve the provision of training and technical assistance to energy efficiency monitors in the three major components of the EUEEP. The project will provide training in the development of a monitoring plan, in conducting the monitoring, and in the evaluation of the monitored data. The PMO staff on a regular basis will evaluate information and the resulting monitored data. In addition, UNDP evaluation procedures for periodic reviews, third-party evaluation, and reporting will be implemented under this activity.

Results Framework

A detailed log-frame matrix is provided in Amex A of Section 2.

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|---|
| <p>Intended Outcome as stated in the Country Results Framework:</p> <ol style="list-style-type: none">1. Environment and energy sustainability objectives integrated in macroeconomic and sector policies2. Improved national capacity to negotiate and implement global environment commitments |
| <p>Outcome indicator as stated in the Country Programme Results and Resources Framework, including baseline and target. Indicator: Specific policy, legal, economic, and regulatory measures piloted/taken to ensure integration of environmental and sustainable energy development objectives into development policy</p> <ol style="list-style-type: none">1. 2000 baseline: Inadequate implementation of rules for enforcement of key environmental laws, limited human resources to address environmental concerns in public/private sectors.2. 2003 targets: Market-based instruments piloted; human resources strengthened to address key environmental concerns <p>Indicator: Objectives and targets of the National Strategy/Plan/Programme integrated in national development planning and policy framework</p> <ol style="list-style-type: none">1. 2000 baseline: Limited coordination for sustainable energy development.2. 2003 targets: National coordination mechanism for energy efficiency. |
| <p>Applicable Strategic Area of Support: Goal 3: Environmentally sustainable development to reduce human poverty Sub-goal 1: Sustainable environmental management and energy development to improve the livelihoods and security of the poor Sub-goal 2: Regional and global instruments for environmentally sustainable development that benefit the poor SAS 3.1.1: National policy, legal, and regulatory framework for environmentally sustainable development SAS 3.2.2: National capacity for participation in global conventions, regulatory regimes, and funding mechanisms for environmentally sustainable development</p> |
| <p>Partnership Strategy: UNDP builds strong stakeholder coalitions to allow participatory implementation of environmental protection and management programmes on a sustainable basis. Such partnerships include UN agencies, international funds, bilateral and multilateral organizations, China's national, regional, and local government bodies, national and international environmental NGOs, academic institutions and universities, local population and private sector. In doing so, the UNDP China country office launched donor meetings on environment and continues to act as an informal secretariat for these meetings. On the programme level UNDP leads partnerships through Steering Committee meetings, stakeholder consultations, joint missions, etc. For the purpose of this project the main partners are the National Development and Reform Commission, Ministry of Construction, Ministry of Finance, the World Bank, and the European Union, etc.</p> |
| <p>Project title and number: China End-use Energy Efficiency Project; Project No: CPR/02/G32</p> |

| INTENDED OUTPUTS | OUTPUT TARGETS | INDICATIVE ACTIVITIES | INPUTS |
|--|--|---|---|
| A. INDUSTRIAL ENERGY EFFICIENCY PROGRAM | | | |
| A.1. Voluntary Agreements (VA) to promote energy efficiency designed, and implemented in industrial sectors. | <p>12 enterprises selected as candidates from iron and steel, chemicals, and cement industries (Year 1)</p> <p>At least six new enterprises signed VAs adding to the two enterprises that have already signed. Eight enterprises (4 from iron and steel and 2 each from cement and petrochemicals) host the VA programme (Year 2)</p> <p>Personnel from participating companies are trained on energy management practices and energy efficiency technology applications</p> <p>All 8 enterprises spend a minimum of US\$8.5 million for VA-related energy efficiency activities (from Year 1 to Year 3).</p> <p>All 8 enterprises participating in the VA programme finance and implement EE measures and realize energy savings (Year 3)</p> | <p>Develop criteria, organize workshops for soliciting industries interested in VA program, and select 12 enterprises, two of which will be the EF-funded iron and steel enterprises.</p> <p>Based on developed criteria and local government input select six enterprises, in addition to the two funded by EF, for VA implementation. Sign VA contracts with the 6 selected VA programme participants.</p> <p>Provision of training to key managers from the VA participants on the value of taking energy efficiency improvement measures. This also involves the development of educational and promotional materials that aim at providing the legal, economic and environmental rationale for improving energy efficiency in the enterprises.</p> <p>Provide capacity building to participating companies on best practices abroad, internal management improvement through study tours, training, and innovations of existing technologies and processes.</p> <p>Develop plans for VA implementation.</p> <p>The VA programme participants implement energy efficiency measures.</p> | <p>Budget for stakeholder workshops and consultations, sharing of International and China VA experience, methods/tools to assess energy, economic and environmental benefits, support for the development of policies for VA programs, and access to financing for energy efficiency improvements</p> <p>Budget: Total: \$12,977,500 GEF: \$1,477,500 Government: \$3,000,000 Private: \$8,500,000 (<i>for private sector-financed implementation of EC&EE projects under the VA program</i>)</p> |
| A.2. Energy efficiency guidebooks that contain design codes (benchmarks and targets) | <p>Existing energy efficiency (EE) codes revised (Year 1)</p> <p>Proposed EE codes</p> | <p>Review of existing codes for the two sectors</p> <p>Develop tools and expertise</p> | <p>Cash outlays and in-kind contributions for industry consultation workshops, analytical studies, and</p> |

| <p>INTENDED OUTPUTS (B&T)) prepared, reviewed, distributed, and design codes implemented in new and existing facilities and for equipment in cement and petrochemical industries.</p> | <p>OUTPUT TARGETS reviewed and revised (Year 2) New EE codes established and enforced in 1% of industry by Year 2 and 3% by Year 3.</p> | <p>INDICATIVE ACTIVITIES for the estimation of benchmarks and setting targets in consultation with industry Train industry professionals in the process of B&T techno-economic analysis Hold workshops to distribute literature and inform industry on activities and projects to be done to reach targets Develop and implement approaches for the monitoring and evaluation of energy use and acceptance and response rates of design codes</p> | <p>INPUTS training in the use of new codes, and conferences and other outreach activities for the promulgation of design codes. Budget: Total: \$1,492,500 GEF: \$492,500 Government: \$1,000,000</p> |
|--|---|---|--|
| <p>A.3 Energy efficiency standards and labels (S & Ls) designed and implemented for industrial, residential and service equipment and appliances. A3.1 – Industrial motor systems A3.2 – Transformers, industrial fans and boilers, and heat pumps A3.3 – Five appliances in the residential and commercial (R/C) sectors</p> | <p>Preliminary design of EE standards and labels completed, and target service organizations and other stakeholders selected (Year 1) A 3.1. Motor systems demonstration programs implemented by 2 private companies; staff of at least three motor system service organizations trained, and standards and labels reviewed and revised for motors and equipment (Year 2) At least 0.5 Mtce of energy savings achieved due to improved EE performance of motor systems. (Year 2) A 3.2. At least 2.0 Mtce of energy savings achieved due to improved EE performance of motor systems. (Year 3) EE standards for four types, and labels for two types of industrial equipment are established, and those for motor systems and equipment expanded. (Year 3) A 3.3. R/C standards completed for 4 products</p> | <p>Conduct a review of the process of setting and implementing standards and labels in other countries, and its relevance to China Conduct techno-economic analyses and design test procedures for each type of equipment and appliance to determine China-specific S & Ls. Conduct EE motor system demonstrations by 2 private companies. Hold stakeholder consultations and workshops to seek input on stringency and speed of implementation of S & Ls Conduct training on above analyses, test procedures, and government processes for setting and implementing S & Ls. Conduct researches and set up EE standards for four types, and labels for two types of industrial equipment, including electric motors Develop and implement approaches for the monitoring</p> | <p>Budget for study tours and training abroad on setting S & L targets, outreach to increase industry and public awareness, and stakeholder consultation workshops. Budget: Total: \$25,136,850 GEF: \$4,136,850 Government: \$ 9,000,000 Private: \$12,000,000 <i>(for private sector financed EE electric motor system project implementations, and co-funded project activities on EE standards establishment and implementation.)</i></p> |

| INTENDED OUTPUTS | OUTPUT TARGETS | INDICATIVE ACTIVITIES | INPUTS |
|--|--|---|---|
| A.4. Energy management information system and reporting programme (EMISRP) designed and implemented for key energy-intensive enterprises | <p>and formally adopted for 2 products. At least 2% of new EE R/C products meet new standards (Year 2)</p> <p>R/C standards adopted for all 5 products. At least 10% of new R/C products meet new standards (Year 3).</p> <p>A prototype of EMISRP completed (Year 1).</p> <p>Trials with EMISRP carried out (Year 2).</p> <p>Technical guidelines and government regulations on the EMISRP are set and EMISRP is operational in more than 50% of 7000 energy intensive enterprises (Year 3).</p> <p>Action plan developed to ensure that the EMIRSP database is updated and maintained annually (by Year 3)</p> | <p>and evaluation of energy use and market penetration rates of high efficiency equipment and appliances</p> <p>Review international practices and data bases on EMISRP, including energy consumption indicators</p> <p>Design a survey instrument, and conduct surveys of key energy-intensive enterprises</p> <p>Develop software to analyze and monitor energy performance of industries</p> <p>Test software in at least six industries</p> <p>Develop and implement approaches for the monitoring and evaluation of EMISRP</p> | <p>Budget for training in the development of questionnaires, providing international experts, and supporting the surveys and outreach activities</p> <p>Budget: Total: \$1,992,500 GEF: \$492,500 Government: \$1,500,000</p> |
| B. Buildings Energy Efficiency Program | | | |
| B.1. Data on building energy use collected through surveys, and collated and analyzed for use in setting and assessing impacts of building standards | <p>Survey instrument designed and pilot trials carried out (Year 1).</p> <p>Full surveys performed in the four cities (Beijing, Shenzhen, Shanghai, Chongqing) (Year2)</p> <p>Full surveys performed for second year in the four cities (Beijing, Shenzhen, Shanghai, Chongqing) (Year 3)</p> <p>Data compiled and analyzed for one year for the four cities (Year 3)</p> <p>Baseline of energy use established in support of standards setting and implementation Activity B2 in the four cities. (Year 3)</p> <p>Plans developed to extend the data collection to other cities and regions for the</p> | <p>Establish data needs for urban R/C buildings in four pilot cities and create survey instrument to gather data.</p> <p>Gather data using the survey instrument.</p> <p>Perform measurements on selected buildings in each city.</p> <p>Analyze and reconcile the statistical data.</p> <p>Establish the baseline using survey data for implementing R/C standards.</p> <p>Assess impacts of standards in Shanghai using surveys and measurements.</p> | <p>Cash and in-kind contributions for training in the development of questionnaires, providing international experts, and supporting the surveys and outreach activities</p> <p>Budget: Total: \$2,350,000 GEF: \$500,000 Government: \$850,000 Private: \$1,000,000 (<i>for financing of surveys, pilot trials, standards setting, and impact assessments conducted</i>)</p> |

| INTENDED OUTPUTS | OUTPUT TARGETS | INDICATIVE ACTIVITIES | INPUTS |
|---|--|--|---|
| <p>B.2. Policies and standards for residential and commercial (R/C) building energy performance are developed, and reviewed and updated as appropriate.</p> | <p>next phase (Year 3)</p> <p>B.2.1 Regulations for the implementation of residential building standards for the hot summer, warm winter zone developed (Year 1), adopted (Year 2) and implemented (Year 3) in Fujian, Guangdong, and the Guangxi Autonomous Region by the three local construction commissions</p> <p>B.2.2 Standards for retrofitting of existing public buildings investigated (Year 1), reviewed (Year 2), and adopted (year 3)</p> <p>B.2.3 Standards for commercial buildings (particularly on cooling systems) are reviewed and updated (Years 1 and 2), and adopted (Year 3)</p> <p>B.2.4 Report on the international experience on stringent building standards (Year 1), trial programme developed to adopt such standards in one city (Year 2), and legislation prepared for adoption in other cities (Year 3).</p> <p>B.2.5 Report on international experience on incentive policies to increase EE beyond that stipulated in the building standard (Year 1), report on use of such policies for the pilot cities (Year 2), and nationwide (Year 3).</p> <p>B.2.6 Preliminary design of a building energy rating system completed (Year 2), and tested through a pilot programme in at least one</p> | <p>B.2.1 Review and assess regulations in other provinces, develop similar standards and regulations for the hot summer warm winter zone and have these adopted by the three local commissions. Cooling systems will be addressed in detail in the developed and implemented standards/regulations</p> <p>B.2.2 Evaluate technical measures, develop standards/regulations, conduct audits, and promote the adoption of regulation for retrofitting energy consuming services and facilities (cooling and heating) in existing public buildings</p> <p>B.2.3 Evaluate potential for energy saving, revise and update standards for building services (particularly cooling systems), promote their adoption, and train designers, builders and other relevant stakeholders in their use.</p> <p>B 2.4 Assess international experience, compare and evaluate with China building energy standards (covering all building energy services such as cooling and heating), develop pilot programme of regulations and propose advice for legislation on the new standards.</p> <p>B.2.5 Assess international experience, prepare a report illustrating their appropriateness and including proposals on policies for adoption by Chinese pilot cities, and nationwide.</p> <p>B.2.6 Assess international experience on rating systems, conduct studies on measurement techniques and labels for residential</p> | <p>Budget for data collection and analysis of surveys, assessment of international experience for designing technical standards and rating systems and incentive policies, testing of standards and rating systems in pilot cities, drafting of regulations, and where appropriate, getting them adopted.</p> <p>Budget: Total: \$2,300,000 GEF: \$750,000 Government: \$ 1,550,000</p> |

| INTENDED OUTPUTS | OUTPUT TARGETS city (Year 3). | INDICATIVE ACTIVITIES buildings, and test and report on the use of the rating system in one pilot city. | INPUTS |
|---|--|---|--|
| B.3. Building energy efficiency standards implemented and incentives provided to exceed the standards | <p>B 3.1: Relevant officials and other key organizations in four pilot cities of Beijing, Shanghai, Chongqing, and Shenzhen, are knowledgeable about standards and their implementation in Year 2, and regulations for the management of the building code are issued in Year 3,</p> <p>B 3.2: As in 3.1 for other cities (Year 3)</p> <p>B 3.3: Documentation of the evaluation of implementation of building energy standards in Shanghai (for 1 million m² residential buildings) completed (Year 2), and other pilot cities completed (Year 3).</p> <p>B 3.4: Computer tools for simplified implementation of building energy standards under development for the 4 pilot cities (Years 2 and 3).</p> <p>B3.5 Training materials compiled (Year 2) and training courses held in Year 3 on rating system designed in B.2</p> <p>B 3.6 Documentation of selected green and/or energy efficient buildings that go beyond the standards, either constructed or (more likely) in design phase that can be directly attributed to the project (Years 2 and 3)</p> <p>B 3.7 Documents on the assessment of the policy pilot programmes for promoting energy efficient buildings (Years 2 and 3).</p> | <p>B 3.1 Development of training course materials, and training in the design, application and enforcement of building energy standards/code in each of the four cities. Conduct of trainings on the design and implementation of building energy standards/codes</p> <p>B3.2 Participants trained in B 3.1 provide training to administrators and designers as above.</p> <p>B 3.3 Conduct evaluation of building energy standards and associated implementation policies and programmes in Shanghai, and expand that to other cities</p> <p>B 3.4: Together with partners in the private sector, develop the model and computer-aided management system and apply and improve it over time</p> <p>B3.5 Compile training materials and books and organize training courses for building code officials and organizations</p> <p>B 3.6 Implementation of green and/or EE buildings projects financed by the private sector; conduct techno-economic analysis of solar and experimental buildings in Shanghai, green buildings in Shenzhen, Chongqing, and other areas.</p> <p>B3.7 Performance of private sector-led energy audits; evaluate the audit and record system for tracking EE such as that introduced by the</p> | <p>Cash and in-kind contributions for data collection and analysis of surveys, assessment of international experience for designing technical standards and rating systems and incentive policies, testing of standards and rating systems in pilot cities, drafting of regulations, and in some cases, getting them adopted.</p> <p>Budget: Total: \$15,007,000 GEF: \$2,400,000 Government: \$4,700,000 Private: \$7,907,000 (<i>for the implementation of green and/or EE buildings projects, conduct of energy audits; and the conduct of a pilot program in Chongqing on the application of the Moscow Energy Passport</i>)</p> |

| INTENDED OUTPUTS | OUTPUT TARGETS | INDICATIVE ACTIVITIES | INPUTS |
|---|--|---|--|
| B.4. Energy efficiency information from the activities in four pilot cities is disseminated to all stakeholders | <p>B 4.1 Documents related to the information dissemination programme on EE applications and investments (Year 2), and outreach material— database, web site, press campaign, prizes, news conferences, etc. for its deployment in the four pilot cities (Year 3).</p> <p>B 4.2 Material as above developed (Year 1) and targeted at other cities and regions (Years 2 and 3)</p> | <p>Moscow Energy Passport and investigate its applicability through a pilot programme in Chongqing..</p> <p>B 4.1 Develop a information data base, web sites, newsletters, etc. and organize conferences, contests, TV advertisements, etc. to popularize the BEE programme in pilot cities</p> <p>B 4.2 As above but targeted at other cities and regions</p> <p>Survey results indicating the likely impact of the information dissemination programme (Activity C.1)</p> | <p>Cash and in-kind contributions for the preparation of documents for an outreach programme to provide information about the successes of BEE programmes and promoting their use</p> <p>Total: \$3,000,700 GEF: \$1,000,000 Government: \$2,000,700</p> |
| B.5. Innovative building technologies researched and developed in China | <p>B 5.1 International assessment and report on potential for low-energy consuming buildings in China (Year 2), and their implementation feasibility (Year 3)</p> <p>B 5.2 Surveys and investigation of status of thermal insulation and wall material in a selected city (Year 2), and a report proposing the use of several cost-effective local materials (Year 3)</p> <p>B 5.3 Research and development of at least one type of low -cost thermal insulation and roofing material</p> <p>B5.4 Assessment report (Year 1), R&D progress report (Year 2), and draft standard and technical regulations (Year 3) on composite wall material</p> <p>B 5.5 Recommendations about the incorporation of findings from Activities B 5.1 – B 5.4 into building standards (Year 3)</p> | <p>B 5.1 Assess status of building energy efficiency technology development and trends in China and abroad through surveys, workshops, study tours, and seminars and report on the feasibility of their use in different regions of China</p> <p>B 5.2 Assess status of thermal insulation and wall materials, conduct research on the use of low-cost local materials, conduct seminars to test their feasibility in a climatic zone similar to the one in the study city</p> <p>B5.3 Conduct of research on roof material and air conditioning systems</p> <p>B 5.4 Organize specialists and conduct research on energy performance of composite wall material and its manufacturing technology and set standards and develop regulations for its implementation</p> <p>B5.5 Conduct a comprehensive evaluation in order to incorporate of all of the above B5 activities into building standards</p> | <p>Budget for data collection and analysis of surveys, assessment of international experience for designing low-energy consuming buildings, research and development of new wall and roof and composite materials, and the incorporation of findings into building standards</p> <p>Budget: Total: \$4,212,150 GEF: \$700 K Government:\$1,000,000 Private: \$2,593,000 (<i>for the private sector - financed implementation of the R&D on low cost thermal insulation and roofing material</i>)</p> |

C. Crosscutting Activities on Energy Efficiency

| | | | |
|---|---|---|--|
| <p>C.1. Capacity of Energy Conservation Centers is strengthened to conduct energy efficiency training and audits, and to disseminate EE information.</p> <p>C1.1 – Energy Conservation Centers C1.2 – Architects, engineers, and industrial energy managers C1.3 – Energy information dissemination</p> | <p>C 1.1 Training materials provided to the ECCs, energy audit reports by ECCs, and a report assessing the training and institution building of the ECCs. (2-3 ECCs by Years 1, 1-2 additional by Year 2). Advanced training with pilot audits (Year 3)</p> <p>Reports on at least 20 and 100 high-quality energy audits conducted by ECCs in Years 2 and 3 respectively.</p> <p>C 1.2 Demonstrated capability of ECCs to conduct training courses for architects, engineers, and industrial energy managers by year 3.</p> <p>C 1.3 A plan for energy efficiency information dissemination developed (Year 2), and implemented across China (Year 3). Documentation about disseminated information, and surveys to determine their effectiveness completed in Years 2 and 3.</p> | <p>C.1.1 and 1.2 Energy audit training will be conducted in China and abroad, in buildings and industrial energy use, including in-depth training for selected staff, using materials developed in other activities of the project</p> <p>C 1.3 Computer hardware and software will be purchased and a web site will be set up for information dissemination through the ECCs on energy audit programmes</p> | <p>Budget for preparation of training materials and procedures (basic and in-depth) developed for conducting audits</p> <p>Budget for study tour organized to increase the awareness of ECC staff to international experiences with energy audits.</p> <p>Review (Year 1), purchase (Year 2) and apply (Year 3) requisite equipment for energy audits purchased using Chinese funds.</p> <p>Budget: Total: \$6,251,200 GEF: \$2,251,200 Government:\$4,000,000</p> |
| <p>C.2. Key features of the Energy Conservation Law are implemented</p> | <p>Completed the following specific implementation requirements for the ECL:</p> <ul style="list-style-type: none"> •Guidelines for establishing targets for energy performance of technologies and systems (Year 2) •Finalized guidelines for target setting for energy performance of technologies and systems. Year 3) •Proposed ECL-related guidelines on industrial equipment energy labeling system (year 2) •Finalized ECL-related guidelines on industrial equipment energy labeling system (Year 3) | <p>Conduct a study to develop a strategy for ensuring consistency across various product standards, and for the development of rules, regulations, and legal apparatus to enforce standards and labels</p> <p>Conduct studies and hold workshops to solicit input in order to develop a guidance document on petroleum conservation</p> <p>A data base and web site will be developed for information dissemination</p> | <p>Resources for studies, workshops, seminars, conferences, and web site maintenance.</p> <p>Budget: Total: \$1,149,700 GEF: \$499,700 Government: \$650,000</p> |

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|--|--|--|---|
| | <ul style="list-style-type: none"> •Proposed ECL-related guidelines on oil conservation (Year 1) •Finalized ECL-related guidelines on oil conservation (Year 2) •Proposed ECL supervision and review mechanism (Year 1) •Pilot programme to test supervision and review system (Year 2). •Finalized ECL supervision and review system (Year 3) •Compilation of experiences on implementation of ECL (Year 1) •Preliminary design of information dissemination activities on ECL-related experiences (Year 2) •Design of information dissemination activities on ECL-related experiences (Year 3) | | |
| C.3. Policy Development on Energy Efficiency Financing Options | <p>Reports on models and lessons learned on energy efficiency financing (Year 1).</p> <p>Documents on the proposed financing models. (Year 1)</p> <p>Documents on the strategy and plan for implementation of best models (Year 2).</p> <p>Results of the demonstration of the application of the selected model (Years 2 and 3).</p> <p>Statement by relevant policy agencies on willingness of China to provide funds for EE financing (Year 3).</p> | <p>Review of international models and experiences for financing energy efficiency in a market economy</p> <p>Proposal on models of financing available to China's situation</p> <p>Strategy and plan for demonstration of financing EE in two or three regions</p> | <p>Survey instrument for national assessment of financing approaches.</p> <p>Resources for international workshop to learn from experiences on financing approaches abroad.</p> <p>Budget for stakeholder consultations to seek approaches that best match China's situation.</p> <p>Criteria to select 2-3 regions where financing approaches will be implemented followed by an implementation plan.</p> <p>Budget: Total: \$999,100 GEF: \$399,100 Government: \$600,000</p> |
| D. Management and Evaluation | | | |
| D.1 Management | <p>Documentation of all aspects of the project management</p> <p>Establishment of the Project management Office (Year</p> | <p>Creation of the Project Management Office</p> <p>Development of plans for each project activity, including staffing, consultants,</p> | <p>Budget: Total: \$1,287,760 GEF: \$787,760 Government: \$500,000</p> |

| | | | |
|--|--|---|--|
| | 1) | international experts, etc. Monitoring of progress and taking actions to fix problems as they arise for each Activity Provision of assistance to the evaluation team in the identification of specific and quantifiable project achievements | |
| D.2 Monitoring and Evaluation of energy performance of the project | Monitoring plans for each sub-activity of the project (Year 1) Evaluation reports that assess project progress against the monitoring plan commitments and schedule (Years 1, 2 and 3) Reports of studies of the application of statistical data collection and evaluation approaches to energy use in industrial and buildings sectors in China (Year 1) Reports on two tri-partite evaluations of the EUEEP project (Years 2 and 3) | Development of a monitoring plan for each sub-activity Conducting evaluations of monitored data and information against the monitoring plan Conducting research studies on the application of monitoring and evaluation approaches to energy use in China | Budget for training programmes, seminars, study tours, and support for M&E studies Total: \$1,985,000 GEF: \$985,000 Government:\$1,000,000 |

Part III - Management Arrangements

1. Management

Department of Environment and Resources Conservation (DERC)

The Department of Environment and Resources Conservation (DERC) of the National Development and Reform Commission (NDRC) will nationally execute the project. NDRC will appoint a senior member of DERC as National Project Director (NPD). DERC will be responsible to the government of China and to UNDP for the achievement of the project objectives, for all project reporting, including the submission of work plans and financial reports. The project will be executed fully in line with UNDP national execution procedures, as detailed in the NEX Manual. DERC will take overall responsibility for tracking and dispensing UNDP/GEF funds.

NDRC will create a National Project Coordination Committee (NPCC), consisting of senior central government ministries and agencies to provide policy direction and oversight of the project. These will include the Ministry of Finance, NDRC, Ministry of Science and Technology, Ministry of Construction, State Environmental Protection Administration, Standardization Administration of China, and the Certification and Accreditation Administration of China.

DERC will establish a Project Management Office (PMO) for this project, which is in charge of concrete project implementation. The PMO will be composed of a Director (National Project

Manager (NPM)), Deputy Director, four key full time staff members (two of which will be supported by GEF), and one secretary. DERC will select the PMO staff according to the requirements of the work and the availability of labor resources in accordance with UNDP procedures for recruitment. The recruitment of staff will be done through an open bidding and transparent process and candidates from any government or other agencies will be eligible to apply for the PMO positions. Government in kind funding will be used to support two junior PMO staff. The attached TORs specify the roles that they and other PMO staff will play in providing the full range of services.

The salary cost of the NPM will be borne by the government in-kind fund. According to the requirements of the work, PMO may hire short-term contracted personnel, in addition to its full time staff, as and when needed to accomplish the designated work.

DERC will hire an international expert part (preferably not less than 18 months for the 3 year project period as and for at least 5 months in the year 1) time as Chief Technical Advisor (CTA) and a full time domestic very high profile expert as national CTA to be served as international CTA's counterpart to provide technical service to the PMO in order to follow international rules and Chinese laws during project implementation. International CTA will work in China for at least four months each year. The post of international CTA will be advertised both internationally and locally. Chinese language ability could be considered as a plus. UNDP will be expected to provide an active input during the selection process. The national CTA will work full time. GEF will cover the full costs of the international CTA, and 16 months of time for the national CTA over three years. Government co-funding will cover the remained 20 months time for national CTA. They will provide more technical assistance (TA) during the project inception phase and then continue to provide TA on a regular basis during the course of the project.

GEF grant will be used to support the PMO's cost of management and related activities, including rental for premises, printing and publishing, communication fee, conference fee, office facilities, consumptive materials, and other necessities etc. as noted in the attached PMO budget. DERC may hire professional technical service institutions to provide service as accounting service, equipment purchase service etc. as needed. The TORs for those service providers will be drawn up immediately after the project inception workshop on a need basis and services to be provided will be chosen competitively.

The implementation strategy for the EUEEP is depicted in Figure 3. It is designed to be a team approach involving all stakeholders -- government, institutes, research and supervision centers, academia, enterprises, industry associations, NGOs, banks/FIs and donors. It has a strong emphasis on oversight and management on a crosscutting programmatic basis, as well as line management based on activities within the end-use sectors. It is designed to recognize the functional mandates of the Chinese organizations, and to be consistent with China's recent government reforms that move more decision-making to the localities and enterprises and its market-based orientation. Its management structure is based upon the following:

1. Central government oversight and management because it has an overarching purview that is needed for a project that has the breadth of the EUEEP.
2. A strong Coordination Committee with the responsibility and capability of overseeing the project, ensuring coordination and communication with domestic stakeholders and international donors, and providing policy guidance.
3. Activity execution conducted by teams of the most relevant organizations that will be assembled from the full range of stakeholder groups that best make up the capabilities and authorities needed to successfully meet the project's objectives. Generally speaking, oversight

of the execution will vest in the line Ministries responsible for the project area – Ministry of Construction for buildings, and NDRC for industry.

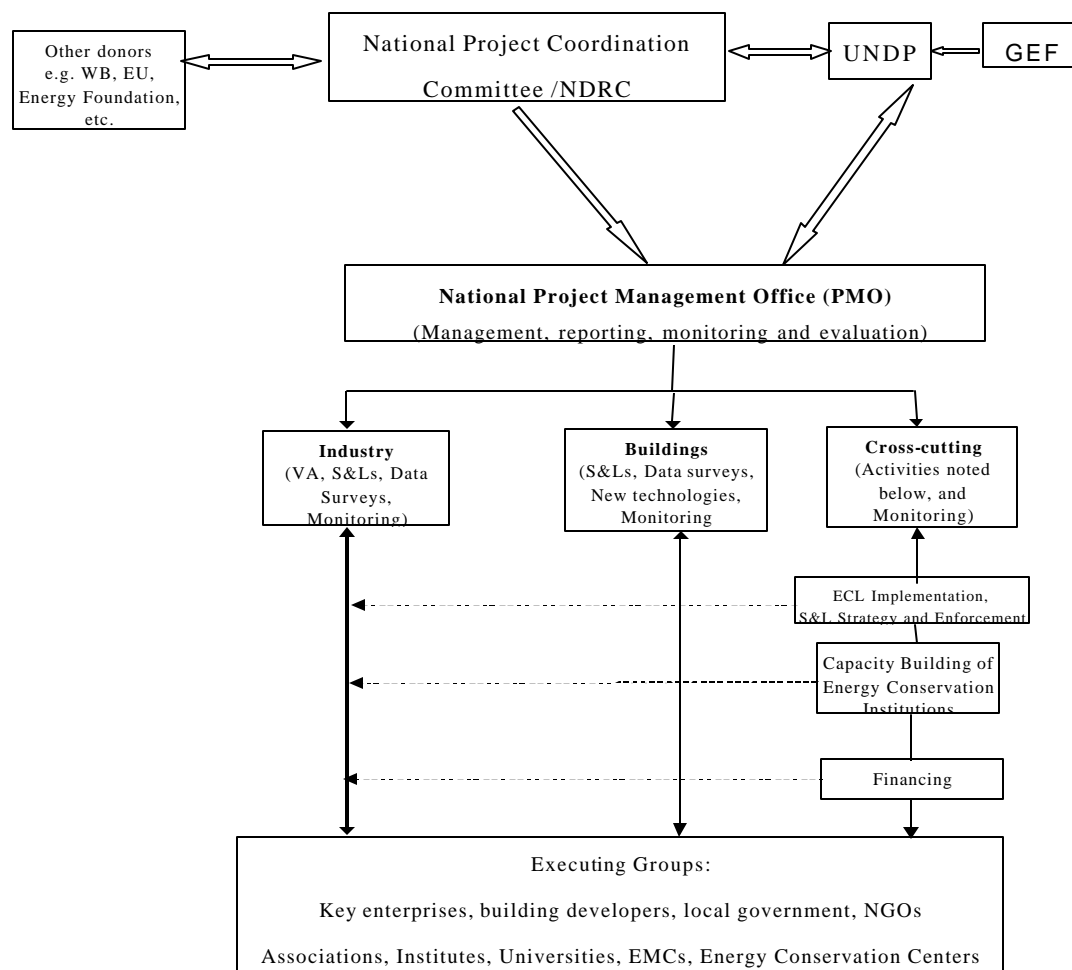
Specifically, the implementation team will include:

1. A lead organization (NDRC) with authority and broad oversight over the full breadth of the programme that will act as the National Executing Agency.
2. A management oversight and policy guiding body, the National Project Coordination Committee, consisting of the relevant national and provincial government agencies that have a role in the EUEEP, that will ensure that the programme is well coordinated with all stakeholders, including with other related projects funded by domestic and foreign donors¹.
3. A central, National Project Management Office (PMO), whose staffing and responsibilities were noted above. To effectively implement its responsibilities and to best service the project, the PMO will create implementation subgroups organized by sub-project (i.e., industrial, building, energy conservation centers and associations). Their roles are to insure that the sub-projects are being implemented in accordance with the EUEEP.
4. Project execution teams will be responsible for managing the sub-activities of the project. These teams will consist of the most appropriate and capable organizations, domestic and international experts and others to successfully complete the activities. Examples of organizations that could be asked to participate on the teams include:
 - Energy Conservation Centers
 - China Energy Conservation Association
 - Energy Research Institute, SDPC
 - BECON
 - The Building Energy Conservation Center, Ministry of Construction
 - China Energy Research Institute
 - China Standard Research Center
 - China Energy Conservation Product Certification Center
 - China Iron and Steel Industry Association
 - China Chemicals Energy Conservation Association
 - China Building Material Industry Association
 - China Non-ferrous Industry Association
 - Urban Energy Efficiency Technology Center, Ministry of Construction
 - Universities
 - Enterprises
 - Energy Management Companies
 - NGOs
 - Local governments
 - Media
 - Others

¹ Several levels of coordination will be undertaken in the project. First, upon approval of the project by the GEF, a donor meeting will be held to brief potential donors on the details of the project and to seek specific financial support from donors. Periodic donor meetings (twice annually) will be held to brief them on the progress of the project and to provide specific information on how donor's projects are being integrated into the project. This will be an opportunity to seek additional donor support, as well. Finally, donors will be apprised of the results of project evaluations so that they benefit from knowing about the program's success and progress of specific projects that they may have an interest in, and to provide input to future phases of the program.

The roles and responsibilities of all the above institutions will be discussed in depth and agreed upon during and immediately after the project inception phase.

Figure 1 – EUEEP Implementation Structure



Energy Foundation will continue to support China Sustainable Energy Programme in the future years.

Currently, the European Union is also developing a China Energy and Environmental Programme. The programme intends to identify, implement, and disseminate cost-efficient measures/technologies for improved energy efficiency and increased use of renewable energy and a developed market for increased use of natural gas. The programme has a budget of 42 million euros, of which 20 million euros will come from the EU. The programme will focus on:

- Policy development, with the provision of TAs to central administration and local authorities,
- Awareness and capacity building - with provision for studies, training, internships, workshops and publications etc
- Technology - provisions for feasibility studies up to 50% funding and maximum 500K euros and demonstration projects up to 15% funding and maximum 500K euros.

The FFEM is entering the second phase of funding for a project supporting energy efficiency improvements in heating and cooling for new and existing construction. Phase I of the project, with a total funding of 3 million euro, supported the training of Chinese experts in energy efficiency building policies and the introduction and development of improved materials for insulation. Phase II of the project will provide capacity support most in the form of technical exchange for the strengthening and standardization of energy efficiency regulations and the development and implementation of energy efficiency designs in residential buildings. The FFEM will provide 2.7 million euro for the project's phase II.

A consultation process with key stakeholders is ongoing. And this will result in a detailed programme of activities.

UNDP Country Office

The UNDP Resident Representative ensures that the UNDP country office has an internal control system that allows it to monitor effectively the financial activity of the project and to support and monitor the progress towards achieving results.

UNDP/GEF Regional Coordination Unit:

The Regional Coordinator and Task Manager for the China EUEEP project is based in the RCU/Kuala Lumpur and carries over site responsibilities for the project through the inception to implementation phases. The UNDP country office will be backstopped by the RCU for monitoring of the project's progress as per the emerging responsibilities of project implementation guidance of the GEF Council and its independent M&E unit.

Part IV- Monitoring and Evaluation

Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF. The Logical Framework Matrix in Annex 1 provides *performance* and *impact* indicators for project implementation along with their corresponding *means of verification*. These will form the basis on which the project's Monitoring and Evaluation system will be built.

Monitoring will be ongoing, involving data collection and assessment of the project's field implementation and will involve key project staff meeting annually to review operations and field implementation and assessing whether new priorities require a shift in project implementation. In addition to this the project will be subject to standard UNDP/GEF monitoring requirements.

The NPM will prepare and submit quarterly narrative reports to the NPD and UNDP. The project manager will be required to produce a combined Annual Project Report (APR)/ Project Implementation Review (PIR). The CTA will help the NPM for those tasks. The report is designed to obtain the independent views of the main stakeholders of a project on its relevance, performance and the likelihood of its success. The APR/PIR then supports an annual Tripartite Review (TPR) meeting of the parties directly involved in the implementation of a project.

The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception Report following a collective fine-

tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

MONITORING AND REPORTING

1.1 Project Inception Phase

A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate.

A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

Additionally, the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP-GEF expanded team which will support the project during its implementation, namely the CO and responsible Regional Coordinating Unit staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget revisions.

The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all, each party's responsibilities during the project's implementation phase.

1.2. Monitoring responsibilities and events

A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Tripartite Reviews, Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

Day to day monitoring of implementation progress will be the responsibility of the Project Coordinator, Director or CTA (depending on the established project structure) based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

The Project Coordinator and the Project GEF Technical Advisor will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the

Inception Workshop with support from UNDP-CO and assisted by the UNDP-GEF Regional Coordinating Unit. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Inception Workshop and tentatively outlined in the indicative Impact Measurement Template at the end of this Annex. The measurement, of these will be undertaken through subcontracts or retainers with relevant institutions (e.g. vegetation cover via analysis of satellite imagery, or populations of key species through inventories) or through specific studies that are to form part of the projects activities (e.g. measurement carbon benefits from improved efficiency of ovens or through surveys for capacity building efforts) or periodic sampling such as with sedimentation.

Periodic monitoring of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

UNDP Country Offices and UNDP-GEF RCUs as appropriate, will conduct yearly visits to projects that have field sites, or more often based on an agreed upon schedule to be detailed in the project's Inception Report / Annual Work Plan to assess first hand project progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the CO and circulated no less than one month after the visit to the project team, all SC members, and UNDP-GEF.

Annual Monitoring will occur through the *Tripartite Review (TPR)*. This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review (TPR) at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP-CO and the UNDP-GEF regional office at least two weeks prior to the TPR for review and comments.

The APR will be used as one of the basic documents for discussions in the TPR meeting. The project proponent will present the APR to the TPR, highlighting policy issues and recommendations for the decision of the TPR participants. The project proponent also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

Terminal Tripartite Review (TTR)

The terminal tripartite review is held in the last month of project operations. The project proponent is responsible for preparing the Terminal Report and submitting it to UNDP-CO and LAC-GEF's Regional Coordinating Unit. It shall be prepared in draft at least two months in advance of the TTR in order to allow review, and will serve as the basis for discussions in the TTR. The terminal tripartite review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and

contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under implementation of formulation.

The TPR has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the Inception Workshop, based on expected delivery rates, and qualitative assessments of achievements of outputs.

1.3. Project Monitoring Reporting

The Project Coordinator in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (f) are mandatory and strictly related to monitoring, while (g) through (h) have a broader function and the frequency and nature is project specific to be defined throughout implementation.

(a) Inception Report (IR)

A Project Inception Report will be prepared immediately following the Inception Workshop. The inception report is prepared by the NPD, assisted by the project team/PMO and in consultation with UNDP/GEF, no later than three months after project start-up. The report will include a detailed work plan, which contains more details for the first year than for the second and third years of the project, fine tuning of TORs for project professionals, TORs for sub-contractual services, progress to date on project establishment and start-up activities, amendments to project activities/approaches, if any. The report will be submitted to all NPCC members two weeks ahead of the inception meeting.

It will include a detailed First Year/ Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP-CO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.

The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation.

When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP Country Office and UNDP-GEF's Regional Coordinating Unit will review the document.

(b) Annual Project Report (APR)

The APR is a UNDP requirement and part of UNDP's Country Office central oversight, monitoring and project management. It is a self-assessment report by project management to the CO and provides input to the country office reporting process and the ROAR, as well as forming a key input to the Tripartite Project Review. An APR will be prepared on an annual basis prior to the Tripartite Project Review, to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

The format of the APR is flexible but should include the following:

- An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome
- The constraints experienced in the progress towards results and the reasons for these
- The three (at most) major constraints to achievement of results
- AWP, CAE and other expenditure reports (ERP generated)
- Lessons learned
- Clear recommendations for future orientation in addressing key problems in lack of progress

(c) Project Implementation Review (PIR)

The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed by the CO together with the project. The PIR can be prepared any time during the year (July-June) and ideally prior to the TPR. The PIR should then be discussed in the TPR so that the result would be a PIR that has been agreed upon by the project, the executing agency, UNDP CO and the concerned RC.

The individual PIRs are collected, reviewed and analysed by the RCs prior to sending them to the focal area clusters at the UNDP/GEF headquarters. The focal area clusters supported by the UNDP/GEF M&E Unit analyse the PIRs by focal area, theme and region for common issues/results and lessons. The TAs and PTAs play a key role in this consolidating analysis.

The focal area PIRs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.

The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR and PIR, UNDP/GEF has prepared a harmonized format for reference.

(d) Quarterly Progress Reports

Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF regional office by the project team. See format attached.

(e) Quarterly Operational Report

Each quarter, the NPM is required to prepare a 100-word summary of the project's substantive and technical progress towards achieving its objectives. The summaries are reviewed and cleared by UNDP-China before being sent to the UNDP/GEF Regional Coordinator.

(f) Budget Revisions

The Designated Institution (NDRC) and the UNDP-China Resident Representative sign revisions to the Project Budget. An annual revision is mandatory and must be completed by 10 June. This is to reflect the final expenditures for the preceding year and to enable the preparation of a realistic plan for the provision of inputs for the current year. Other budget revisions may be undertaken as necessary during the course of the project. It is expected that significant revisions will be cleared with the UNDP/GEF Regional Coordinator for consistency with the GEF principle of incremental cost and GEF eligibility criteria before being approved.

(g) Periodic Thematic Reports

As and when called for by UNDP, UNDP-GEF or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

(h) Project Terminal Report

During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

(f) Technical Reports (project specific - optional)

Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

(g) Project Publications (project specific)

Project Publications will form a key method of crystallizing and disseminating the results and achievements of the Project. These publications may be scientific or informational texts on the activities and achievements of the Project, in the form of journal articles, multimedia publications, etc. These publications can be based on Technical Reports, depending upon the relevance, scientific worth, etc. of these Reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Technical Reports merit formal publication, and will also (in consultation with UNDP, the government and other relevant stakeholder groups) plan and produce these Publications in a consistent and

recognizable format. Project resources will need to be defined and allocated for these activities as appropriate and in a manner commensurate with the project's budget.

(h) Substantive Project Revisions

Substantive revisions are defined as set out in the UNDP Programming Manual and allow for substantive changes in the project's objectives, immediate objectives, duration, scope of intervention, or project sites. Such revisions are undertaken in accordance with the UNDP Programming Manual and should be endorsed by the National Project Coordination Committee. In addition, if the substantive project revision includes changes to the agreed use of GEF funds, it must be cleared by the Executive Coordinator UNDP/GEF before being signed.

2. INDEPENDENT EVALUATION

The project will be subjected to at least two independent external evaluations as follows:

(i) *Mid-term Evaluation*

An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

(ii) *Final Evaluation*

An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

(iii) *Audit Clause*

The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

3. LEARNING AND KNOWLEDGE SHARING

Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition:

- ◆ The project will participate, as relevant and appropriate, in UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics. UNDP/GEF shall establish a number of networks, such as Integrated Ecosystem Management, eco-tourism, co-management, etc, that will largely function on the basis of an electronic platform.
- ◆ The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.

The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an ongoing process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.

TABLE H-1: INDICATIVE MONITORING AND EVALUATION WORK PLAN

| Type of M&E activity | Responsible Parties | Budget US\$ <i>Excluding project team Staff time</i> | Time frame |
|---|--|---|--|
| Inception Workshop | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ UNDP CO ▪ UNDP GEF | | Within first two months of project start up |
| Inception Report | <ul style="list-style-type: none"> ▪ Project Team ▪ UNDP CO | None | Immediately following IW |
| Measurement of Means of Verification for Project Purpose Indicators | <ul style="list-style-type: none"> ▪ Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members | To be finalized in Inception Phase and Workshop. Indicative cost (inception stage to finalize) | Start, mid and end of project |
| Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis) | <ul style="list-style-type: none"> ▪ Oversight by Project GEF Technical Advisor and Project Coordinator ▪ Measurements by regional field officers and local IAs | To be determined as part of the Annual Work Plan's preparation. Indicative cost (inception stage to finalize) | Annually prior to APR/PIR and to the definition of annual work plans |
| APR and PIR | <ul style="list-style-type: none"> ▪ Project Team ▪ UNDP-CO ▪ UNDP-GEF | None | Annually |
| TPR and TPR report | <ul style="list-style-type: none"> ▪ Government Counterparts ▪ UNDP CO ▪ Project team ▪ UNDP-GEF Regional Coordinating Unit | None | Every year, upon receipt of APR |
| Steering Committee Meetings | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ UNDP CO | None | Following Project IW and subsequently at |

| | | | |
|---|--|-------------------------------------|--|
| | | | least once a year |
| Periodic status reports | <ul style="list-style-type: none"> ▪ Project team | 5,000 | To be determined by Project team and UNDP CO |
| Technical reports | <ul style="list-style-type: none"> ▪ Project team ▪ Hired consultants as needed | 15,000 | To be determined by Project Team and UNDP-CO |
| Mid-term External Evaluation | <ul style="list-style-type: none"> ▪ Project team ▪ UNDP- CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team) | 20,000 | At the mid-point of project implementation. |
| Final External Evaluation | <ul style="list-style-type: none"> ▪ Project team, ▪ UNDP-CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team) | 30,000 | At the end of project implementation |
| Terminal Report | <ul style="list-style-type: none"> ▪ Project team ▪ UNDP-CO ▪ External Consultant | None | At least one month before the end of the project |
| Lessons learned | <ul style="list-style-type: none"> ▪ Project team ▪ UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc) | 15,000 (average 3,000 per year) | Yearly |
| Audit | <ul style="list-style-type: none"> ▪ UNDP-CO ▪ Project team | 4,000 (average \$1000 per year) | Yearly |
| Visits to field sites (UNDP staff travel costs to be charged to IA fees) | <ul style="list-style-type: none"> ▪ UNDP Country Office ▪ UNDP-GEF Regional Coordinating Unit (as appropriate) ▪ Government representatives | 15,000 (average one visit per year) | Yearly |
| TOTAL INDICATIVE COST <i>Excluding project team staff time and UNDP staff and travel expenses</i> | | TB finalized at the inception stage | |

IMPACT MEASUREMENT TEMPLATE

(These indicators will be drawn from the Logframe Matrix and are related to the measurement of global benefits achieved by the project rather than project implementation progress. They will to be fine tuned and detailed in the Inception Workshop). The table below is an example.

Climate Change Project Indicators - Examples

A. Energy Conservation & Energy Efficiency Project

| Objectives | Success Indicators |
|---|--|
| (iv) A. Project Goal | |
| The annual growth rate of GHG emissions from the small-to-medium scale industries (SMIs) is reduced through the removal of major barriers to adoption of more energy efficient technologies and energy management practices | The annual GHG emissions from SMI activities are reduced by 713,000 tons of CO ₂ starting Year 5. |
| (v) B. Project Purpose | |
| 2. Energy utilization efficiency in SMI sector is significantly improved | Energy savings of 180,000 TOE/year in the SMI sector by Year 5. |
| (vi) C. Project Outcomes | |
| Competitiveness of SMI sector is increased | Average energy cost per unit production in the SMI sector is reduced by 10-15% by Year 5. |
| Increased impact of existing policies as well as from the recently enacted EC&EE decree through strengthened capacity of relevant government Ministries, Departments and Agencies in effective policy and institutional design, guidance, implementation and enforcement of energy conservation measures. | Timely development and implementation of necessary regulations, circulars, support and control mechanisms and enforcement giving practical effect to existing policies; and greater use of environmental standards to reduce GHG emissions by year 3. |
| Enhanced SMI and public awareness of EC&EE through increased effectiveness and regular updating of an integrated information collection, dissemination and reporting system. | Establishment and operation of information system that gathers information from SMIs, development of information, dissemination of information through appropriate range of channels, and working with and through a range of information providers by end year 3. |

| Objectives | Success Indicators |
|--|--|
| Improved skills in EC&EE implementation through enhanced training, evaluation and R&D | Establishment and operation of integrated and sustainable SMI EC&EE training system for trainers, energy consultants, managers and technicians; and improved knowledge of, training in, and R&D support for, local EC&EE equipment manufacturing by year 3. |
| Fostering of a growing, competitive and sustainable energy services industry through enhanced business, engineering and financial skills. | Enhanced commercial energy services company (ESCO) industry effectively marketing services to SMIs leading to wider use of energy audits, increased uptake of energy audit recommendations, providing specialist services such as enhanced plant design, process integration, energy monitoring and plant commissioning, and establishment and implementation of planned preventive maintenance regimes by year 4. |
| Increased financial system willingness to lend to SMIs for EC&EE projects through enhanced knowledge of EC&EE and greater skills in preparing and evaluating loan applications | Mobilization of finance for SMI EC&EE investments through loan guarantee fund by year 2, and development of a sustainable EC&EE project financing system by year 5. |
| Increased credibility of EC&EE through successfully implemented and evaluated demonstration projects | Demonstration of EC&EE technologies in credible, monitored and evaluated projects completed by mid-Year 3, leading to 250 SMI EC&EE investment projects presented to banks for loans from mid year 3. |
| (vii) D. Project Activities | |
| i EC&EE Policies | |
| Improved EC&EE Awareness and Building Capacity on EC&EE Policy Development. | At least 2 policy papers prepared and 2 policy recommendations proposed by central and local government policy makers on EC&EE every year starting Year 2. |

| Objectives | Success Indicators |
|--|---|
| Incentive Policies for Supporting EC&EE Investment in SMIs | <p>Circular on Labeling formulated and approved by government by Year 3.</p> <p>Circular on Tax Incentives & Financial Incentives formulated and approved by Finance Ministry by end-Year 2.</p> <p>Approved regulation on SMI EC&EE technology transfer by Year 3.</p> <p>Recommendations on future enhancements of SMI EC&EE policies completed by Year 5.</p> <p>A national SMI development program, including a suitable EC&EE support program, which highlights promotion policies for the practice of EC&EE in SMIs and implementation of EC&EE projects by Year 4.</p> |
| Establishment and Operation of EC&EE Coordinating Agencies in the SMI Sector and Provincial Technical Support Networks | <p>VECP and ECC capacities and facilities improved by Year 1.</p> <p>At least 80% of the VECP/ECC trainees substantially contribute to implementation of project activities by Year 2.</p> <p>EC&EE Expert Association supports at least 100 projects annually starting Year 4.</p> |
| Support to State Agencies in Developing EC&EE Regulations | <p>Approved regulations on Energy Service Providers Accreditation by Year 3.</p> <p>At least three EC&EE service providers accredited by government each year starting Year 4.</p> <p>Regular energy consumption reporting by SMIs starting Year 2.</p> |
| Modification of Environment Standards Related to GHG Emissions | <p>3 new environmental standards influenced by project enforced by government by Year 5.</p> |
| ii. Enhanced Public Awareness of EC&EE | |
| Effective EC&EE Information Dissemination Network | <p>Substantial contribution by at least 80% of the trainees to the PECSMI info. dissemination activities by Year 2.</p> |

| Objectives | Success Indicators |
|---|---|
| | At least 80% of the study tour participants contribute their learning experiences to PECSMI info. dissemination activities by Year 2. |
| | At least 500 users of the information network each year starting Year 2. |
| SMI Energy-Use Database | SMI energy-use database developed by Year 2. Database is used by SMIs, suppliers and researchers in Year 3 |
| <p>(viii) CAPACITY IMPROVEMENT IN EC&EE IMPLEMENTATION Continuing program on EC&EE for SMIs</p> | <p>45 EC&EE trainers certified by MOST by mid-Year 2. 75% of the trained trainers are providing EC&EE training under the project by mid-Year 2.</p> <p>300 SMI managers from selected provinces trained on benefits of EC&EE by Year 2.</p> <p>250 trained SMIs are implementing EC&EE techniques and practices during Years 3 & 5. About 50% of SMIs that participated in the training courses are either implementing or planning to implement EC&EE projects during Years 3 & 5.</p> |
| Conduct of Energy Audits in Selected SMIs | 60 energy consultants trained in energy auditing and undertake audits at selected sites by mid-Year 2. At least 25% of trained consultants carrying out energy audits by Year 3. |
| <p>Technical Capacity Building for Local Equipment Manufacturers/Fabricators Sustainable EC&EE Research and Development Program</p> | <p>At least 3 manufacturers are either implementing or planning to invest in production of high-energy efficient equipment. An R & D program supported by local equipment manufacturers/fabricators and MoST completed by mid-Year 4.</p> |

| Objectives | Success Indicators |
|--|---|
| i. ESCO Industry Development | |
| Development and Support of ESCO Industry | <p>At least 10 trained ESCOs start preparing business plans by Year 3.</p> <p>At least 75% of trained ESCOs financing and implementing EC&EE projects by Year 3.</p> <p>At least 3 new ESCO businesses are legally established during Years 4 and 5.</p> <p>At least 3 consulting firms incorporate energy services into their business operations each year starting Year 4.</p> <p>A suitable institutional and legal framework for ESCOs prepared by consultants in Year 2</p> |
| Technical assistance to ESCOs | <p>At least 75% of trained ESCOs are capable of producing bankable project proposals, business plans and in securing financing for SMI clients by Year 3.</p> <p>Development of ESCO energy engineering design tools and model marketing strategies by Year 3.</p> <p>A total of 50 ESCO contracts for providing energy services marketed and implemented with SMIs during Year 3 and 5.</p> |
| ii. Financing EC&EE Projects of SMIs | |
| Increased Banking and Finance Sector's Awareness of Benefits of EC&EE Projects | <p>At least 9 banks/FIs are providing loans for EC&EE projects to SMIs by Year 3.</p> <p>Established and operational technical service network is helping banks and financial institutions in evaluating EC&EE projects by mid-Year 3</p> |
| Facilitating SMIs to Access Financing for EC&EE Projects | <p>At least 50 loan agreements per year are discussed in round table meetings with banks and SMIs starting Year 2.</p> |

| Objectives | Success Indicators |
|--|---|
| Establishment of SMI EC&EE Financing Mechanism | The existing guarantee fund in the Bank of Commerce and Industry is expanded and operated to support EC&EE investments by Year 2. |
| | EC&EE projects are considered as specific priority target group for existing environment funds by Year 3. At least 20 EC&EE projects funded by these funds annually starting mid-Year 3. |

Mid-Term and Final Independent Evaluations

Both evaluations will be undertaken in accordance with UNDP procedures, also taking into account specific GEF requirements. Terms of Reference will be developed by UNDP-China with input from UNDP/GEF and NDRC. An independent evaluation team will be commissioned by UNDP to conduct the evaluations.

Mid-term Evaluation (MTE) will be undertaken at the middle of the second year of the project to review progress and effectiveness of implementation. Findings of this review will be incorporated as recommendations and will be instrumental for bringing improvement in the overall project design for the remaining period of the project's term and Phase Two project design. UNDP/GEF will arrange the MTE in consultation with project management.

In accordance with UNDP/GEF M&E procedures, during the last 6 months of project implementation, an independent final evaluation will be conducted to assess project achievement of objectives and impacts and document lessons learned.

UNDP/GEF's contribution to these evaluations will include:

- Review and provide comments on draft TOR
- Agree on timing and scope of evaluation mission
- Agree to final TOR
- Organize GEFSEC arrangements and requirements, if the evaluation has been identified for a GEFSEC Managed Project Review.
- Provide nominations for international consultants
- Review short-list candidates for both international and national consultants
- Agree with UNDP-China on final candidates
- Participate in evaluation mission if necessary
- Provide input to the evaluation mission and respond to evaluation consultant's questions
- Review and provide comments on draft evaluation report
- Support UNDP-China, the PMO and NDRC in addressing recommendations and applying lessons.

GEF Secretariat Managed Project Review (SMPR)

This is part of a special GEF-led program of reviewing projects to assess progress towards the delivery of expected global environment benefits. These reviews may be desk-based or field-based. They are undertaken by a team of representatives from the GEF Secretariat, GEF Agencies (UNEP, World Bank and GEF Executing Agencies such as ADB) and an observer from UNDP/GEF. SMPRs are normally designed to coincide with a project's mid-term evaluations.

EUEEP Evaluation and Reporting Schedule

| ACTIVITY/REPORT | YEAR 0 | | | | YEAR 1 | | | | YEAR 2 | | | | YEAR 3 | | | |
|-----------------------------|--------|---|---|---|--------|---|---|---|--------|---|---|---|--------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| M&E Plan | | | * | | * | | | | | | | | | | | |
| Inception Report | | | | | * | | | | | | | | | | | |
| Work Plan | | | | | * | | | * | | | | | * | | | |
| Quarterly Financial Reports | | | | | * | * | * | * | * | * | * | * | * | * | * | * |

| | | | |
|-------------------------|---|---|---|
| Audit | * | * | * |
| Field Visit | * | * | * |
| Harmonized APR and PIR | * | * | * |
| Tripartite review (TPR) | * | * | * |
| Mid-Term Evaluation | | * | |
| Final Evaluation | | | * |
| Terminal Report | | | * |

PART V - Legal Context

This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of China and the United Nations Development Programme, signed by the parties on 29 June 1979. The implementing agency of the host country shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

UNDP acts in this Project as Implementing Agency of the Global Environment Facility (GEF), and all rights and privileges pertaining to UNDP as per the terms of the SBAA shall be extended *mutatis mutandis* to GEF.

The UNDP Resident Representative in China is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

- a) Revision of, or addition to, any of the annexes to the Project Document;
- b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
- c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
- d) Inclusion of additional annexes and attachments only as set out here in this Project Document.

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|--|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| OUTPUT A1: VOLUNTARY AGREEMENT IMPLEMENTATION IN THREE INDUSTRIES | | | | | | | | | | | | |
| Targeted Output 1: Select 12 nominated enterprises from iron and steel, chemical, cement. | | | | | | | | | | | | |
| 1.1 Produce propaganda materials/pamphlet associated with VA | X | | | | | | | | | | | |
| 1.2 Convene and organize workshops of promoting VA concept and international successful VA experience | X | X | | | | | | | | | | |
| 1.3 Discuss and stipulate the standards of selecting nominated enterprises | X | | | | | | | | | | | |
| 1.4 Select 12 nominated ones from all the enterprises of the three industries | | X | | | | | | | | | | |
| 1.5 Investigate on site at least six enterprises (two for each industry) | X | X | | | | | | | | | | |
| Targeted Output 2: Select at least 6 fresh enterprises as pilot enterprises for three industries (two for each industry) to implement VA. In addition, give continued support for VA implementation in two iron and steel plants, Jigang and Laigang, which signed VA contracts 2002. | | | | | | | | | | | | |
| 2.1 Stipulate the standards of selecting pilot enterprises to participate in VA on the basis of the investigation information and reports (respective one for chemical, cement industry). | | | X | | | | | | | | | |
| 2.2 In light of the stipulated standards, select at least six enterprises as the fresh pilot ones for three industries. | | | X | | | | | | | | | |
| 2.3 Assess further the selected pilot enterprises and negotiate with the local governments. | | | | X | | | | | | | | |
| Targeted Output 3: Design special VA implementing plans suitable for China's iron and steel, chemical, cement industry based on enterprises' actual conditions. | | | | | | | | | | | | |
| 3.1 Conduct investigations and trainings in Europe. | | | | X | | | | | | | | |
| 3.2 Activities of enterprise' self-assessment on energy consumption. | | | | X | X | | | | | | | |
| 3.3 Convene expert meetings. | | | X | X | X | X | | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| Targeted Output 4: Sign VA contracts with the pilot enterprises. | | | | | | | | | | | | |
| 4.1 Hold formal VA signing ceremonies for six pilot enterprises from the iron and steel, chemical, cement industry respectively. | | | | | | X | | | | | | |
| 4.2 Convene two expert review meetings at the middle and end of the projects. | | | | | | | X | | | | | X |
| 4.3 Convene a VA summary and promotion meeting attended by all kinds of parties associated with VA. | | | | | | | | | | | | X |
| Targeted Output 5: Develop project Monitoring and Evaluating (M&E) plan | | | | | | | | | | | | |
| 5.1 Design M&E Plan of Project according to the concrete content and characteristics of VA pilot projects, and submit to PMO. | X | | | | | | | | | | | |
| 5.2 Domestic and international experts monitor projects at intervals of half a year and figure out the produced the amounts of energy savings and emission. | | | X | | X | | X | | X | | X | |
| 5.3 M&E Plan of Project may be adjusted and altered, if necessary, during the project implementation | | | | | X | | | | X | | | |
| OUTPUT A2: Research, develop and promote energy efficiency design codes for the cement and petrochemical industries | | | | | | | | | | | | |
| Targeted Output 1: An energy efficiency design code for the cement industry developed and promoted | | | | | | | | | | | | |
| 1.1 Investigate the current situation of domestic cement industry | X | X | | | | | | | | | | |
| 1.2 Analyze the best energy conservation practices of international cement industry | X | X | | | | | | | | | | |
| 1.3 Develop a draft energy efficiency design code for the cement industry | X | X | X | X | | | | | | | | |
| 1.4 Perfect the draft energy efficiency design code | | | | X | | | | | | | | |
| 1.5 Hold a news conference to announce the design code developed | | | | X | | | | | | | | |
| 1.6 Work out a plan for implementation of the design code developed | | | | | X | | | | | | | |
| 1.7 Conduct a training class on the design code developed | | | | | X | | | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|--|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 1.8 M&V plan development, implementation and report | X | X | | X | | X | | X | | | | |
| Targeted Output 2: An energy efficiency design code for the petrochemical industry developed and promoted | | | | | | | | | | | | |
| 2.1 Investigate the current situation of domestic petrochemical industry | | | | | X | X | | | | | | |
| 2.2 Analyze the best energy conservation practices of international petrochemical industry | | | | | X | X | | | | | | |
| 2.3 Develop a draft energy efficiency design code for the petrochemical industry | | | | | X | X | X | X | | | | |
| 2.4 Perfect the draft energy efficiency design code | | | | | | | | X | | | | |
| 2.5 Hold a news conference to announce the design code developed | | | | | | | | X | | | | |
| 2.6 Work out a plan for implementation of the design code developed | | | | | | | | | X | | | |
| 2.7 Conduct a training class on the design code developed | | | | | | | | | X | | | |
| 2.8 M&V plan development, implementation and report | | | | | X | X | | X | | X | | X |
| OUTPUT A3.1: Improve the capacity of system designers and energy management experts to enable them to optimise systems employing motors and to promote these services to industrial decision-makers. A labelling program will be established and promoted and training and other capacity-building activities will be undertaken for energy-efficient motor systems service organisations | | | | | | | | | | | | |
| Targeted Output 1: Establish optimization design criteria for both existing and new motor systems | | | | | | | | | | | | |
| 1.1 Review existing design criteria for motor systems | X | | | | | | | | | | | |
| 1.2 Develop an outline for optimization design criteria for motor systems | X | X | | | | | | | | | | |
| 1.3 Prepare a draft of optimization design criteria for both existing and new motor systems | | X | X | | | | | | | | | |
| 1.4 finalize the optimization design criteria | | | | X | | | | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 1.5 Conduct a news conference to announce the optimization design criteria | | | | X | | | | | | | | |
| 1.6 Prepare training material on the optimization design criteria | | | | X | | | | | | | | |
| 1.7 Develop an implementation plan for the optimization design criteria | | | | X | | | | | | | | |
| 1.8 M&V plan development, implementation and report | | X | | X | | | | | | | | |
| Targeted Output 2: Training program, technical assistance, and demonstration projects on use of the optimization design criteria for motor systems | | | | | | | | | | | | |
| 2.1 Develop a plan for assisting 4 engineering design institutes to use the optimization design criteria for motors systems | | | | | X | | | | | | | |
| 2.2 Select at least four engineering design institutes to participate in demonstrative use of the optimization design criteria | | | | | X | | | | | | | |
| 2.3 Conduct training in use of the optimization design criteria for senior staff at the 4 design institutes | | | | | | X | | | | | | |
| 2.4 Co-ordinate experts to visit each of the 4 design institutes to provide additional technical assistance | | | | | | | X | | | X | | |
| 2.5 Co-ordinate each trainee to complete at least two motor system designs using the optimization design criteria | | | | | | | X | X | X | X | | |
| 2.6 co-ordinate each of the 4 design institutes to prepare two case studies | | | | | | | | | | X | | |
| 2.7 Conduct a workshop to announce the release of the case studies | | | | | | | | | | | | X |
| 2.8 M&V plan development, implementation and report | | | | | X | X | | X | | X | | X |
| Targeted Output 3: Develop energy efficiency labeling scheme for a key motor system component (variable speed drives) | | | | | | | | | | | | |
| 3.1 Review available Chinese and international standards and labeling schemes for variable speed drives | | | | | X | | | | | | | |
| 3.2 Develop an outline for proposed labeling scheme | | | | | | X | | | | | | |
| 3.3 Develop a full draft of the proposed labeling scheme | | | | | | X | X | | | | | |
| 3.4 Finalize the labeling scheme | | | | | | | | X | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|--|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 3.5 Conduct a news conference to announce the labeling scheme | | | | | | | | X | | | | |
| 3.6 M&V plan development, implementation and report | | | | | X | X | | X | | | | |
| Targeted Output 4: Improve the capacity of motor systems energy conservation service organizations | | | | | | | | | | | | |
| 4.1 Develop selection criteria and select four motor systems energy conservation service organizations for support | X | X | | | | | | | | | | |
| 4.2 Develop criteria to select experts to be trained | | X | X | | | | | | | | | |
| 4.3 Purchase measurement equipment for these four organizations | | | X | X | | | | | | | | |
| 4.4 Conduct set of five training programs for the four service organizations | | X | X | X | | X | | X | | | | |
| 4.5 Co-ordinate experts to visit the four organizations to provide technical assistance | | | | X | X | | | X | | X | | |
| 4.6 Develop a brochure for enterprises explaining motor system optimization and how to obtain optimization services | | | | | X | X | | | | | | |
| 4.7 Support the four organizations to offer a series of 1-day workshops for enterprises | | | | | X | X | X | X | | | | |
| 4.8 Support the four organizations to conduct plant assessment | | | | | X | X | X | X | X | X | X | X |
| 4.9 Support the four organizations to provide technical assistance to enterprises to implement optimization projects | | | | | X | X | X | X | X | X | X | X |
| 4.10 Support the four organizations to prepare case studies on model optimization projects | | | | | | | | | X | X | | |
| 4.11 M&V plan development, implementation and report | X | X | | X | | X | | X | | X | | X |
| Targeted Output 5: Education and training of enterprises on motor systems energy conservation | | | | | | | | | | | | |
| 5.1 Develops training courses and materials for enterprises | | | | | | | X | X | | | | |
| 5.2 Develop selection criteria and choose 5 cities | | | | | | | X | X | | | | |
| 5.3 Conduct training seminars in each of the 5 cities | | | | | | | | X | X | X | X | X |
| 5.4 M&V plan development, implementation and report | | | | | | | X | X | | X | | X |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| OUTPUT A3.2: Energy Efficiency Standards, Labeling and Promotion for Major Energy -Consuming Equipment for Industry | | | | | | | | | | | | |
| Targeted Output 1: Development of technology forcing energy efficiency standard for electric transformers | | | | | | | | | | | | |
| 1.1 Collect and analyze international technology forcing energy efficiency standards, international performance standard, domestic and international test method standards | X | X | | | | | | | | | | |
| 1.2 Evaluate relevant international practices and successful experience for the development of these industrial equipment and make comparison of the level between domestic and international standards | | X | | | | | | | | | | |
| 1.3 Conduct survey on the energy efficiency index of relevant equipment, purchase sample equipment and conduct energy efficiency test; collect and analyze relevant data and understand the present energy efficiency level | | X | X | | | | | | | | | |
| 1.4. Conduct statistical study and engineering/economic analysis, establish analytical and predictive model, research and determine the minimum energy efficiency index and technology forcing standard (target limited value of energy efficiency) | | | X | X | | | | | | | | |
| 1.5 Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary); and make predictions on the energy conservation impact, environmental impact, and economic benefit | | | X | X | | | | | | | | |
| 1.6 Hold project group meeting, discuss and determine standard document for discussion | | | X | | | | | | | | | |
| 1.7 Hold workshop, discuss the standard document for comment | | | | X | | | | | | | | |
| 1.8 Hold workshop, discuss the standard document for examination | | | | | X | | | | | | | |
| 1.9 Prepare the standard document for approval and finish the technical supporting report | | | | | | X | | | | | | |
| 1.10 Submit to the SAC and the AQSIQ for approval and promulgation | | | | | | X | | | | | | |
| Targeted Output 2: Development of energy efficiency standard for Cooling water unit (heat pump) for central air conditioners . | | | | | | | | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 2.1 Collect and analyze international energy efficiency standards, international performance standard, domestic and international test method standards | X | X | | | | | | | | | | |
| 2.2 evaluate relevant international practices and successful experience for the development of these industrial equipment and make comparison of the level between domestic and international standards | X | X | | | | | | | | | | |
| 2.3 Conduct survey on the energy efficiency index of relevant equipment, purchase sample equipment and conduct energy efficiency test; collect and analyze relevant data and understand the present energy efficiency level of these products | | X | X | | | | | | | | | |
| 2.4. Conduct statistical study and engineering/economic analysis, establish analytical and predictive model, research and determine the minimum energy efficiency index for these equipment | | | X | X | | | | | | | | |
| 2.5 Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary); and make predictions on the energy conservation impact, environmental impact, and economic benefit | | | X | | | | | | | | | |
| 2.6 Hold project group meeting, discuss and determine standard document for discussion | | | X | | | | | | | | | |
| 2.7 Hold workshop, discuss the standard document for comment | | | | X | | | | | | | | |
| 2.8 Hold workshop, discuss the standard document for examination | | | | X | | | | | | | | |
| 2.9 Prepare the standard document for approval and finish the technical supporting report | | | | | X | X | | | | | | |
| 2.10 Submit to the SAC and the AQSIQ for approval and promulgation | | | | | | X | | | | | | |
| Targeted Output 3: Organize an international workshop in China or a suitable location abroad, and to work with some international experts on defining the methodology and approach to be used to develop standards, and to understand how energy efficiency standards of industrial energy using equipment are successfully developed, designed and implemented in other countries, understand the supporting policies and regulations for energy efficiency standards of other countries, and coordination and promotion role of industrial associations. | | | | | | | | | | | | |
| 3.1 Organize an international workshop | | | X | | | | | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| Targeted Output 4: Propaganda and training of the above two standards | | | | | | | | | | | | |
| 4.1 Preparation of the propaganda and training material of the above two standards | | | | | | X | X | | | | | |
| 4.2 publish textbooks of propaganda and training of the above two standards | | | | | | | | X | | | | |
| Targeted Output 5: News conferences | | | | | | | | | | | | |
| 5.1 Hold two news conferences after the formal promulgation of the above two standards | | | | | | | | | X | | | X |
| Targeted Output 6: Development of energy efficiency standard for electric fans | | | | | | | | | | | | |
| 6.1 Collect and analyze international energy efficiency standards, international performance standard, domestic and international test method standards | | | | X | X | | | | | | | |
| 6.2 evaluate relevant international practices and successful experience for the development of these industrial equipment and make comparison of the level between domestic and international standards | | | | X | X | | | | | | | |
| 6.3 Conduct survey on the energy efficiency index of relevant equipment, purchase sample equipment and conduct energy efficiency test; collect and analyze relevant data and understand the present energy efficiency level of these products | | | | | X | X | | | | | | |
| 6.4. Conduct statistical study and engineering/economic analysis, establish analytical and predictive model, research and determine the minimum energy efficiency index for these equipment | | | | | | X | X | | | | | |
| 6.5 Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary); and make predictions on the energy conservation impact, environmental impact, and economic benefit | | | | | | X | X | | | | | |
| 6.6 Hold project group meeting, discuss and determine standard document for discussion | | | | | | X | | | | | | |
| 6.7 Hold workshop, discuss and prepare the standard document for comment | | | | | | | X | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 6.8 Hold workshop, discuss prepare the standard document for examination | | | | | | | | X | | | | |
| 6.9 Prepare the standard document for approval and finish the technical supporting report | | | | | | | | X | | | | |
| 6.10 Submit to the SAC and the AOSIQ for approval and promulgation | | | | | | | | | X | | | |
| Targeted Output 7: Propaganda and training of the electric fan standard | | | | | | | | | | | | |
| 7.1 Preparation of the propaganda and training material of the electric fan standard | | | | | | | | | X | | | |
| 7.2 publish the textbook of propaganda and training of the electric fan standard | | | | | | | | | | X | | |
| Targeted Output 8: Development of energy efficiency standard for industrial boilers | | | | | | | | | | | | |
| 8.1 Collect and analyze international energy efficiency standards, international performance standard, domestic and international test method standards | | | | | | X | X | | | | | |
| 8.2 evaluate relevant international practices and successful experience for the development of these industrial equipment and make comparison of the level between domestic and international standards | | | | | | X | X | | | | | |
| 8.3 Conduct survey on the energy efficiency index of relevant equipment, purchase sample equipment and conduct energy efficiency test; collect and analyze relevant data and understand the present energy efficiency level of these products | | | | | | X | X | | | | | |
| 8.4. Conduct statistical study and engineering/economic analysis, establish analytical and predictive model, research and determine the minimum energy efficiency index for these equipment | | | | | | | X | X | | | | |
| 8.5 Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary) and make predictions on the energy conservation impact, environmental impact, and economic benefit | | | | | | | | X | X | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 8.6 Hold project group meeting, discuss and determine standard document for discussion | | | | | | | | X | | | | |
| 8.7 Hold workshop, discuss and prepare the standard document for comment | | | | | | | | | X | | | |
| 8.8 Hold workshop, discuss prepare the standard document for examination | | | | | | | | | | X | | |
| 8.9 Prepare the standard document for approval and finish the technical supporting report | | | | | | | | | | X | X | |
| 8.10 Submit to the SAC and the AQSIQ for approval and promulgation | | | | | | | | | | | | X |
| Targeted Output 9: Propaganda and training of the industrial boiler standard | | | | | | | | | | | | |
| 9.1 Preparation of the propaganda and training material of the industrial boiler standard | | | | | | | | | | | X | |
| 9.2 Publish textbook of propaganda and training of the industrial boiler standard | | | | | | | | | | | | X |
| Targeted Output 10: Monitoring of the energy conservation, environmental and economic effects of the above standards | | | | | | | | | | | | |
| 10.1 Monitor the energy conservation, environmental and economic effects of the above standards | | | | | | | | | | | | X |
| Targeted Output 11: Energy efficiency labels in industry sectors | | | | | | | | | | | | |
| 11.1 Determine the product priority of energy efficiency labeling | | | | | | | | | | | | |
| 11.1.1. Comprehensive research and analysis | X | | | | | | | | | | | |
| 11.1.2 Develop product environmental and economical analysis model | | X | | | | | | | | | | |
| 11.1.3 Determine the product priority applicable to labeling activities during this project phase | | X | | | | | | | | | | |
| 11.2 Develop and launch the certification schemes and extend the products scope | | | | | | | | | | | | |
| 11.2.1 Establish and perfect the certification procedures | | | X | X | X | X | X | X | X | X | X | X |
| 11.2.2. Develop the technical documents and implementation regulation for labeling activities | | | X | X | X | X | X | X | X | X | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 11.2.3 Choose and manage the testing laboratories | | | | X | X | X | X | X | X | X | X | X |
| 11.2.4 Launch the certification | | | | X | X | X | X | X | X | X | X | X |
| 11.3 Guide the manufactories to right use the label | | | | | | | | | | | | |
| 11.3.1 Developing the regulation for the label use | | | X | X | | | | | | | | |
| 11.3.2 Manufactory training | | | | X | X | X | X | X | X | X | X | X |
| 11.4 Develop guideline on government efficiency procurement | | | | | | X | X | X | X | X | X | |
| 11.5 Develop and implement project Monitoring and Evaluating (M&E) plan | | | | | | X | | | | | | X |
| OUTPUT A3.3: Energy Efficiency Standards, Labeling and Promotion for Equipment in Residential and Service Sector | | | | | | | | | | | | |
| Targeted Output 1: Priority study of the development of energy efficiency standards | | | | | | | | | | | | |
| 1.1 Choose at least 5 widely used appliances and office equipment such as Commercial air conditioners, gas water heaters, TV set top boxes, duplicating machines, fax machines, fixtures, traffic lights, etc, collect relevant research materials and successful experience domestically and internationally | X | | | | | | | | | | | |
| 1.2 Broadly collect materials and data domestically and internationally on energy efficiency, life, operating time, development cost, technical options, and market demand etc. Process these data and conduct comparative study | X | X | | | | | | | | | | |
| 1.3 Establish mathematical analysis model, analyze the energy conservation impact, economic impact, and environmental impact in 10/20 years after the implementation of these standards | | X | X | | | | | | | | | |
| 1.4 Hold 3 workshops for different kinds of equipment, collecting comments from various stakeholders, discuss and determine the analytical plan and results | | | X | X | | | | | | | | |
| 1.5 According the analytical results, evaluate and list the priority order for the research and development of the energy efficiency standards, and bring forward suggestions to the government | | | | | X | | | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| Targeted Output 2: Develop and establish dynamic energy efficiency standard database | | | | | | | | | | | | |
| 2.1 Develop and establish dynamic energy efficiency standard database | | | | X | | | | | | | | |
| Targeted Output 3: Organize the first international study tour | | | | | | | | | | | | |
| 3.1 Organize the first international study tour | | | | | X | | | | | | | |
| Targeted Output 4: Revise the energy efficiency standard for room air conditioners | | | | | | | | | | | | |
| 4.1 Collect and analyze international energy efficiency standards, international performance standard, domestic and international test method standards | X | | | | | | | | | | | |
| 4.2 evaluate relevant international practices and successful experience for the development of these industrial equipment and make comparison of the level between domestic and international standards | X | | | | | | | | | | | |
| 4.3 Conduct survey on the energy efficiency index of relevant equipment, purchase sample equipment and conduct energy efficiency test; collect and analyze relevant data and understand the present energy efficiency level of these products | | X | X | | | | | | | | | |
| 4.4. Conduct statistical study and engineering/economic analysis, establish analytical and predictive model, research and determine the minimum energy efficiency index for these equipment | | X | X | | | | | | | | | |
| 4.5 Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary); and make predictions on the energy conservation impact, environmental impact, and economic benefit | | | X | | | | | | | | | |
| 4.6 Hold project group meeting, discuss and determine standard document for discussion | | | X | | | | | | | | | |
| 4.7 Hold workshop, discuss the standard document for comment | | | X | | | | | | | | | |
| 4.8 Hold workshop, discuss the standard document for examination | | | | X | | | | | | | | |
| 4.9 Prepare the standard document for approval and finish the technical supporting report | | | | X | | | | | | | | |
| 4.10 Submit to the SAC and the AQSIQ for approval and promulgation | | | | | X | | | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| Targeted Output 5: Propaganda and training of the room air conditioner standard | | | | | | | | | | | | |
| 5.1 Preparation of the propaganda and training material | | | | | X | | | | | | | |
| 5.2 Publish textbook of propaganda and training for room air conditioner standard | | | | | | X | | | | | | |
| Targeted Output 6: Development of energy efficiency standard for commercial air conditioners | | | | | | | | | | | | |
| 6.1 Collect and analyze international energy efficiency standards, international performance standard, domestic and international test method standards | | X | | | | | | | | | | |
| 6.2 evaluate relevant international practices and successful experience for the development of these industrial equipment and make comparison of the level between domestic and international standards | | X | X | | | | | | | | | |
| 6.3 Conduct survey on the energy efficiency index of relevant equipment, purchase sample equipment and conduct energy efficiency test; collect and analyze relevant data and understand the present energy efficiency level of these products | | | X | X | | | | | | | | |
| 6.4. Conduct statistical study and engineering/economic analysis, establish analytical and predictive model, research and determine the minimum energy efficiency index for these equipment | | | X | X | | | | | | | | |
| 6.5 Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary); and make predictions on the energy conservation impact, environmental impact, and economic benefit | | | | X | X | | | | | | | |
| 6.6 Hold project group meeting, discuss and determine standard document for discussion | | | | | X | | | | | | | |
| 6.7 Hold workshop, discuss and prepare the standard document for comment | | | | | | X | | | | | | |
| 6.8 Hold workshop, discuss prepare the standard document for examination | | | | | | | X | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 6.9 Prepare the standard document for approval and finish the technical supporting report | | | | | | | X | | | | | |
| 6.10 Submit to the SAC and the AQSIQ for approval and promulgation | | | | | | | | X | | | | |
| Targeted Output 7: News conferences | | | | | | | | | | | | |
| 7.1 Hold two news conferences after the formal promulgation of the standards | | | | | | | | | X | | | X |
| Targeted Output 8: Development of energy efficiency standard for microwave ovens | | | | | | | | | | | | |
| 8.1 Collect and analyze international energy efficiency standards, international performance standard, domestic and international test method standards | | | X | X | | | | | | | | |
| 8.2 evaluate relevant international practices and successful experience for the development of these industrial equipment and make comparison of the level between domestic and international standards | | | X | X | | | | | | | | |
| 8.3 Conduct survey on the energy efficiency index of relevant equipment, purchase sample equipment and conduct energy efficiency test; collect and analyze relevant data and understand the present energy efficiency level of these products | | | | X | X | | | | | | | |
| 8.4. Conduct statistical study and engineering/economic analysis, establish analytical and predictive model, research and determine the minimum energy efficiency index for these equipment | | | | | X | | | | | | | |
| 8.5 Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary); and make predictions on the energy conservation impact, environmental impact, and economic benefit | | | | | X | X | | | | | | |
| 8.6 Hold project group meeting, discuss and determine standard document for discussion | | | | | | X | | | | | | |
| 8.7 Hold workshop, discuss and prepare the standard document for comment | | | | | | | X | | | | | |
| 8.8 Hold workshop, discuss prepare the standard document for examination | | | | | | | | X | | | | |
| 8.9 Prepare the standard document for approval and finish the technical supporting report | | | | | | | | X | X | | | |
| 8.10 Submit to the SAC and the AQSIQ for approval and promulgation | | | | | | | | | | X | | |
| Targeted Output 9: Organize the second international study tour | | | | | | | | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|--|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 9.1 Organize the second international study tour | | | | | | | | | X | | | |
| Targeted Output 10: Propaganda and training of the commercial refrigerator and microwave oven standard | | | | | | | | | | | | |
| 10.1 Preparation of the propaganda and training material | | | | | | | | | X | X | | |
| 10.2 Publish textbook of propaganda and training for above two standards | | | | | | | | | | | X | |
| Targeted Output 11: Development of energy efficiency standard for electric water heaters | | | | | | | | | | | | |
| 11.1 Collect and analyze international energy efficiency standards, international performance standard, domestic and international test method standards | | | X | X | | | | | | | | |
| 11.2 evaluate relevant international practices and successful experience for the development of these industrial equipment and make comparison of the level between domestic and international standards | | | X | X | | | | | | | | |
| 11.3 Conduct survey on the energy efficiency index of relevant equipment, purchase sample equipment and conduct energy efficiency test; collect and analyze relevant data and understand the present energy efficiency level of these products | | | | X | X | | | | | | | |
| 11.4 Conduct statistical study and engineering/economic analysis, establish analytical and predictive model, research and determine the minimum energy efficiency index for these equipment | | | | | X | | | | | | | |
| 11.5 Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary); and make predictions on the energy conservation impact, environmental impact, and economic benefit | | | | | X | X | | | | | | |
| 11.6 Hold project group meeting, discuss and determine standard document for discussion | | | | | | X | | | | | | |
| 11.7 Hold workshop, discuss and prepare the standard document for comment | | | | | | | X | | | | | |
| 11.8 Hold workshop, discuss prepare the standard document for examination | | | | | | | | X | | | | |
| 11.9 Prepare the standard document for approval and finish the technical supporting report | | | | | | | | X | X | | | |
| 11.10 Submit to the SAC and the AQSIQ for approval and promulgation | | | | | | | | | | X | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|--|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| Targeted Output 12: Development of energy efficiency standard for duplicating machines | | | | | | | | | | | | |
| 12.1 Collect and analyze international energy efficiency standards, international performance standard, domestic and international test method standards | | | | X | X | | | | | | | |
| 12.2 evaluate relevant international practices and successful experience for the development of these industrial equipment and make comparison of the level between domestic and international standards | | | | X | X | | | | | | | |
| 12.3 Conduct survey on the energy efficiency index of relevant equipment, purchase sample equipment and conduct energy efficiency test; collect and analyze relevant data and understand the present energy efficiency level of these products | | | | | X | X | | | | | | |
| 12.4 Conduct statistical study and engineering/economic analysis, establish analytical and predictive model, research and determine the minimum energy efficiency index for these equipment | | | | | | X | X | | | | | |
| 12.5 Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary); and make predictions on the energy conservation impact, environmental impact, and economic benefit | | | | | | | X | X | | | | |
| 12.6 Hold project group meeting, discuss and determine standard document for discussion | | | | | | | | X | | | | |
| 12.7 Hold workshop, discuss and prepare the standard document for comment | | | | | | | | | X | | | |
| 12.8 Hold workshop, discuss prepare the standard document for examination | | | | | | | | | X | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 12.9 Prepare the standard document for approval and finish the technical supporting report | | | | | | | | | | X | | |
| 12.10 Submit to the SAC and the AQSIQ for approval and promulgation | | | | | | | | | | | X | |
| Targeted Output 13: Propaganda and training of the standard for electric water heaters and duplicating machines | | | | | | | | | | | | |
| 13.1 Preparation of the propaganda and training material | | | | | | | | | | X | X | |
| 13.2 Publish textbook of propaganda and training for above two standards | | | | | | | | | | | | X |
| Targeted Output 14: Monitoring of the energy conservation, environmental and economic effects of the above standards | | | | | | | | | | | | |
| 14.1 Monitor the energy conservation, environmental and economic effects of the above standards | | | | | | | | | | | | X |
| Targeted Output 15: Energy efficiency labels in residential and service sectors | | | | | | | | | | | | |
| 15.1 Organize an international training and conduct product priority study for labeling activities | X | X | | | | | | | | | | |
| 15.2 Study and evaluate the current energy efficiency labeling program in China and find out the barriers and lessons learned in the implementation | | X | | | | | | | | | | |
| 15.3 Develop and perfect labeling procedure and implementation documents for the selected products | | | X | X | X | X | X | X | X | X | X | X |
| 15.4 Identify the testing laboratories for the selected products, and harmonize their testing methods and testing procedures as well as the testing person training | | | X | X | | | X | X | | | | |
| 15.5 Launch the labeling program immediately after the above-mentioned prepare work has been finished | | | X | X | X | X | X | X | X | X | X | X |
| 15.6 Develop the post-labeling supervision procedure to supervise the labeled products regularly | | | X | X | X | X | X | X | X | X | X | X |
| 15.7 Develop and maintain a labeling database to normalize all labeling activities as well as to provide an information inquiry system of high-efficiency energy-consuming products for consumers | | | X | X | X | X | X | X | X | X | X | X |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|---|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 15.8 Organize an international training to learn and study the international experiences on the implementation of the governmental procurement for energy -efficient products | | | | | | | X | | | | | |
| 15.9 Develop and launch the technical guidelines on government procurement for energy -efficient products | | | | | X | X | X | X | X | X | X | X |
| 15.10 Develop and implement the integrated marketing and communication plan to promote the labeled products | | | X | X | X | X | X | X | X | X | X | X |
| 15.11 Increase the market share of the energy-efficient products by leaflets, website etc. | | | X | X | X | X | X | X | X | X | X | X |
| 15.12 Make air conditioners as a pilot product to find out the barriers of market promotion of EE products and conduct consumer education | | | | X | X | X | X | X | X | X | X | X |
| 15.13 Organize an international workshop on harmonization between China's energy efficiency label and international counterparts | | | | | | | | | | | X | |
| 15.14 Explore the possible ways and prior products of achieving international mutual recognition | | | | X | X | X | X | X | X | X | X | X |
| 15.15 Develop and implement project Monitoring and Evaluating (M&E) plan | | | | | | X | | | | | | X |
| OUTPUT A4: Establishment and trial operation of an energy management information system covering at least 3500 key energy-intensive enterprises nationwide | | | | | | | | | | | | |
| Targeted Output 1: Develop and test the tools, techniques and procedures necessary to establish the energy management information system | | | | | | | | | | | | |
| 1.1 Conduct review of definitions and calculation approaches of energy consumption indicators for domestic primary energy -intensive industrial products | X | | | | | | | | | | | |
| 1.2 Conduct one international study tour of enterprises energy consumption statistics | X | X | | | | | | | | | | |

| Outputs/Targeted Outputs/Activities | Months of Year 1-3 | | | | | | | | | | | |
|--|--------------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 | 31-33 | 34-36 |
| 1.3 Establish an industrial energy consumption statistics indicators system meeting international practice | X | X | | | | | | | | | | |
| 1.4 Conduct survey on key energy-intensive enterprises | | X | | | | | | | | | | |
| 1.5 Develop and test one analysis software of enterprises energy consumption statistics | | X | X | X | | | | | | | | |
| 1.6 M&V plan development, implementation and report | X | X | | X | | | | | | | | |
| Targeted Output 2: Establishment and trial operation of the energy management information system covering at least 3500 key energy-intensive enterprises nationwide | | | | | | | | | | | | |
| 2.1 Assist the State Statistics Bureau to establish the energy management information system | | | | | X | X | | | | | | |
| 2.2 Conduct one energy consumption statistics training for staff from key energy-intensive enterprises | | | | | X | | | | | | | |
| 2.3 Collection, analysis and management of energy consumption statistics data of key energy-intensive enterprises | | | | | | | X | X | X | X | X | X |
| 2.4 Energy consumption statistics information reporting of key energy-intensive enterprises | | | | | | | | X | | | | X |
| 2.5 Assessment of operation effectiveness of the energy management information system for key energy-intensive enterprises | | | | | | | | | | X | | |
| 2.6 Conduct one workshop of the energy management information system to spread the assessment results | | | | | | | | | | | X | |
| 2.7 M&V plan development, implementation and report | | | | | X | X | | X | | X | | X |

OUTLINE WORK PLAN OF B

| Outputs/Targeted Outputs/Activity/ (Fundor) | Month of Years 1-3 | | | | | | | | | | | | |
|---|--------------------|---|---|---|----|----|----|----|----|----|----|----|----|
| | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| Output B1: Collection of Data on Building Energy Use As a Basis for Setting and Assessing Impacts of Standards | | | | | | | | | | | | | |
| Targeted Output 1: Establish data needs for urban residential and commercial buildings in four pilot cities and create survey instrument to gather data | | | | | | | | | | | | | |
| 1.1 Investigation reports on Building Energy Use Statistical System in overseas | X | X | X | | | | | | | | | | |
| 1.2 Investigation reports on Building Energy Use Statistical System in domestic | X | X | X | | | | | | | | | | |
| 1.3 Establish statistical index system on Building Energy Use | | X | X | X | X | | | | | | | | |
| 1.4 Create the data needs on Building Energy Use in four pilot cities | | X | X | X | X | | | | | | | | |
| 1.5 Define the feasible survey instrument, and require the local governments of pilot cities to perform this work by conveying the documents of MOC | | | X | X | X | | | | | | | | |
| Targeted Output 2: Gather data by survey instrument | | | | | | | | | | | | | |
| 2.1 Statistical forms on Building Energy Use in four pilot cities | | | | | X | X | X | X | X | X | X | X | X |
| Targeted Output 3: Perform measurements on selected buildings | | | | | | | | | | | | | |
| 3.1 Measurement data forms on special index of building energy use in four pilot cities | | | | | | X | X | X | X | X | X | X | X |
| Targeted Output 4: Analysis and reconcile the statistical data | | | | | | | | | | | | | |
| 4.1 Result analysis reports on Building Energy Use Statistical Data | | | | | | | | | X | X | X | X | X |
| Targeted Output 5: Use the results of this work in the four pilot cities as a baseline for the establishment of Energy Efficiency Standards | | | | | | | | | | | | | |
| 5.1 Provide the baseline for the establishment regional Energy Efficiency Standards | | | | | | | | | | | X | X | X |
| Targeted Output 6: To assess impacts of standards (Shanghai) | | | | | | | | | | | | | |
| 6.1 The rate of buildings that meet Design Standard of Energy Efficiency of Residential Buildings in Hot Summer and Cold Winter Zone | | | | | | | | | | | X | X | X |
| 6.2 The amount of GHG emission reduction that building meet energy efficiency Standards in Shanghai | | | | | | | | | | | | X | X |
| 6.3 Results assessment reports on impacts of Standards in Shanghai | | | | | | | | | | | | X | X |
| Output B2: Development of Policies and Standards for Building Energy Performance | | | | | | | | | | | | | |
| Targeted Output 1: To develop the Execution Regulations for Each Province (Fujian, Guangdong and Guangxi) of the Hot Summer and Warm Winter Zone | | | | | | | | | | | | | |
| 1.1 Three regulations will be completed | X | X | X | X | X | | | | | | | | |
| 1.2 Three regulations will be adopted by three local construction commissions | | | | | | X | X | X | X | | | | |
| 1.3 The regulations will be implemented | | | | | | | | | | X | X | X | X |
| Targeted Output 2: To develop Standard of Energy Efficiency Retrofitting on Existing Public Buildings | | | | | | | | | | | | | |
| 2.1 Build up the establishment working group of this regulation and finish the investigation report about the energy-saving background of existing public buildings | X | X | X | X | | | | | | | | | |

| Outputs/Targeted Outputs/Activity/ (Funder) | Month of Years 1-3 | | | | | | | | | | | | |
|--|--------------------|---|---|---|----|----|----|----|----|----|----|----|----|
| | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 2.2 Finish the manuscript for examination of <i>the Standard of Energy Efficiency Retrofitting on Existing Public Buildings</i> | | | | | X | X | X | X | X | | | | |
| 2.3 The Standard Division of the Chinese Construction Ministry convokes the regulation audit meeting | | | | | | | | | | | X | | |
| Targeted Output 3: Review and update of the standard developed for residential buildings in heating zone | | | | | | | | | | | | | |
| 3.1 Start to review and update of the standard for residential buildings in heating zone (The review and update plan of the standard should be assigned by MOC firstly) | X | X | X | X | X | | | | | | | | |
| 3.2 Complete review and update of the standard for residential buildings in heating zone | | | | | X | X | X | X | X | | | | |
| 3.3 A doption of update of residential heating standard, with encouragement of individual metering | | | | | | | | | | X | X | X | X |
| Targeted Output 4: Study regulations for promoting building energy efficiency standards implemented | | | | | | | | | | | | | |
| 4.1 Complete the report on the comparison of the regulations for the standards in China with that other countries (MOC should conduct a workshop to evaluate the report on the comparison of the regulations for the standards in China with that other countries) | X | X | X | X | | | | | | | | | |
| 4.2 Advice on the regulations for the standards to the four pilot cities (Create a trial program of the regulations in at least one city) | | | | | X | X | X | | | | | | |
| 4.3 Evaluation report on trial adopted in at least one pilot city and proposal advice on legislation decision-making for central government. | | | | | | | | X | X | X | X | X | X |
| Targeted Output 5: Study and assessment on incentive policies for more efficient buildings, compliant with market economy | | | | | | | | | | | | | |
| 5.1 Assessment report on incentive policies of other countries and assessment report on local condition for incentive policies in the four pilot cities (MOC will conduct a workshop to spread the investigation result to pilot cities) | X | X | X | | | | | | | | | | |
| 5.2 Assessment report on the influence of former and exiting incentive policies for buildings, supported by national government and report on invest analysis of energy efficient buildings; MOC will conduct another workshop to experience spread conference with the purpose of recommending Incentive Policies to pilot cities | | | | X | X | X | X | X | X | X | | | |
| 5.3 Complete the proposal advice on incentive policies for more efficient buildings for central government | | | | | | | | | | | X | X | X |
| Targeted Output 6: Study and Design of a rating system of energy consumption for buildings | | | | | | | | | | | | | |
| 6.1 The report on the building energy consumption evaluating and labeling system in western countries | X | X | X | | | | | | | | | | |
| 6.2 Preliminary design of building energy rating system | | | | X | X | X | X | | | | | | |
| 6.3 Initial test of the energy rating system in pilot program at least one city | | | | | | X | X | X | X | X | X | X | X |
| Output B3: Standards Implementation and Incentives for Buildings to Exceed the Standards | | | | | | | | | | | | | |

| Outputs/Targeted Outputs/Activity/ (Fundor) | Month of Years 1-3 | | | | | | | | | | | | |
|--|--------------------|---|---|---|----|----|----|----|----|----|----|----|----|
| | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| Targeted Output 1: Provide extensive training to building code officials and other key organizations in pilot cities (Shanghai, Chongqing and Shenzhen) on building code and its implementation | | | | | | | | | | | | | |
| 1.1 Training plan and training materials | X | X | X | X | X | | | | | | | | |
| 1.2 Training of local government officials about the principles and application and implementation of building energy standards/codes | | | | | | X | X | X | X | | | | |
| 1.3 Draft of management regulations of building code and corresponding management system in pilot cities | | | | | | | | | | X | X | X | X |
| Targeted Output 2: Training to other cities in region in key aspects of standards implementation | | | | | | | | | | | | | |
| 2.1 MOC will organize experts to evaluate training books; If permitted, they can be spread to local cities to disseminate | X | X | X | X | X | X | X | | | | | | |
| 2.2 Training relevant officials and other key organizations about the building code and its implementation | | | | | | | | X | X | X | X | X | X |
| Targeted Output 3: Assess trial implementation in Shanghai to learn from Shanghai's experience of implementing standards | | | | | | | | | | | | | |
| 3.1 Evaluation of trial implementation of building energy standards conducted first in Shanghai (for 1 million m2 residential buildings) | X | X | X | X | X | X | X | X | X | | | | |
| 3.2 Evaluation of initial implementation of building energy standards in several cities | | | | | | | | | | X | X | X | X |
| Targeted Output 4: Information Technology in Standards Implement | | | | | | | | | | | | | |
| 4.1 Set up the model for assessment of BEE | X | X | X | X | X | | | | | | | | |
| 4.2 Build up the computer aided management system for the assessment of BEE | | | | | | X | X | X | X | | | | |
| 4.3 Application report of the computer aided management system for the assessment of BEE | | | | | | | | | | X | X | X | X |
| Targeted Output 5: Train a subset of building code officials and other key organizations in the use of the rating system | | | | | | | | | | | | | |
| 5.1 Compile training plan and training books | | | | | | | | | X | X | X | | |
| 5.2 Training relevant officials and other key organizations about the rating system and its implementation | | | | | | | | | | | | X | X |
| Targeted Output 6: Pilot and study on low -energy buildings and technique evaluation for buildings more efficient than the standard | | | | | | | | | | | | | |
| 6.1 Pilot study on low-energy buildings in Beijing (Solar energy buildings) | | | | | | | | | | | | | |
| 6.1.1 Investigation reports on the low-energy buildings at home and abroad | X | X | X | X | | | | | | | | | |
| 6.1.2 Blue print of constructing solar energy buildings | | | | X | X | | | | | | | | |
| 6.1.3 Finish the construction of solar energy buildings (100 thousand m2) | | | | | X | X | X | X | X | | | | |
| 6.1.4 Investment analysis report on solar energy buildings | | | | | | | | | | X | X | X | X |
| 6.1.5 Technique and economy evaluation report on solar energy buildings | | | | | | | | | | | X | X | X |
| 6.1.6 Draft of design and construct technology regulations in solar energy buildings | | | | | | | | | | | X | X | X |
| 6.2 Pilot study on low-energy buildings in Shanghai | | | | | | | | | | | | | |

| Outputs/Targeted Outputs/Activity/ (Fundor) | Month of Years 1-3 | | | | | | | | | | | | |
|---|--------------------|---|---|---|----|----|----|----|----|----|----|----|----|
| | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 6.2.1 Design plan on demonstration project of low-energy buildings | X | X | X | X | X | | | | | | | | |
| 6.2.2 Completion of 1 million m ² newly built energy efficient buildings | | | | | X | X | X | X | X | | | | |
| 6.2.3 Completion of 1400 m ² low energy consumption experimental office building for demonstration and 600 m ² energy efficient resident building for demonstration | | | | | X | X | X | X | X | | | | |
| 6.2.4 Energy consumption test and analysis for the energy efficient demonstration buildings | | | | | | | | | | X | X | X | X |
| 6.3 Research and Application of Green and Low Energy -Consumption Construction Technology of Shenzhen | | | | | | | | | | | | | |
| 6.3.1 Shenzhen's Building Energy Efficiency Technology Integrated Application Research Report | X | X | X | X | | | | | | | | | |
| 6.3.2 Shenzhen's Green Building Material Integrated Application Research Report | | | | X | X | X | X | X | X | | | | |
| 6.3.3 Shenzhen's Technological Application Research Report for Improving Indoor Air Quality | | | | | | | | | X | X | X | X | X |
| 6.3.4 Shenzhen Illustration Base Green Building Technology Integrated Application Plan | | | | | | | | | X | X | X | X | X |
| 6.4 With the help of Construction Commission of Shanghai, establish the evaluation grades and labeling system for energy efficiency residential buildings in Shanghai | | | | | | | | | | | | | |
| 6.4.1 Develop the evaluation on grades and label on energy efficient buildings | X | X | X | X | X | | | | | | | | |
| 6.4.2 Establish the evaluation grades and labeling system on residential building | | | | | X | X | X | X | X | | | | |
| 6.4.3 Energy efficiency building test and promoting symposium | | | | | | | | | | X | X | X | X |
| 6.5 Pilot and study on building energy efficiency incentive system and management supervising molding in Chongqing | | | | | | | | | | | | | |
| 6.5.1 Analysis policy instruments to promote more efficient buildings in Chongqing | X | X | X | X | X | | | | | | | | |
| 6.5.2 Suggestion report on building energy efficiency incentive system and management supervising molding in Chongqing | | | | | X | X | X | X | X | | | | |
| 6.5.3 Analysis report on building energy efficiency incentive policy in Chongqing | | | | | | | | | | X | X | X | X |
| 6.6 Consummating and promoting the concept of green building that adapt to the Region Character, the climate and the resources | | | | | | | | | | | | | |
| 6.6.1 Report of Investigation of Green Building | X | X | X | X | X | | | | | | | | |
| 6.6.2 Assessing report of the foreign mode on promoting Green Building | X | X | X | X | X | | | | | | | | |
| 6.6.3 Study report of identifying the new technologies and barriers for promoting the concept of Green Building | | | | | | X | X | X | X | | | | |
| 6.6.4 Design Principle and Theory of the Green Building under the varied section? climate and resource character in China | | | | | | | | | | X | X | X | X |
| 6.7 To improve the better understanding and to promote the concept of solar energy building in accordance with the location, local climate and resources | | | | | | | | | | | | | |
| 6.7.1 Investigation and review the definition of solar energy building | | | X | X | X | X | | | | | | | |
| 6.7.2 Assess the processes and achievements for solar energy building in other countries | X | X | X | X | X | | | | | | | | |
| 6.7.3 Establish the identification of the advanced technologies and barriers in promoting the concept of solar energy buildings | | | | | | | X | X | X | X | X | X | X |
| Targeted Output 7: Review system such as "Russian Energy Passport", promote more efficiency buildings | | | | | | | | | | | | | |

| Outputs/Targeted Outputs/Activity/ (Fundor) | Month of Years 1-3 | | | | | | | | | | | | |
|---|--------------------|---|---|---|----|----|----|----|----|----|----|----|----|
| | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 7.1 Establish the Audit and Record System for BEE in China, similar to eMoscow energy passport | | | | | | | | | | | | | |
| 7.1.1 Investigation report on <i>Moscow energy passport</i> | X | X | X | | | | | | | | | | |
| 7.1.2 Research report on the feasibility to establish the audit and record system for BEE in China | | | X | X | X | | | | | | | | |
| 7.1.3 Pilot program of the audit and record system for BEE in Chongqing | | | | | | X | X | X | X | X | X | X | X |
| 7.2 Promote the Renovation of Existing Buildings to Implement BEE Codes | | | | | | | | | | | | | |
| 7.2.1 Investigation report on foreign experience of existing buildings renovation | X | X | X | X | X | | | | | | | | |
| 7.2.2 Pilot projects of existing buildings renovation in Beijing | | | | | X | X | X | X | X | X | | | |
| 7.2.3 Design and construction criterion for existing buildings renovation | | | | | | | | | | X | X | X | X |

| Outputs/Targeted Outputs/Activity/(funder) | Months of Years 1-3 | | | | | | | | | | | |
|---|---------------------|---|---|----|----|----|----|----|----|----|----|----|
| | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| OUTPUT 4.1: Create and deploy an information dissemination program in pilot cities to make people aware of the benefits of energy efficiency investments in buildings. | | | | | | | | | | | | |
| Targeted Output 1: Integrate and identify the fundamental knowledge on BEE and survey achievements during the initial period of EUEEP project program, and establish the specific plan that could be disseminated to the public in pilot cities | | | | | | | | | | | | |
| 1.1 Integrate and identify the fundamental knowledge on BEE, and to establish the professional contents on public dissemination through media. | X | | | | | | | | | | | |
| 1.2 Conduct the social survey on the consciousness, knowledge and skill of five groups of people, i.e. government officials, the public, real estate developers, product manufacturers, and technical employees in pilot cities | X | X | X | | | | | | | | | |
| 1.3 By use of administrative channel between central and local construction areas, based on the above information recognition and social survey, establish the specific plans of disseminating to the various groups through media in the B4.1.4, B4.1.5, B4.1.6 and B4.1.7 activities | X | X | X | X | | | | | | | | |
| Targeted Output 2: The establishment of the BEE supervision information system | | | | | | | | | | | | |
| 2.1 Create BEE information resource database | X | X | X | X | | | | | | | | |
| 2.2 Operate the GEF online service in Ministry of Construction's website, and develop and maintain the BEE network | X | X | X | X | X | X | | | | | | |
| 2.3 Establish the BEE supervision information system | | | | | X | X | X | X | X | X | X | X |
| Targeted Output 3. Launch a joint initiative by the Ministry of Construction (GEF) and the governments of pilot cities to start the promotion of China's BEE process mainly in pilot cities | | | | | | | | | | | | |
| 3.1 Jointly launch an initiative to promote China's BEE campaign by the Ministry of Construction (GEF) and the governments of pilot cities, which will be supported by CCTV, local TV stations in pilot cities, and the press and media, propaganda and report will be made by media including the national media and one media in the upwards of 2 pilot cities | X | | | | | | | | | | | |
| 3.2 Jointly process a prize winning name-collecting activity in national media and influential media in the upwards of 2 pilot cities, and publicize the relevant circumstances of this EUEEP project to attract the broad attention and participation from all groups of society | X | X | | | | | | | | | | |
| 3.3 Hold a news conference in Beijing, to publicize the contents of the initiative document, the results of the name-collecting and name-crowning activity, and the major contents of dissemination campaign by the Ministry of Construction (GEF) and pilot cities. And then publicize the gist and content of this EUEEP project (buildings sector), thus to mobilize the public's enthusiasm on the attention on and participation in BEE. | X | X | X | | | | | | | | | |
| Targeted Output 4. Based on B4.1.3 activity, process a sustained dissemination campaign towards the public | | | | | | | | | | | | |

| Outputs/Targeted Outputs/Activity/(funder) | Months of Years 1-3 | | | | | | | | | | | |
|---|---------------------|---|---|----|----|----|----|----|----|----|----|----|
| | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 4.1 Shoot 1 volumes of scientific popularization TV special topics on BEE, which will be broadcasted by CCTV and star TVs in the upwards of 2 pilot cities, and will be also made into CD to be released to the selected schools and communities in the upwards of 2 pilot cities | X | X | X | X | | | | | | | | |
| 4.2 Publish volumes of scientific popularization, publicizing materials on BEE and to be released to the schools and communities in the upward of 2 pilot cities. | X | X | X | | | | | | | | | |
| 4.3 Combined with the publicizing of China's Energy Conservation Week, release commonweal advertisements on China's GEF BEE in upwards of 2 pilot cities, once per year | X | X | | | X | X | | X | X | | | |
| 4.4 Unite media including central media and local media in the upwards of 2 pilot cities, and process a prize winning solicit articles activity, the articles that bear the palm will be put to insertion in the press | | X | X | | | X | X | | | X | X | |
| 4.5 Organize a professional column about BEE on a national media | | | X | X | | | X | X | | | X | X |
| Targeted Output 5: Based on B4.1.3, process a sustained dissemination campaign towards government officials | | | | | | | | | | | | |
| 5.1 combined with the publicizing of China's Energy Conservation Week, hold 1 high level governmental forums on BEE respectively in Beijing, | X | X | X | | | | | | | | | |
| 5.2 Organize leaders of municipal construction authorities in charge and professionals in pilot cities to learn the advanced foreign management experience of BEE | X | X | | | | | | | | | | |
| 5.3. Shoot 1 volume of TV professional topics on the management and decision-making of BEE, and broadcast once in CCTV and upwards of 2 local star TV stations, and to be made into CD | | | | X | X | X | X | X | | | | |
| 5.4 Work out professional books on management and decision-making of BEE | | | | X | X | X | | X | X | X | | |
| Targeted Output 6: Based on B4.1.3 activity, process a sustained dissemination campaign towards employees, real estate developers and product manufacturers | | | | | | | | | | | | |
| 6.1 Hold publicizing and implementing meetings for Design Standard for Energy Efficiency of Residential Buildings in Hot Summer and Warm Winter zone, and Design Standard for Energy Efficiency of Public Buildings | | | X | X | X | | X | X | X | | | |
| 6.2 Professional books on the aspects of the Standards, design, supervision and operation, investment and financing analysis of BEE | X | X | X | X | | | | | | | | |
| 6.3 Shoot and make 1 volume of professional topics on the investment and financing, and return on investment of BEE, and broadcast once in CCTV and upwards of 2 local star TV stations, and to be made into CDs | | | | | | | X | X | X | X | X | |
| 6.4 Hold seminars on the investment and financing patterns of BEE | | X | X | X | X | | | | | | | |
| 6.5 Hold technology exchange meeting on domestic and foreign technology and products | | | | | X | X | X | X | | | | |
| Targeted Output 7: report and popularize the periodic outputs of this EUEEP project activities(buildings sector) | | | | | | | | | | | | |
| 7.1 Report and publicize the effect evaluation on the building energy consumption statistics in pilot cities | | | | X | X | X | | X | X | | | |

| Outputs/Targeted Outputs/Activity/(funder) | Months of Years 1-3 | | | | | | | | | | | |
|---|---------------------|---|---|----|----|----|----|----|----|----|----|----|
| | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 7.2 Publish collection of policies and regulations and collection of consultation plans, financing mechanism research and the making of policy experiments of BEE | | | | X | X | X | | | X | X | X | |
| 7.3 Hold a locale popularization conference of demonstration project | | | | | | X | X | X | | X | X | X |
| Targeted Output 8: Through survey, organize an overall evaluation on the implementation and dissemination effect of this EUEEP project (buildings sector), and establish the dissemination plan for the next phase | | | | | | | | | | | | |
| 8.1 the social survey on the consciousness, knowledge and skill of five groups, i.e. government officials, the public, technical employees, real estate developers, and product manufacturers in pilot cities at the end of the third year of the project | | | | | | | | | X | X | X | |
| 8.2 an overall evaluation on the implementation and dissemination effect of this EUEEP projects (buildings sector), and establish the dissemination plan for the next phase | | | | | | | | | | X | X | X |
| Output B4.2 Establish new training mechanism and system of BEE, and develop training ability | | | | | | | | | | | | |
| Targeted Output 1: Establish sustainable, open training mechanism and efficiently dissemination system of BEE. | | | | | | | | | | | | |
| 1.1 Market investigation report in pilot cities | X | X | | | | | | | | | | |
| 1.2 New training mechanism and system | | X | X | X | | | | | | | | |
| 1.3 Relative professional trainees and administrative authorities grope new training mechanism and system | | | | X | X | X | | | | | | |
| 1.4 Evaluation and summary report on the new training mechanism and training system; Upgrading layout for the next phase | | | | | | | | | X | X | X | X |
| Targeted Output 2: Formulate teaching materials and training material updating mechanism for China's BEE training | | | | | | | | | | | | |
| 1.1 Training materials of implementing BEE code in pilot cities Shanghai, Chongqing and Shenzhen for the governors and professional designers | X | X | X | X | | | | | | | | |
| 1.2 Training materials of implementation of BEE code in Hot Summer and Cold Winter Zone, Hot Summer and Warm Winter Zone | | X | X | X | | | | | | | | |
| 1.3 Training materials for national mayors and trainer training | | X | X | X | | | | | | | | |
| 1.4 Series of training material for Heating Zone, Hot Summer and Cold Winter, Hot Summer and Warm Winter | | | | | X | X | X | X | | | | |
| Targeted Output 3: Add the content of BEE into the national training class for mayors | | | | | | | | | | | | |
| 1.1 Training layout on BEE for mayors | X | X | | | | | | | | | | |
| 1.2 One term of mayors training on BEE | | X | X | | | | | | | | | |

| Outputs/Targeted Outputs/Activity/(funder) | Months of Years 1-3 | | | | | | | | | | | |
|---|---------------------|---|---|----|----|----|----|----|----|----|----|----|
| | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 1.3 One term of mayors training on BEE | | | | | X | X | | | | | | |
| 1.4 One term of mayors training on BEE | | | | | | | | X | X | X | | |
| Targeted Output 4: Training government officials, designers, supervisors, operators management personnel, and developers, in 4 pilot cities and other cities | | | | | | | | | | | | |
| 1.1 Two terms of training institution personnel got foreign training qualification; | | X | X | X | | | | X | X | X | | |
| 1.2 Two terms of administrative authorities in charge training | X | X | | | | X | X | | | | | |
| 1.3 Two terms of construction engineering supervisors training; | | | X | X | | | | X | X | | | |
| 1.4 Two terms of training institution personnel got domestic training qualification. | X | X | | X | X | | | | | | | |
| 1.5 One term of real estate developers training | | | | | X | X | | | | | | |
| 1.6 Three terms of designers training | | | | X | X | | X | X | | X | X | |
| 1.7 Three terms of operation management personnel training | | | | | | | X | X | X | X | X | X |

| Outputs/Targeted Outputs/Activity/(funder) | Month of Years 1-3 | | | | | | | | | | | | |
|--|--------------------|---|---|---|----|----|----|----|----|----|----|----|----|
| | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| Output B5: Promoting the developing the technologies and productions of building energy efficiency in China | | | | | | | | | | | | | |
| OUTPUT 5.1: TREND REPORTING, NEW TECHNOLOGY ASSESSMENT AND TECHNOLOGY APPLICATION ANALYSIS | | | | | | | | | | | | | |
| Targeted Output 1: Survey report of present status and the future developing trend of very low energy consuming building (LECB) in other countries including hot areas and cold areas | | | | | | | | | | | | | |
| 1.1.1 Survey on LECB technologies of foreign countries with different climates. (GEF) | X | X | X | X | X | X | X | X | X | X | | | |
| 1.1.2 Study on the present status and the future developing trend of LECB in other countries. (GEF) | X | X | X | X | X | X | X | X | X | X | | | |
| 1.1.3 International study (GEF) | X | X | X | X | X | X | X | X | X | X | | | |
| 1.1.4 International workshops (GEF) | X | X | X | X | X | X | X | X | X | X | | | |
| Targeted Output 2: Survey report of the present status and future developing trend of LECB in China | | | | | | | | | | | | | |
| 1.2.1 Domestic survey on LECB (GEF and Govt.) | X | X | X | X | X | X | X | X | X | X | | | |
| 1.2.2 Study the market barriers of LECB technologies and products in China, analyze the potential to develop LECB in China (GEF and Govt.) | X | X | X | X | X | X | X | X | X | X | | | |
| 1.2.3 Symposiums and workshops (GEF and Govt.) | X | X | X | X | X | X | X | X | X | X | | | |
| Targeted Output 3: The technical and economic analysis report on the application feasibility of LECB in different areas of China. | | | | | | | | | | | | | |
| 1.3.1 Study on technical and economic analysis method on LECB. (GEF) | X | X | X | X | X | X | X | X | | | | | |
| 1.3.2 Conduct technical and economic analysis on LECB and study the feasibility of massive application of LECB in China. (GEF) | X | X | X | X | X | X | X | X | X | X | | | |
| 1.3.3 Symposiums and workshops (GEF). | X | X | X | X | X | X | X | X | X | X | | | |
| Targeted Output 4: Report of the policy recommendations to Chinese government to promote LECB in China. | | | | | | | | | | | | | |
| 1.4.1 By international cooperation, study the measures and experiences to promote LECB technologies and products in other countries (GEF) | X | X | X | X | X | X | X | X | X | X | X | | |
| 1.4.2 Submit the report of the policy recommendations to Chinese government to promote LECB in China. (GEF) | X | X | X | X | X | X | X | X | X | X | X | | |
| 1.4.3 Organize symposiums and workshops, introduce the concept of LECB and promote LECB application in China (GEF) | X | X | X | X | X | X | X | X | X | X | X | X | |
| | | | | | | | | | | | | | |
| OUTPUT 5.2: STUDY ON THERMAL INSULATION MATERIAL AND WALL MATERIAL | | | | | | | | | | | | | |
| Targeted Output 1: Surveys on the thermal insulating materials and walling materials for low energy consuming building | | | | | | | | | | | | | |

| Outputs/Targeted Outputs/Activity/(funder) | Month of Years 1-3 | | | | | | | | | | | | |
|---|--------------------|---|---|---|----|----|----|----|----|----|----|----|----|
| | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 2.1.1 By local surveys, choose and fix on a city to carry out research on thermal insulating materials and low energy consuming walling materials | X | X | X | X | | | | | | | | | |
| 2.1.2 Survey on existing thermal insulating materials and walling materials used in low energy consuming buildings in the city; test on some products be chosen; analyze the thermal properties of different thermal insulating materials and walling materials | | | X | X | X | X | X | | | | | | |
| 2.1.3 Research on low energy consuming walling system for different walling structure suitable for climate condition of the city; propose walling systems which could improve the thermal performance of the buildings and can be optional for the climate type of the zone | | | | | X | X | X | | | | | | |
| Targeted Output 2: Research on low-cost and high efficient walling system | | | | | | | | | | | | | |
| 2.2.1 To utilize the local resources of the chosen city, low -cost and high efficient walling system suitable for local use will be proposed through energy efficiency and cost analyses | | | | | X | X | X | X | X | X | X | | |
| 2.2.2. Convene seminars and assess on the feasibility of low-cost and high efficient walling system, and develop a assessment report | | | | | | | | | | | X | | |
| OUTPUT 5.3: STUDY ON LOW-COST MATERIAL AND EQUIPMENT | | | | | | | | | | | | | |
| Targeted Output 1: Research on low-cost and high efficient roofing system | | | | | | | | | | | | | |
| 3.1.1 R&D of low-cost roofing thermal insulating materials and submit a research report | | | | | X | X | X | X | X | | | | |
| 3.1.2 Carry out research on application technology of low -cost roofing thermal insulating materials, and promote the development of local roofing thermal insulating materials | | | | | | | X | X | X | | | | |
| Targeted Output 2 Study on low-cost material and equipment | | | | | | | | | | | | | |
| 3.2.1 Symposium of “Application projects evaluation about air conditioning system” | | | | | | X | X | X | X | | | | |
| 3.2.2 Catalogue of air conditioning system of building energy efficiency technologies | | | | | | | | | | X | X | X | X |
| Output 5.4: Study on energy saving composite exterior wall panel | | | | | | | | | | | | | |
| Targeted Output1 : Development of composite exterior wall panel for low energy consuming building | | | | | | | | | | | | | |

| Outputs/Targeted Outputs/Activity/(funder) | Month of Years 1-3 | | | | | | | | | | | | |
|---|--------------------|---|---|---|----|----|----|----|----|----|----|----|----|
| | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 4.1 R&D on composite exterior wall panel suitable for low energy consuming building. Its three main parts are: (1) study on materials composite technology; (2) study on manufacturing technology; (3) assessment on properties and energy efficient effect. Submit the 'Research Report on Properties and Energy Efficient Effect of Composite Panel' and 'Report on Composite Exterior Wall Panel Suitable for Low Energy Consuming Building' | X | X | X | X | X | X | X | | | | | | |
| 4.2 Develop product standard (Draft) of 'Composite Exterior Wall Panel' | | | | | | | X | X | X | | | | |
| 4.3 Develop application regulation for products of composite exterior wall panel, and submit 'Application Regulation for Composite Exterior Wall Panel' | | | | | | | | | X | X | X | | |
| Output 5.5: Incorporate results of this exploration into the standards developments process Targeted Output1: Incorporate results of this exploration into the standards developments process | | | | | | | | | | | | | |
| 5.1 Suggestion about low energy efficiency technologies that could be incorporate into standards | | | | | | | | | | X | X | X | X |
| 5.2 Suggestion about wall systems that could be incorporate into standards | | | | | | | | | | X | X | X | X |
| 5.3 Suggestion about air conditioning equipments that could be incorporate into standards | | | | | | | | | | X | X | X | X |
| 5.4 Judge document about the production developed in B5 that could be incorporate into standards | | | | | | | | | | X | X | X | X |

C1.1 OUTLINE WORK PLAN

| Outputs/Targeted Outputs/Activity/(funder) | Months of Years 1-3 | | | | | | | | | | | |
|---|---------------------|---|---|----|----|----|----|----|----|----|----|----|
| | 1 | 4 | 7 | 10 | 13 | 16 | 19 | 22 | 25 | 28 | 31 | 34 |
| OUTPUT C1: Strengthening the Energy Conservation Centers | | | | | | | | | | | | |
| OUTPUT C1.1: Energy Auditing and New Building Design Inspecting Capacity | | | | | | | | | | | | |
| Targeted Output 1: Energy audit training for buildings for selected ECCs | | | | | | | | | | | | |
| 1.1 Develop training materials for initial building energy audit | X | X | | | | | | | | | | |
| 1.2 Conduct initial building energy audit training to 2 ECCs. | | | X | | | | | | | | | |
| 1.3 Improving energy auditing method and training materials with materials developed in activity B.3 and success and failures gathered from energy audit pilots | | | | | X | X | | | | | | |
| 1.4 Continue training for the 2 ECCs in building energy audit, select 1 additional ECC to be trained(total 3 building energy audit ECCs). | | | | | | X | | | | | | |
| 1.5 Further improving energy auditing method and training materials with materials developed in Activity B.3 and success and failures from previous energy audit pilots | | | | | | | | | X | | | |
| 1.6 Further training for the 3 ECCs in building energy audit with pilot audits. | | | | | | | | | X | | | |
| Targeted Output 2: Energy audit training for industry for selected ECCs | | | | | | | | | | | | |
| 2.1 Develop training materials for initial industry energy audit | X | X | | | | | | | | | | |
| 2.2 Conduct initial industry energy audit training to 3 ECCs. | | | X | | | | | | | | | |
| 2.3 Improving energy auditing method and training materials with materials developed in activity A.2, A.3, A.4 and success and failures gathered from energy audit pilots | | | | | X | X | | | | | | |
| 2.4 Continue training for the 3 ECCs in industry energy audit, select 2 additional ECC to be trained(total 5 industry energy audit ECCs). | | | | | | X | | | | | | |
| 2.5 Further improving energy auditing method and training materials with materials developed in Activity A.2, A.3, A.4 and success and failures from previous energy audit pilots | | | | | | | | | X | | | |
| 2.6 Further training for the 5 ECCs in industry energy audit with pilot audits. | | | | | | | | | X | | | |
| Targeted Output 3. Energy audits of high quality carried out by ECCs | | | | | | | | | | | | |
| 3.1 2 building energy audit ECCs each complete 1 audits with method developed in year 1(totally 2 pilots) | | | | | X | | | | | | | |
| 3.2 3 industry energy audit ECCs each complete 1 audits with method developed in year 1(totally 3 pilots) | | | | | X | | | | | | | |
| 3.3 3 building energy audit ECCs each complete 2 audits with method developed in year 2(totally 6 new pilots) | | | | | | | X | X | | | | |

| Outputs/Targeted Outputs/Activity/(funder) | Months of Years 1-3 | | | | | | | | | | | |
|---|---------------------|---|---|----|----|----|----|----|----|----|----|----|
| | 1 | 4 | 7 | 10 | 13 | 16 | 19 | 22 | 25 | 28 | 31 | 34 |
| 3.4 5 industry energy audit ECCs each complete 2 audits with method developed in year 2(totally 10 new pilots) | | | | | | | X | X | | | | |
| 3.5 3 building energy audit ECCs each complete 12 audits with method developed in year 3(totally 36 audits) | | | | | | | | | X | X | X | X |
| 3.6 5 industry energy audit ECCs each complete 13 audits with method developed in year 3(totally 65 audits) | | | | | | | | | X | X | X | X |
| Targeted Output 4. Purchase of modern equipment (with non-GEF funds) for leading ECCs | | | | | | | | | | | | |
| 4.1 Review equipment needs | | | X | X | | | | | | | | |
| 4.2 Selection and purchase of equipment, initial use of equipment | | | | | X | X | X | X | | | | |
| 4.3 Application of equipment to the energy audits | | | | | | | | | X | X | X | X |
| Targeted Output5. In-depth training of selected, key ECC staff members | | | | | | | | | | | | |
| 5.1 Selection of key staff members to participate in in-depth training; decisions on training programs, sites, duration. PMO do this work | | | X | X | | | | | | | | |
| 5.2 Developing in-depth training materials | | | | X | | | X | X | X | | | |
| 5.3 In-depth training of selected, key ECC staff members for energy audit | | | | | | | | X | | | | |
| 5.4 10 Key ECC staff members going abroad for 3 months' short term study | | | | | | | | | | X | | |
| OUTPUT C1.2: Demonstrated capability of ECCs to conduct training courses for architects, engineers, and industrial energy managers | | | | | | | | | | | | |
| Targeted Output 1: Demonstrated capability of ECCs to conduct training courses for architects, engineers, and industrial energy managers | | | | | | | | | | | | |
| 1.1 Develop training materials for industry and building EC & EE | X | X | X | X | | | | | | | | |
| 1.2 Training teachers | | | | | X | | | | | | | |
| 1.3 National and local ECCs train architectures, industrial energy managers et. al | | | | | | X | X | X | X | X | X | X |
| 1.4 Evaluation the effects of ECCs' courses | | | | | | | | | | | | X |
| OUTPUT C1.3: Capacity building for EC & EE information dissemination | | | | | | | | | | | | |
| 1.1 Developing a plan for energy information dissemination, approved by PMO | X | | | | | | | | | | | |
| 1.2 Initial implementation | | X | X | X | X | X | X | X | | | | |
| 1.3 Implementing larger scale information dissemination | | | | | | | | | X | X | X | X |
| 1.4 Survey to determine the effectiveness of the information dissemination | | | | | | | | | | | | X |
| OUTPUT C2: Implementation of the Energy Conservation Law (ELC) | | | | | | | | | | | | |
| Targeted Output 1: Targets of the energy performance standards system | | | | | | | | | | | | |
| 1.1 study and develop the standards target system | X | X | X | X | X | X | X | X | X | X | X | X |
| 1.2 International study tour to collect ELC implementation information | | | | X | | | | | | | | |
| 1.3 Workshop on the Present Status Analysis of Energy Conservation | | X | X | | | | | | | | | |

| Outputs/Targeted Outputs/Activity/(funder) | Months of Years 1-3 | | | | | | | | | | | |
|--|---------------------|---|---|----|----|----|----|----|----|----|----|----|
| | 1 | 4 | 7 | 10 | 13 | 16 | 19 | 22 | 25 | 28 | 31 | 34 |
| 1.4 Workshop on the Review of ELC and ECL implementation effectiveness | | | | | X | X | | | | | | |
| Targeted Output 2: Energy performance labeling system for industrial equipment | | | | | | | | | | | | |
| 1.1 study and develop the labeling target system | X | X | X | X | X | X | X | X | X | X | X | X |
| Targeted Output 3: Oil conservation guideline and approaches to regulate its use | | | | | | | | | | | | |
| 1.1 Develop oil product use guideline & use management approaches | X | X | X | X | X | X | X | X | X | X | X | X |
| Targeted Output 4: ECL supervision and adequacy review mechanism | | | | | | | | | | | | |
| 1.1 Evaluation of Energy Conservation Law Implementation | X | X | X | X | X | X | X | X | X | X | X | X |
| Targeted Output 5: Information dissemination activities on experiences in the implementation of ELC | | | | | | | | | | | | |
| 1.1 experience and information disseminations on ECL implementation | | | | | X | X | X | X | X | X | X | X |
| OUTPUT C3: Policy Development on Energy Efficiency Financing Options | | | | | | | | | | | | |
| Targeted Output 1: Review of international models and experiences EC & EE financing in a market economy | | | | | | | | | | | | |
| 1.1 International and domestic collect international EC financing experience | X | X | X | X | X | X | X | X | X | X | X | X |
| 1.2 international workshops on EE finance | | | | X | X | | | | | | | |
| 1.3 Study tour abroad 10 people 10 days | | | X | X | | | | | | | | |
| Targeted Output 2: Proposal on models of financing available to China's situation | | | | | | | | | | | | |
| 1.1 Investigate current situation | X | X | X | X | X | X | X | X | X | X | X | X |
| 1.2 Study & develop on the financing model that suits China's characteristics | X | X | X | X | X | X | X | X | X | X | X | X |
| Targeted Output 3: Strategy and plan for demonstration of financing EE in two or three regions | | | | | | | | | | | | |
| 1.1 Energy efficiency finance new model promotion | X | X | X | X | X | X | X | X | X | X | X | X |

OUTLINE WORK PLAN OF D

| Outputs/Targeted Outputs/Activity | Month of Years 1-3 | | | | | | | | | | | | |
|--|--------------------|---|---|---|----|----|----|----|----|----|----|----|----|
| | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| Output D1: Management of PMO | | | | | | | | | | | | | |
| Targeted Output 1: Creation of the Project Management Office (PMO) | | | | | | | | | | | | | |
| 1.1 Prepare Terms of Reference (TORs) of PMO staff | X | | | | | | | | | | | | |
| 1.2 Operate a bidding system for selecting PMO staff | X | | | | | | | | | | | | |
| 1.3 Identify the PMO staff and set up PMO | | X | | | | | | | | | | | |
| Targeted Output 2: Development of plans for each project activities | | | | | | | | | | | | | |
| 2.1 Prepare TORs and deal with contract issues | | | X | X | X | X | X | X | X | X | | | |
| Targeted Output 3: Monitoring of progress of each activities | | | | | | | | | | | | | |
| 3.1 Assist intl. and domestic experts to check the monitoring implemt. in key activities | | | X | X | X | X | X | X | X | X | X | X | |
| Targeted Output 4: Establishment of cross-cutting teams | | | | | | | | | | | | | |
| 4.1 Set up a technical team consist of intl. And local experts to conduct all activities | X | | | | | | | | | | | | |
| 4.2 Prepare TORs for a Chief Technical Advisor(CTA) and a Chief Domestic Expert(CDE) | X | | | | | | | | | | | | |
| 4.3 Operate a bidding system for selecting CTA and CDE | X | | | | | | | | | | | | |
| 4.5 Identify the CTA and CDE and set up the core technical team | | X | | | | | | | | | | | |
| Targeted Output 5: Identification of project progress and solution of difficulties | | | | | | | | | | | | | |
| 5.1 Reviewing working reports and communication with operators, identify the progress and find out difficulties; | | | | | X | | | | X | | | | X |
| 5.2 Coordinate with involved institutions, find approaches to solve problems | | | | | | X | | | | X | | | X |
| Targeted Output 6: Provision of assistance to the evaluation team | | | | | | | | | | | | | |
| 6.1 Provide assistance for mid-term and final evaluation | | | | | | X | X | X | | | | | |
| Output D2: Monitoring and Evaluation | | | | | | | | | | | | | |
| Targeted Output 1: Establish monitoring system | | | | | | | | | | | | | |
| 1.1 Establish monitoring expert teams | | X | | | | | | | | | | | |
| 1.2 Organize capacity building training on monitoring | | | X | | | | | | | | | | |
| 1.3 Study tour on monitoring methodology | | | | X | | | | | | | | | |
| Targeted Output 2: Annual TPR meetings | | | | | | | | | | | | | |
| 2.1 Undertake investigations for annual evaluation | | | | X | | | | | | | | | |
| 2.2 Assist NPM and local experts to prepare materials for TPR meetings | | | | X | X | | | X | X | | | X | X |
| 2.3 Organize TPR meeting in each year | | | | | X | | | | X | | | | X |
| Targeted Output 3: Mid-term Evaluation | | | | | | | | | | | | | |
| 3.1 Implement international training on evaluation methodology | | | | | | X | | | | | | | |
| 3.2 Organize evaluation methodology study | | | | X | X | X | X | X | | | | | |

| Outputs/Targeted Outputs/Activity | Month of Years 1-3 | | | | | | | | | | | | |
|--|--------------------|---|---|---|----|----|----|----|----|----|----|----|----|
| | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| Targeted Output 4: Final Third Party Evaluation | | | | | | | | | | | | | |
| 4.1 Organize intl. and domestic experts to carry out third part evaluation | | | | | | | | | | | X | | X |
| 4.2 Organize workshop to share evaluation results | | | | | | | | | | | | | X |
| Targeted Output 5: Sustainable Development for the Phase II | | | | | | | | | | | | | |
| 5.1 Organize intl. and domestic experts to prepare a draft proposal for Phase II | | | | | | | | X | X | | | | |
| 5.2 Organize a workshop to prospect the Phase II | | | | | | | | | X | | | | |

SECTION III: OTHER AGREEMENTS

中华人民共和国国家经济贸易委员会

Dec. 9, 2003

Mr. Khalid Malik
Resident representative
UNDP China
Beijing

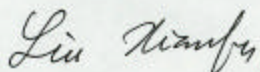
Subject: CO-FINANCING EXPLANATION LETTER

Dear Mr. Khalid Malik,

I write with reference to your request on the financing composition of EUEEP in the first phase. GEF will provide a grant of 17 million US\$ to support energy efficiency improvement activities performed in Chinese industry and building areas, as well as activities in formulating energy efficiency policy, supplementary measures and capacity building. Chinese government will provide co-financing of US\$ 31 million, in which 42 percent in cash and will go to energy efficiency projects, 58 percent in kind and will be used as other in kind support in EUEEP. Apart from government co-financing, Chinese enterprises will input US\$ 32 million in technical renovation during project implementation. If relevant policies and measures are well performed, it is estimated that the leveraged capital input from industrial enterprises and building construction contractors will reach about US\$ 150 million, including technical renovation, equipment modification, inputs in real estate, private capital input etc. related to EUEEP implementation.

Your strong support to this project is greatly appreciated.

Best regards!



Liu Xianfa
Deputy Director-General
Department of Environment and Resources Conservation
Nation Development and Reform Commission
People's Republic of China



SECTION IV: APPROVED BRIEF

Attached as separate document

SECTION V: RESPONSE TO TECHNICAL COMMENTS

CHINA END USE ENERGY EFFICIENCY PROJECT

| COMMENT | RESPONSE | REFERENCE |
|--|--|--|
| Comments from Switzerland | | |
| <p><i>In building sector, the project does mention optimized cooling systems, but does not seem to mention the development of building codes regarding cooling demand and systems concepts. The present trend of modernization and architecture may lead to a rapid increase of cooling demand, generating additional peak power demand. The rapid development of fully glazed building architecture without proper design and components leads to unsustainable models. It would be recommended that the demonstration part of the project address such issues.</i></p> | <p>EUEEP includes an activity that will develop, adopt, and implement regulations for the application of residential building standards for the hot summer, warm winter zones of the country. These standards would definitely include those for cooling systems used in residential (low and high-rise) buildings. The implementation of the standards will be demonstrated in Fujian, Guangdong, and the Guangxi Autonomous Region by 3 local construction commissions. The corresponding description of the activity has been revised to include cooling systems to be addressed in detail in the developed and implemented standards/regulations</p> | <p>Project Document: Results Framework - Component B-2.1</p> |
| | <p>By end of Year 1, the Energy Efficiency Codes for Residential Buildings, which will include provisions for energy efficient design and operation of cooling systems, will be issued, and is expected for implementation after issuance.</p> | |
| | <p>EUEEP also includes an activity involving the preparation of energy standards for retrofitting existing public buildings. Obviously, cooling systems in existing buildings will also be addressed in the energy standards that will be prepared, in addition to heating, which along with cooling are the main energy end uses in both new and existing buildings in China. The description of the activity has been revised to emphasize, among others, the promotion of the adoption of regulation for retrofitting building services and facilities (cooling and heating) in existing public buildings</p> | <p>Project Document: Results Framework - Component B-2.2</p> |
| | <p>EUEEP also includes an activity involving the preparation of energy standards for</p> | |

| COMMENT | RESPONSE | REFERENCE |
|--|---|---|
| | <p>commercial buildings covering all relevant building services (e.g., cooling systems in existing buildings will also be addressed). The description of the activity has been revised to emphasize preparation of standards/codes for cooling and heating in commercial buildings</p> <p>Moreover, EUEEP also includes an activity whereby a trial program for testing the application of stringent building standards, as practices in other countries, in one Chinese city, and the preparation of legislations (to employ the applicable standards) for adoption in other cities. The description of the activity has been revised to emphasize that the standards cover all building services such as cooling and heating.</p> <p>Lastly, the project also includes an activity on the implementation of green and/or EE building projects financed by the private sector. These projects will serve as demonstrations of the application of the proposed building energy standards/codes in the demonstration or pilot cities.</p> <p>A technical capacity building activity will also be carried out under the project on the implementation of building codes, and these codes/standards (which cover all building services including air conditioning) will definitely be the object of such activity.</p> | <p>Project Document: Results Framework - Component B-2.3</p> <p>Project Document: Results Framework - Component B-2.4</p> <p>Project Document: Results Framework - Component B-3.3 and 3.6</p> <p>Project Document: Results Framework - Component B-3.1</p> |
| <p>In the industry, the voluntary agreement (VA) development strategy seems to be concentrating on investment in new technologies. This is of course relevant, but it seems that the software part of the VA (e.g. developing energy management in house independently of investments) could be better development</p> | <p>The major activity on VA do not only focus on investment in new technologies, but also training /educating key managers from the 12 enterprises on the value of taking energy efficiency improvement measures. It also involves the development of educational and promotional materials that aim at providing the legal, economic and environmental rationale for improving energy efficiency in the enterprises.</p> <p>The description of the activities under the VA development strategy has been revised to include capacity building on best practices abroad, internal management improvement through study tours, training, and innovations of existing technologies and processes.</p> | <p>Project Brief: Annex E</p> <p>Project Document: Results Framework - Component A-1</p> |

NOTE: Germany provided positive comments to the project and has clearly stated that it has no objections to the project.

ANNEXES

- Annex 1 Terms of Reference
- Annex 2 ERP/Atlas budget and outline work plan
- Annex 3 Estimated Co-financing Plan

ANNEX 1-TERMS OF REFERENCE

A.1: Terms of Reference for International Consultants

1. **Post Title: Energy Policy Analysis Expert (A1)**

Duration: 5 months/ 3 years, one person

Qualifications:

- Eight years of practical and/or academic experience in the study and implementation of energy efficiency policy
- Knowledgeable about the characteristics of key energy-intensive industries (especially iron and steel, chemicals, and cement) and their production processes.
- Experience with design, study and implementation of VA projects in his/her own country or other countries.
- Understand China's energy situation.
- Led the production of relevant reports on analysis of international energy efficiency policies and on VA concepts, and project implementation.

Language: English or Chinese

Budget: US\$70,000 (This includes travel cost & DSA)

Duties:

- Provide materials/documents of successful international VA programs.
- Assist the PMO in convening domestic or international workshops and training on EE policy formulation and VA program design, implementation and evaluation.
- Prepare appropriate training materials on EE policy and VA programs in accordance with the requirements of the relevant Chinese organization.
- Speak at domestic training workshops about successful VA design, development and implementation in iron and steel, chemicals, and cement industry.
- Cooperate with Chinese experts to develop detailed methods on ways to design, implement and evaluate VA schemes in the identified pilot industries.
- Suggest and design a program to effectively remove the existing barriers blocking the implementation of VA in China.
- Evaluate existing EE policies of the country and of the pilot companies.
- Provide technical assistance (when necessary) in the formulation of EC&EE policies and policy support activities in the pilot companies.
- Recommend measures (when necessary) to enhance effectiveness of the VA activities.
- Based on the experience in the pilot VA program, provide inputs for a follow-up sustainable VA program that will be implemented in the other industry sub-sectors in China

Expected Deliverables/Outputs:

- Presentations at domestic workshops.
- Analysis reports on international incentive policies of VA, according to type of industry.
- Analysis reports (independent one for each industry) on international successful VA programs (especially refer to iron and steel, chemical, cement industry), including alternative approaches to the removal of barriers.
- Documentation of baseline data for all the pilot companies.
- Report on any technical assistance provided in the implementation of EC&EE activities in the pilot companies, and recommended measures to enhance effectiveness of the VA activities
- Evaluation report on the performance of the VA activities in the pilot companies

- Report on the recommended follow-up sustainable VA program that will be implemented in the other industry sub-sectors in China

2. **Post Title: Energy Auditing and VA Planning/Designing Expert (A1)**

Duration: 5 months/ 3 years, one person

Qualifications:

- Eight years of practical experience and study on enterprise' energy audit. - Knowledgeable about key energy-intensive industries (especially iron and steel, chemicals, and/or cement) and their production processes
- Led or participated in the design, study and implementation of VA projects in his/her own country or other countries.
- Understand Chinese enterprises' management system and operating practices, and be knowledgeable about China's economic system and the roles of government.

Language: English or Chinese

Budget: US\$70,000 (inclusive of travel cost & DSA)

Duties:

- Provide guidance on design of VA plans.
- Prepare training materials on approaches to conduct energy audits and ways to design successful VA programs in accordance with the requirement of the PMO.
- Speak at domestic workshops about energy audits and ways to design successful VA programs in iron and steel, chemicals, and cement industry. Note features that are specific to these industries
- Cooperate with Chinese experts to carry out the energy audits and develop detailed methodology to design, implement and evaluate VA pilot programs in the VA program host companies.
- Evaluate the results of the energy audit in all the pilot companies
- Evaluate and set-up baseline data for all the pilot companies.
- Provide technical assistance (when necessary) in the implementation of EC&EE activities in the pilot companies.
- Evaluate performance of the VA activities in the pilot companies
- Recommend measures (when necessary) to enhance effectiveness of the VA activities
- Based on the experience in the pilot VA program, recommend a follow-up sustainable VA program that will be implemented in the other industry sub-sectors in China

Expected Deliverables/Outputs:

- Presentations at international and domestic workshops
- Analysis reports on international experiences with energy audits and VA programs in the three industries.
- Analysis reports on methods and approaches that are appropriate to the three industries in China.
- Documentation of the evaluation of the energy audit results
- Documentation of baseline data for all the pilot companies.
- Report on any technical assistance provided in the implementation of EC&EE activities in the pilot companies, and recommended measures to enhance effectiveness of the VA activities
- Evaluation report on the performance of the VA activities in the pilot companies
- Report on the recommended follow-up sustainable VA program that will be implemented in the other industry sub-sectors in China

3. **Post Title: International Energy Benchmarking Expert (A1)**

Duration: 4 months/ 3 years, one person

Qualifications:

- Eight years of practical experience and study of industrial energy use benchmarking
- Knowledgeable about key energy-intensive industries (especially iron and steel, chemicals, and/or cement) and their production processes
- Led or participated in the design, and study of benchmarks in support of VA programs in his/her own country or other countries.
- Understand and be knowledgeable about Chinese enterprises' management system and operations

Language: English or Chinese

Budget: US\$52,000 (inclusive of travel cost & DSA)

Duties:

- Provide guidance on the use of energy benchmarks in VA programs. Prepare training materials on approaches to develop benchmarks to support the design of successful VA programs in accordance with the requirement of the PMO.
- Speak at domestic workshops about benchmarking in VA programs in iron and steel, chemicals, and cement industry.
- Cooperate with Chinese experts in developing detailed methodology to design, implement and evaluate the energy use benchmarking program for the VA pilots. Assist in the evaluation of the results of the energy audit in all the pilot companies
- Provide relevant inputs in the evaluation and setting-up of baseline data for all the pilot companies.
- Based on the energy audit results and energy use baseline data, set energy use targets for the various VA pilot companies
- Recommend an energy use benchmarking program specific to the VA pilot companies.
- Provide technical assistance (when needed) in the implementation of EC&EE activities in the pilot companies.
- Assist in the evaluation of the performance of the VA activities in the pilot companies, and where possible, recommend measures to enhance effectiveness of the VA activities
- Based on the experience in the pilot VA program, recommend a follow-up sustainable energy use benchmarking program that will be implemented in the other industry sub-sectors in China

Expected Deliverables/Outputs:

- Presentations at international and domestic workshops
- Analysis reports on international experiences with benchmarking and VA programs in the three pilot industries.
- Analysis reports on benchmarking methods and approaches that are appropriate to the three pilot industries in China.
- Documentation of the energy use benchmarking for the VA program
- Report on the technical assistance provided in: (1) Evaluation of the results of the energy audit in all the pilot companies; (2) Evaluation and setting-up of baseline data for all the pilot companies; (3) Implementation of EC&EE activities in the pilot companies; (4) Evaluation of the performance of the VA activities in the pilot companies; and, (5) Enhancing effectiveness of the VA activities
- Report on the set energy use targets for the various VA pilot companies
- Documentation of the energy use benchmarking program specific to the VA pilot companies.
- Documentation of the recommend a follow-up sustainable energy use benchmarking program that will be implemented in the other industry sub-sectors in China

4. Post Title: International expert in energy efficiency design code for the cement industry (A2)

Duration: 30 days, one person

Qualifications:

- Eight years of experience in energy efficiency research and practice in the cement industry
- Familiarity with characteristics of energy consumption and technological process in the cement industry
- Expertise in the establishment and application of energy efficiency benchmarks and analysis of costs and potential for efficiency improvement in the cement industry
- Familiarity with the national conditions of China and the current situation of China's cement industry

Language: English or Chinese

Budget: US\$25,000– This includes travel cost & DSA

Duties:

- Compile and evaluate best practices of energy efficiency applications in cement industries in other countries and provide sample case studies that can possibly be applied in China (or at least modified to suit the conditions in the Chinese cement industry)
- Analyze the application of energy efficiency design and operating practices in the cement industries in other countries
- Provide inputs to the establishment of an energy use benchmarking program for the cement industry (starting with the cement plants involved in the VA program), and technical assistance (when needed) in the implementation of EC&EE activities in the cement plants
- Provide technical assistance in the formulation of a code of practice for energy efficient design and operation of cement plants for the Chinese cement industry
- Provide information and materials from international and national studies and approaches that would be useful for the development of a code of practice for energy efficient design and operation of cement plants for China's cement industry;
- Develop the implementing rules and regulations for the effective enforcement of the developed code of practice for the energy efficient design and operation of cement plants in the local cement industry and
- Provide technical assistance (where necessary) to the relevant GOC agencies in the enforcement of, and to the cement industry in complying to, the code of practice for energy efficient design and operation of cement plants.

Expected deliverables/outputs:

- Documentation of profiles of best practices of energy efficiency applications in the cement industry, including an evaluation of such applications and their applicability in cement plants in China;
- Documentation of inputs to the establishment of an energy use benchmarking program for the cement industry and technical assistance provided in the implementation of EC&EE activities in the cement plants.
- Analysis report about the application of the energy efficiency design and operating practices in the cement industry in other countries, as well as recommendations on how these can be applied in the Chinese cement industry;
- Other information and materials useful for the development of a code of practice for the energy efficient design and operation of cement plants in the local cement industry.

- Documentation of the technical assistance provided on the enforcement of, and compliance to, the code of practice for energy efficient design and operation of cement plants.

5. Post Title: International expert in energy efficiency design code for the petrochemical industry (A2)

Duration: 30 days, one person

Qualifications:

- Eight years of experience in energy efficiency research and practice in the petrochemical industry
- Familiarity with characteristics of energy consumption and technological process in the petrochemical industry
- International experience with techno-economic analysis for the development of a code of practice for the design and operation of petrochemical plants
- Expertise in the establishment and application of energy efficiency benchmarks and analysis of costs and potential for efficiency improvement in the petrochemical industry
- Familiarity with the national conditions of China and the current situation of China's petrochemical industry.

Language: English or Chinese

Budget: US\$25,000– This includes travel cost & DSA

Duties:

- Compile and evaluate best practices of energy efficiency applications in petrochemical industries in other countries and provide sample case studies that can possibly be applied in China (or at least modified to suit the conditions in the Chinese petrochemical industry);
- Analyze the application of energy efficiency design and operating practices in the petrochemical industries in other countries;
- Provide inputs to the establishment of an energy use benchmarking program for the petrochemical industry (starting with the petrochemical plants involved in the VA program), and technical assistance (when needed) in the implementation of EC&EE activities in the petrochemical plants.
- Provide technical assistance in the formulation of a code of practice for energy efficient design and operation of petrochemical plants for the Chinese petrochemical industry;
- Provide information and materials from international and national studies and approaches that would be useful for the development of a code of practice for energy efficient design and operation of petrochemical plants for China's petrochemical industry;
- Develop the implementing rules and regulations for the effective enforcement of the developed code of practice for the energy efficient design and operation of petrochemical plants in the local petrochemical industry; and,
- Provide technical assistance (where necessary) to the relevant GOC agencies in the enforcement of, and to the petrochemical industry in complying to, the code of practice for energy efficient design and operation of petrochemical plants.

Expected deliverables/outputs:

- Documentation of profiles of best practices of energy efficiency applications in the petrochemical industry, including an evaluation of such applications and their applicability in petrochemical plants in China;
- Documentation of inputs to the establishment of an energy use benchmarking program for the petrochemical industry and technical assistance provided in the implementation of EC&EE activities in the petrochemical plants.

- Analysis report about the application of the energy efficiency design and operating practices in the petrochemical industry in other countries, as well as recommendations on how these can be applied in the Chinese petrochemical industry;
- Other information and materials useful for the development of a code of practice for the energy efficient design and operation of petrochemical plants in the local petrochemical industry.
- Documentation of the technical assistance provided on the enforcement of, and compliance to, the code of practice for energy efficient design and operation of petrochemical plants.

6. Post Title: International motor system expert as team leader (A3.1)

Duration: 50 days, one person

Qualifications: -

- Engineering Bachelors or Masters degree; - At least eight years of experience in electric motor system energy efficiency research and practice
- Familiarity with the characteristics of electric motor system operation and energy use in Chinese industries
- Extensive knowledge of international programs, contacts and resources about electric motor system market transformation
- Knowledgeable about electric motor system energy efficiency technologies and their application
- Familiarity with the national conditions of China and current situation in electric motor applications in China.

Language: English or Chinese

Budget: US\$50,000– This includes travel cost & DSA

Duties:

- Coordinate work of the working team, and serve as liaison between international experts, national experts, and national subcontractors.
- Advise and assist the PMO in all aspects of project implementation;
- assist in the identification and recruitment of international experts to work on the project component on electric motors;
- research relevant international experiences that provide useful information to help guide China Motor System Market Transformation activities;
- Provide relevant inputs in the development of optimization design criteria for motor systems;
- Prepare training materials on the optimization design criteria developed for motor systems, and participate in the training courses as a trainer;
- Provide relevant inputs in the development of an energy efficiency labeling scheme for variable speed drives;
- Prepare training materials, and participate in training courses for four motor system optimization service organizations as a trainer;
- Provide expert advice on proper motor rewinding techniques
- Develop brochure for enterprises explaining motor system optimization and how to obtain optimization services.

Expected deliverables/outputs:

- A report on relevant international experience which will provide useful information to help guide China Motor System Market Transformation activities;
- Training materials on the optimization design criteria for all four motor systems;
- Training materials for all four motor system optimization service organizations;
- Preparation of training courses

7. Post Title: International motor system experts, one each for variable speed drives, fan systems, pump systems, and compressed air systems (A3.1)

Duration: 35 days each, four persons

Qualifications:

- Bachelors or Masters degree
 - At least five years of experience in motor system energy efficiency research and practice
 - Familiarity with the characteristics of motor system operation and energy consumption
 - Four experts, one each with experience in variable speed systems, fan systems, pump systems, and compressed air systems
-
- **Familiarity with the national conditions of China and the current situation of China's motor systems.**

Language: English or Chinese

Budget: US\$140,000, US\$35,000 each– These include travel cost & DSA

Duties:

- Provide technical advice in the proper design and operation of motor systems used for VSDs, fans, pumps, and air compressors.
- Develop energy efficient design practices and energy conserving operational guidelines for the motor systems used for VSDs, fans, pumps and air compressors
- Provide technical advice on the energy performance of motors at various loadings in VSD, fan, pump and compressed air systems
- Provide information on the market and availability of high-efficiency motors that would be useful for the Motor System market Transformation activities in China
- Provide information of the cost of motor systems
- Provide training to motor system optimization service organizations on the design, installation, operation and maintenance of motor systems used as VSD and as drivers for fluid flow equipment (e.g., fans, pumps and air compressors)
- Provide relevant information on the MEPS for standard-, and high-efficiency electric motors

Expected deliverables/outputs:

- Documentation of technical materials developed on the proper design and operation of motor systems used for VSDs, fans, pumps, and air compressors.
- Report on energy efficient design practices and energy conserving operational guidelines for the motor systems used for VSDs, fans, pumps and air compressors
- Documentation of the technical advice on the energy performance of motors at various loadings in VSD, fan, pump and compressed air systems
- Report on the market and availability and cost of high-efficiency motors that would be useful for the Motor System market Transformation activities in China
- Training reports on the training provided to motor system optimization service organizations on the design, installation, operation and maintenance of motor systems used as VSD and as drivers for fluid flow equipment
- Report on information on the MEPS for standard-, and high-efficiency electric motors
- Reports on relevant international experience on motor applications for VSD and fluid flow applications

8. Post Title: International energy efficiency standards experts (A3.2)

Duration: 3 weeks/person, three persons

Qualifications:

- Masters degree or above
- Eight years of experience in the research and development of energy efficiency standards- Familiar with the performances of industrial equipment such as electric transformers or fans (expert 1), industrial boilers (expert 2), and heat pumps for central air conditioners (expert 3).
- Knowledgeable about analytical methods used for energy efficiency standards, and familiar with the energy efficiency standard status of other countries

Language: English (Chinese desired but not essential)

Budget: US\$47,100, US\$15,700 each– These include travel cost & DSA

Duties:

- Review and evaluate the relevant Chinese standards presently enforced with Chinese experts and project group members;
- Assemble a compendium of relevant international standards (MEPS); study and analyze these standards and provide the project group members with analytical reports and photocopies of these standards;
- Review and analyze Chinese equipment/appliance energy performance data and conduct analysis with project group members
- Provide suggestions and technical advice to project group members on the development of relevant energy efficiency standards;
- Provide technical advice in standards setting and labeling for selected equipment/appliances.
- Develop procedures tailored to Chinese requirements for setting up equipment/appliance energy performance standards
- Provide technical advice on the conduct and evaluation of equipment/appliance energy performance
- Provide training to the relevant government agencies (e.g., CNIS) on the setting up and evaluation of energy performance standards
- Participate in energy standards and labeling workshops/meetings
- Work together with Chinese experts and the project group members in the drafting of energy performance standards
- Provide assistance and suggestions in solving problems on standards and standard development procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials.

Expected Deliverables/Outputs:

- Reports (English) on the relevant energy efficiency standards and international experience on the energy performance standards of specific equipment/appliance
- Documentation of the evaluation of relevant Chinese standards presently enforced in China
- Compendium of relevant international standards (MEPS)
- Documentation of the analysis of Chinese equipment/appliance energy performance data; as well as suggestions and technical advice on the development of relevant energy efficiency standards
- Documentation of technical advice provided on standards setting and labeling for selected equipment/appliances.
- Report on the procedures tailored to Chinese requirements for setting up equipment/appliance energy performance standards

- Report on the training provided to the relevant government agencies (e.g., CNIS) on the setting up and evaluation of energy performance standards
- Documentation on the technical assistance provided in solving problems on standards and standard development procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials.;
- Documentation of the training provided on the development and analysis of energy efficiency standard at the international level;

9. Post Title: International energy efficiency labeling expert (A3.2)

Duration: 2 weeks/person, one person

Qualifications:

- Masters degree or higher
- Eight years of research and practical experience in design and implementation of industrial energy-efficiency labeling programs.
- Knowledgeable about the situation of China's end-use energy-consuming equipment in industrial sector
- Experience with international cooperation projects.

Language: English (Chinese desired but not essential)

Budget: US\$11,800 – This includes travel cost & DSA

Duties:

- Provide information on international experiences in successful implementation of energy-efficiency labeling programs for industrial end-use products
- Evaluate current implementation of China's energy efficiency labeling program together with the project team, and provide suggestions on improvement,
- Provision of technical assistance in the establishment of an energy-efficiency labeling program that is suitable to the characteristics of industrial end-use products manufactured and/or used in China.
- Assist the Chinese labeling organizations to establish the collaborative arrangements and/or partnerships with other energy efficiency labeling programs abroad.

Expected Deliverables/Outputs:

- Prepare and submit written reports on international experiences and successful cases studies in industrial end-use energy-consuming products, including the differences between the activities currently implemented in China and the various international experiences and activities in other countries, as well as the experiences and methods in promoting energy efficiency products.
- Provide the suggestions to successfully conducting the energy efficiency labeling in China.

10. Post Title: International energy efficiency standards experts (A3.3)

Duration: 3 weeks/person, four persons

Qualifications:

- Master degree or above
- Eight years experience in the research and development of energy efficiency standards
- Familiar with approaches for the development of energy efficiency standards (expert 1)

- Familiar with the electric performances of micro-wave ovens and/or electric water heaters (expert 2), duplicating machine (expert 3), room air conditioners and/or commercial refrigerators (expert 4), and the characteristics and technology of these industries
- Understand the analytical methods used for energy efficiency standards, and familiar with the energy efficiency standard status of other countries.

Language: English (Chinese desired but not essential)

Budget: US\$80,800, US\$20,200 each– These include travel cost & DSA

Duties:

- Help prepare materials or to host China staff to learn about international practice of priority study of the development of energy efficiency standards (expert 1);
- Review and examine the relevant Chinese standards presently in service with Chinese experts and project group members;
- Collect relevant international standards; study and analyze these standards and provide the project group members of the Chinese part with analytical reports and photo-copies of these standards;
- Review and analyze Chinese product data presently available and conduct analysis with project group members
- Provide suggestions and assistances to project group members on the development of relevant energy efficiency standards;
- Provide assistance in engineering simulation and market impact analysis;
- Participate in relevant workshops/meetings organized by Chinese part;
- Cooperate with Chinese experts the project group members of the Chinese part in the research and development of relevant draft standard documents
- Provide assistance and suggestions in solving problems on standards and standard development procedures raised by project group members of the Chinese part, Chinese experts and Chinese government officials.

Expected Deliverables/Outputs:

- Prepare and submit the written reports on the method of priority study;
- Prepare and submit the written reports (English) on the relevant energy efficiency standards and international situation and experience for the products specified;
- Conduct training in China (10 days) on engineering simulation and market impact analysis and discussion on the aspects of the development and analysis of energy efficiency standard at international level;
- Provide relevant technical standards and information on the problem of implementation, and relevant written reports to Chinese part.

11. Post Title: International energy efficiency labeling expert (A3.3)

Duration: 2 weeks/person, two persons

Qualifications:

- Masters degree or better
- Eight years of research and practical experience in residential and commercial energy-efficiency labeling programs
- Knowledgeable about these types of products in China.
- Managed or involved in the projects of designing, researching and implementing of energy efficient labeling programs.
- Experience in international cooperation projects.

Language: *English (Chinese desired but not essential)*

Budget: US\$27,600, US\$13,800 each– These include travel cost & DSA

Duties:

- Provide the case analysis and successful experiences of successfully implementing the energy-efficiency labeling program in the residential and service fields, as well as the relevant materials.(expert 1)
- To conduct the training program and seminars in China about the international energy-efficiency labeling program, the duration is about 10 days. (expert 2)
- Evaluate the current implementation of China’s energy efficiency labeling program together with the project group, and provide suggestions to improvement, so that to set up the energy-efficiency labeling program that suitable to the characteristics of commercial and residential products. (expert 1)
- Provide the successful experience and methods used internationally in promoting high-efficiency energy-consuming products, and assist the project group accomplishes the promotion plan for labeled products.(expert 2)
- To conduct the training program in China about the certification popularization and the labeled product promotion. (experts 2)
- Assist China’s labeling organizations to establish the cooperation with international labeling organizations.(expert 1&2)

Expected Deliverables/Outputs:

- Prepare and submit the written report (in English) on the international experiences of energy efficient labeling and successful cases studies, including the differences between the activities currently implemented in China and the various international experiences and activities in other countries, as well as the experiences and methods in promoting energy efficiency products.
- Prepare and submit the written report (in English) on the international experiences of certification popularization and promotion as well as the suggestions to the Chinese certification implement body on the promotion activities.
- Provide the suggestions to successfully conducting the energy efficiency labeling in China.

12. Post Title: Advisors for government procurement of energy efficiency products (A3.3)

Duration: 2 weeks/person, two persons

Qualifications:

- Masters degree or better.
- Eight years of research and practical experiences in government procurement of energy-efficient products.
- Familiar with the energy efficiency standards, and energy-efficient labeling activities
- Managed or involved in the design, research and implementation of some governmental energy-efficient purchase programs.
- Have the experiences of involving the international cooperation projects.

Language: English (Chinese desired but not essential)

Budget: US\$25,600, US\$12,800 each– These include travel cost & DSA

Duties:

- Provide the case analysis and successful experiences of successfully implementing government energy-efficient purchase in the fields of residential and service products, as well as other relevant materials (expert 1)
- To conduct the training program in China about government purchase of energy efficient products. The training will focus on successful purchase cases and on the technical and trade

methods used in order to assist Chinese project groups to fully understand procurement practices (expert 2)

- Evaluating the feasibility and potential of government's purchase of energy efficient products in China together with the project group, to provide the proper technical guide for the development of regulations for government procurement
- Provide international case studies of developing technical guidelines for government procurement of energy-efficient products, and provide instructions to the activities in China
- Assist the project group to develop the technical guideline of the relevant products purchase for government agencies.

Expected Deliverables/Outputs:

- Prepare and submit written report (in English) of the international experiences and successful cases in government procurement of energy-efficient products, including specific policies and measures, implementing methods and their impact, as well as suggestions for conducting similar activities in China.

13. Post Title: International harmonization advisor for energy efficiency labeling (A3.3)

Duration: 2 weeks, one person

Qualifications:

- Masters degree or better.
- Eight years of research and practical experiences in labeling promotion, especially the experience in label's international promotion.
- Familiar with the energy efficiency standards, and energy-efficient labeling internationally.
- Managed or involved in some of the international cooperation or promotion of labels.
- Have the experiences of involving in the international cooperation projects.

Language: English (Chinese desired but not essential)

Budget: US\$11,800 – This includes travel cost & DSA

Duties:

- Provide internationally successful experiences and case analysis of successfully implementing the internationalization of energy efficiency labeling, as well as relevant materials.
- Conduct evaluation of China's current energy efficiency labeling activities together with the project group, and explore possible approaches to harmonization
- To assist China certification body to set up a relationship with overseas labeling organizations, and assist China-side to arrange an international tour.

Expected Deliverables/Outputs:

- Prepare and submit a written report (in English) of the international experiences and successful cases in harmonization of energy efficiency labeling, including specific policies and measures, implementing methods, implementing effect appraisal, as well as suggestions for conducting similar activities in China.

14. Post Title: Industrial energy use statistics expert (A4)

Duration: 23 days, 1 person

Qualifications:

- Eight years of working experience in international industrial energy statistics and energy efficiency analysis.

- Familiar with energy consumption statistics practice of key energy intensive enterprises
- Familiar with statistical data collection, collation and data bases on industrial energy use practices

Language: English (knowledge of Chinese useful but not essential)

Budget: US\$20,000– This includes travel cost & DSA

Duties:

- participate in review of definitions and calculation approaches of energy consumption indicators for domestic and international primary energy-intensive industrial products.
- assist to establish an industrial energy consumption statistics indicators system meeting international practice as well as Chinese special situation.
- Assist to provide information on alternative statistical software packages and test one analysis software of enterprises energy consumption statistics.
- Work with domestic experts to design and conduct one energy consumption statistics training for staff from 100 key energy-intensive enterprises.
- assist in the establishment and trial operation of the energy management information system for key energy-intensive enterprises.
- assist the subcontractor in identifying and organizing an international study tour

Expected Deliverables/Outputs:

- provide one review report on definitions and calculation approaches of energy consumption indicators for international primary energy-intensive industrial products.
- provide relevant materials for the establishment, testing, and activities of EMISRP system.

A.2: Terms of Reference for National Consultants

1. Post Title: Cement Sector Energy Efficiency Technology Expert (A2)

Duration: 120 days, 1 person

Qualifications:

- Eight years of experience in energy efficiency research and practice in the cement industry
- Familiarity with cement enterprises' characteristics of energy consumption and technological process
- Knowledgeable about advanced domestic and foreign cement energy efficiency technologies and their applications
- Experience of being responsible for or participation in the design or implementation of domestic cement energy efficiency projects
- Understand the level of technological equipment and the current situation of energy efficiency in the domestic cement industry.

Language: Chinese and English

Budget: US\$25,000 (inclusive of travel cost & DSA)

Duties:

- Assist in the investigation of the production technologies, equipment and technical and economic indexes of the domestic cement industry, the energy consumption indexes of different technologies, the types of energy sources consumed, the current situation of energy efficiency in the cement industry and the application of new energy efficiency technologies;
- Study the best practices of energy efficiency in the domestic cement industry and put forth a case study report;

- Work with the international expert in energy efficiency design code for the cement industry and assist the formulation of an outline of energy efficiency design code for the cement industry;
- Suggest comments on the modification of the developed draft energy efficiency design code for the cement industry;
- Provide information and materials useful for the development of an energy efficiency design code for the cement industry;
- Assist the holding of a class of training on the energy efficiency design code for the cement industry;
- Assist the appraisal of the energy-saving and emission-reducing effects of the application of the energy efficiency design code for the cement industry; and,
- Participate in a workshop on the application of the energy efficiency design code for the cement industry.

Expected deliverables/outputs:

- Contributions/inputs to an investigation report about the level of technological equipment and the current situation of energy efficiency in the cement industry;
- Case study report about the best practices of energy efficiency in the domestic cement industry;
- Set of information and materials useful for the development of an energy efficiency design code for the cement industry;
- Contributions/inputs to two trainings on the energy efficiency design code for the cement industry; and,
- Contributions/inputs to an appraisal report about the energy-saving and emission-reducing effects of the application of the energy efficiency design code for the cement industry.

2. Post Title: Petrochemicals energy efficiency technology expert (A2)

Duration: 120 days, 1 person

Qualifications:

- Eight years of experience in energy efficiency research and practice in the petrochemical industry;
- Familiarity with petrochemical enterprises' characteristics of energy consumption and technological process;
- Knowledgeable about advanced domestic and foreign petrochemical energy efficiency technologies and their applications;
- Experience of being responsible for or participation in the design or implementation of domestic petrochemical energy efficiency projects;
- Understand the level of technological equipment and the current situation of energy efficiency in the domestic petrochemical industry.

Language: Chinese and English

Budget: US\$25,000– This includes travel cost & DSA

Duties:

- Assist in the investigation of the production technologies, equipment and technical and economic indexes of the domestic petrochemical industry, the energy consumption indexes of different technologies, the types of energy sources consumed, the current situation of energy efficiency in the petrochemical industry and the application of new energy efficiency technologies;
- Study the best practices of energy efficiency in the domestic petrochemical industry and put forth a case study report;

- Work with the international expert in energy efficiency design code for the petrochemical industry and assist the formulation of an outline of energy efficiency design code for the petrochemical industry;
- Suggest comments on the modification of the developed draft energy efficiency design code for the petrochemical industry;
- Provide information and materials useful for the development of an energy efficiency design code for the petrochemical industry;
- Assist the holding of a class of training on the energy efficiency design code for the petrochemical industry;
- Assist the appraisal of the energy-saving and emission-reducing effects of the application of the energy efficiency design code for the petrochemical industry; and
- Participate in a workshop on the application of the energy efficiency design code for the petrochemical industry.

Expected deliverables/outputs:

- Assist in the completion of an investigation report about the level of technological equipment and the current situation of energy efficiency in the petrochemical industry;
- Submit a case study report about the best practices of energy efficiency in the domestic petrochemical industry;
- Provide other information and materials useful for the development of an energy efficiency design code for the petrochemical industry;
- Assist in the holding of two trainings on the energy efficiency design code for the petrochemical industry; and
- Assist in the completion of an appraisal report about the energy-saving and emission-reducing effects of the application of the energy efficiency design code for the petrochemical industry.

3. Post Title: Motor system expert as team leader (A3.1)

Duration: 160 days, 1 person

Qualifications:

- Bachelors or Masters degree;
- At least eight years of experience in motor system energy efficiency research and practice;
- Familiar with the characteristics of motor system operation and energy consumption;
- Extensive knowledge of programs, contacts and resources all over the country that may be useful as China implements its motor system market transformation project;
- Knowledgeable about various motor system energy efficiency technologies and their application;
- Familiarity with national conditions of China and the current situation of China's motor systems.

Language: Chinese and English

Budget: US\$30,000 – This includes travel cost & DSA

Duties:

- coordinate work of the working team, and serve as liaison between international experts and PMO, national experts, and national subcontractors;
- advise and assist the PMO of China Motor System Market Transformation Project in all aspects of project implementation;
- assist in the identification and recruitment of national experts to work on the project;
- research relevant international and national experience which provide useful information to help guide China Motor System Market Transformation Project activities;

- assist in the development of optimization design criteria for motor systems;
- prepare training materials on the optimization design criteria developed for motor systems, and participate training course as a trainer;
- assist in development of an energy efficiency labeling scheme for a key motor system component (variable speed drives);
- prepare training materials, and participate training courses for four motor system optimization service organizations as a trainer;
- visit four motor system optimization service organizations to provide technical assistance and additional training;
- assist in developing a brochure for enterprises explaining motor system optimization and how to obtain optimization services.

Expected deliverables/outputs:

- A report on relevant international and national experience which will provide useful information to help guide the activities of the China Motor System Market Transformation Project;
- Training materials on the optimization design criteria for all four motor systems;
- Training materials for all four motor system optimization service organizations;
- Training courses as a trainer.

4. Post Title: Motor system experts , one each on variable speed drives, fan systems, pump systems, and compressed air systems (A3.1)

Duration: 4 persons , 90 days each

Qualifications:

- Bachelors or Masters degree;
- At least five years of experience in motor system energy efficiency research and practice;
- Familiar with the characteristics of motor system operation and energy consumption;
- Four experts must be experienced in variable speed systems, fan systems, pump systems, and compressed air systems, respectively;
- Familiar with the national conditions of China and the current situation of China's motor systems.

Language: Chinese and English

Budget: US\$80,000, US\$20,000 each– These include travel cost & DSA

Duties:

- research relevant international and national experience which provide useful information to help guide China Motor System Market Transformation Project activities;
- assist in development of an optimization design criteria for motor systems;
- prepare training materials on the optimization design criteria developed for motor systems, and participate training course as a trainer;
- assist in development of an energy efficiency labeling scheme for a key motor system component (variable speed drives);
- prepare training materials, and participate training courses for 4 motor system optimization service organizations as a trainer;
- visit 4 motor system optimization service organizations to provide technical assistance and additional training;
- assist in developing a brochure for enterprises explaining motor system optimization and how to obtain optimization services.

Expected deliverables/outputs:

- Reports on relevant international experience which provide useful information to help guide China Motor System Market Transformation Project activities;
- Training materials on the optimization design criteria for each of the four motor systems;
- Training materials for each motor system optimization service organizations;
- Training courses as a trainer.

5. Post Title: Additional motor system experts from engineering design institutes (A3.1)

Duration: 4 persons , 45 days each

Qualifications:

- Bachelors or Masters degree;
- At least five years of experience in engineering design institutes;
- Familiar with engineering design practice of motor systems
- Familiar with the national conditions of China and the current situation of China's motor systems.

Language: Chinese and English

Budget: US\$40,000, US\$10,000 each– These include travel cost & DSA

Duties:

- assist in development of an optimization design criteria for motor systems;
- prepare training materials on the optimization design criteria developed for motor systems, and participate training course as a trainer;
- each expert co-ordinates one engineering design institute to complete at least two motor system designs using the optimization criteria;
- each expert co-ordinates one engineering design institute to complete two case studies on successful projects developed using the optimization design criteria;
- assist in developing a brochure for enterprises explaining motor system optimization and how to obtain optimization services.

Expected deliverables/outputs:

- Completion and submission of training materials on the optimization design criteria for motor systems;
- Completion of training courses as a trainer;
- Completion of at least two motor system optimization designs by each expert;
- Preparation of two successful motor system optimization design case studies by each expert.

6. Post Title: Energy efficiency standards experts on industrial energy use equipments (A3.2)

Duration: 4 persons , 60 days each

Qualifications:

- Masters degree or above;
- With experience of eight years in the research and development of energy efficiency standards, and familiar with relevant energy efficiency situation of other countries;
- Familiar with product performances of industrial equipment such as electric transformers (expert 1), industrial boilers (expert 2), electric fans (expert 3), and central air conditioner heat pumps (expert 4), and industrial characteristics and techniques;
- working experience of many years in relevant fields;
- Familiar with China's industrial situation, energy efficiency status and the development trends of energy conservation technologies in electric transformers (expert 1), industrial boilers (expert 2), electric fans (expert 3), and central air conditioners (expert 4).

Language: Chinese and English

Budget: US\$43,200, US\$10,800 each– These include travel cost & DSA

Duties:

- Review and examine the relevant Chinese standards presently in service together with project group members
- Collect relevant domestic and international standards; review, study and analyze and compare Chinese standards and standard of other countries, provide the project group members with analytical reports and photo-copies of the Chinese standards
- Help international experts in understanding China's energy conservation policy and the detailed status of the specified equipment;
- Review, collect and analyze energy efficiency data of relevant equipment with project group members
- Provide suggestions and assistances to project group members on the development of relevant energy efficiency standards;
- Participate in relevant standard workshops
- Provide assistance and suggestions in solving problems on standards and standard development procedures raised by project group members, international experts, and Chinese government officials.

Expected Deliverables/Outputs:

- Prepare and submit the written reports on the comparison and analysis of relevant domestic and international energy efficiency standards for the equipment specified;
- Submit research and data analysis reports of the equipment specified;
- Submit suggestions for the standard documents of different stages (draft standard documents, standard documents for discussions, standard documents for comment, and standard documents for examination).

7. Post Title: Energy efficiency standards experts on residential energy use equipments (A3.3)

Duration: 5 persons , 60 days each

Qualifications:

- Masters degree or above;
- With experience of eight years in the research and development of energy efficiency standards, and familiar with relevant energy efficiency situation of other countries;
- Familiar with the electric performances of room air conditioners (expert 1), micro-wave ovens (expert 2), electric water heaters (expert 3), duplicating machine (expert 4), and commercial refrigerators (expert 5), and the characteristics and techniques of these industries; with working experience of many years in relevant fields;
- Familiar with the industrial situation, energy efficiency status and the development trend of energy conservation technologies etc on the energy using products such as room air conditioners (expert 1), micro-wave ovens (expert 2), electric water heaters (expert 3), duplicating machine (expert 4), and commercial refrigerators (expert 5) in residential and service areas.

Language: Chinese and English

Budget: US\$54,000, US\$10,800 each– These include travel cost & DSA

Duties:

- Review and examine the relevant Chinese standards presently in service together with project group members ;

- Collect relevant domestic and international standards; review, study and analyze and compare Chinese standards and standard of other countries, provide the project group members with analytical reports and photo-copies of the Chinese standards;
- Help international experts in understanding China's energy conservation policy and the detailed status of the specified equipment;
- Review, collect and analyze energy efficiency data of relevant Chinese products with project group members;
- Provide suggestions and assistances to project group members on the development of relevant energy efficiency standards ;
- Participate in relevant standard workshops;
- Provide assistance and suggestions in solving problems on standards and stand development procedures raised by project group members, international experts, and Chinese government officials.

Expected Deliverables/Outputs:

- Prepare and submit the written reports on the comparison and analysis of relevant domestic and international energy efficiency standards;
- Submit research and data analysis reports of the products specified;
- Submit suggestions for the standard documents of different stages (draft standard documents, standard documents for discussions, standard documents for comment, and standard documents for examination).

8. Post Title: Advisor for government procurement of energy efficiency products (A3.3)

Duration: 1 persons , 3 months

Qualifications:

- Masters degree or over, and senior engineer or over;
- With eight years of research and practical experiences in energy-efficient field, familiar with China's energy policies and regulations.
- Master the professional characteristics of the main energy-consuming products in the residential and service fields, and have the knowledge about the products demands of governmental organizations in this field.
- Familiar with the energy efficient standard and labeling program in China.- Have the experiences of involving in the international cooperation projects.

Language: Chinese (English is not necessary)

Budget: US\$78,00

Duties:

- Investigate the domestically existing procurement policies, implementing situations and barriers.
- Conduct the evaluation of the feasibility and potential of the governmental procurement for energy-efficient products implemented currently in China together with the project group and the international experts, to provide the technical guide for stipulating the proper policies of governmental procurement.
- According to the characteristics of energy-saving products, work out the implementing scheme for governmental efficiency procurement.
- Assist the project group to accomplish the procurement technical guidelines of the relevant products.

Expected Deliverables/Outputs:

- Prepare and submit the evaluation report on the feasibility and potential of the governmental procurement for energy-efficient products currently conducted in China, as well as the suggestions to governmental organizations for energy-efficient purchase;
- The report should include the analysis of the existing situation in China's current energy-efficient purchase, the evaluation of potential, the feasibility study, the specific policies and measures, implementing methods and suggestions, etc.

9. Post Title: Energy efficiency labeling expert (A3.3)

Duration: 1 person, 6 months

Qualifications:

- Bachelor degree or over.
- With eight years experience in products quality labeling, familiar with the regulations and requirements of the domestic relevant labeling.
- Master the professional characteristics of the main energy-consuming products in the concerned fields; know about the effect factors of the products' energy-efficiency level and the possible solution method. - Familiar with the products standards, especially the energy-efficiency standards of the relevant products, as well as the product labeling.
- Have the experiences of involving in the international cooperation projects.

Language: Chinese (English is not necessary)

Budget: US\$15,600

Duties:

- Assist the foreign experts to understand the implementing situations of China's labeling work and the various policies and measure.
- Carry out the evaluation of the current energy conservation labeling program in China together with the project group and the foreign experts.
- Give the suggestions to setting up labeling program for the selected products; and provide the technical guide to building up perfect labeling procedure.
- Draft the implementation schemes according to the project schedule;
- Work with the project group to accomplish the technical document and implementing regulations of energy efficiency labeling for the relevant products.
- Involved in the workshops and activities organized by the project group

Expected Deliverables/Outputs:

- Suggestions on setting up labeling program for the selected products;
- The labeling-implementing schemes for the selected products.

10. Post Title: Energy statistics experts, one each in chemical, metallurgy and building materials sector (A4)

Duration: 3 experts, 110 days/expert

Qualifications:

- Eight years of working experience in industrial energy statistics and energy efficiency analysis.
- Familiar with energy consumption statistics practice of key energy intensive enterprises
- Familiar with statistics practice of the State Statistics Bureau
- 3 experts will be chosen including one expert each with experience in chemical, metallurgy and building materials sectors.

Language: Chinese (English is not essential)

Budget: US\$60,000, US\$20,000 each

Duties:

- participate in review of definitions and calculation approaches of energy consumption indicators for domestic primary energy-intensive industrial products.
- participate in improvement of definitions and calculation approaches of energy consumption indicators for domestic primary energy-intensive industrial products, and assist to establish an industrial energy consumption statistics indicators system meeting international practice as well as Chinese special situation.
- Assist to develop and test one analysis software of enterprises energy consumption statistics.
- Assist in conducting one energy consumption statistics training for staff from 100 key energy-intensive enterprises.
- assist in establishment and trial operation of the energy management information system for key energy-intensive enterprises.
- participate in one workshop of the energy management information system.

Expected Deliverables/Outputs:

- assist in completion of one review report on definitions and calculation approaches of energy consumption indicators for domestic primary energy-intensive industrial products.
- assist in establishment of the industrial energy consumption statistics indicators system meeting international practice.
- assist in completion of development and test of one analysis software of enterprises energy consumption statistics.
- assist in completion of one energy consumption statistics training for staff from 100 key energy-intensive enterprises.
- assist in completion of establishment and trial operation of the energy management information system for key energy-intensive enterprises.
- provide relevant materials, information and suggestions per request of PMO.

A.3: Sub-Contracts

1. Organize and coordinate the VA pilot (A1)

Duration for contract implementation: 3 years

Qualifications:

- A national-level organization of energy conservation, with experience on organizing and implementing energy conservation projects and activities
- Many years of good relationship with industries, enterprises, and local energy conservation organizations, and with domestic experts of industrial energy conservation field
- Strong ability in organization and coordination.
- Highly qualified staff

Tasks:

- Establish the project team and invite international experts.
- Promote VA concept and summarize lessons learned from international and domestic VA programs.
- Convene and organize workshops, expert meetings and organize training for VA programs
- Organize international study tours
- Coordinate and supervise the work of the three subcontractors
- Set criteria for the selection of VA pilot enterprises
- With the assistance of other subcontractors, design and complete the VA pilot plan.
- Evaluate the impacts of the VA programs and hold review and acceptance meetings
- Organize experts to develop M&E plan for the project.
- Ensure that \$5 million is committed to implement EE projects and another \$24 million is spent on EE projects by VA enterprises
- Supply recommendations on policies to support VA implementation

Key deliverables /outputs:

- Promotion materials/pamphlets of VA concept and its implementation (1st-3rd month)
- Convene three promotion meetings to spread VA concept and its international experience, one meeting to encourage more enterprises to enter VA project (1st-6th month).
- Analysis reports on international VA experience, according to type of industry (1st-6th month).
- Contract documents in respect of VA. (10th-15th month).
- VA pilot Project Plans (one for each industry) (7th-18th month).
- Hold four expert workshops (7th-18th month).
- An assessment workshop on the impact of VA project, and written assessment reports (35th - 36th month).
- Convene two expert review meetings during the middle and end of the VA project respectively (19th and 36th month)
- M&E plan of project, M&E reports every half a year (1st-36th month)

2. Organize and coordinate the VA pilot implementation in the iron and steel industry (A1)

Duration for contract implementation: 3 years

Qualifications:

- With abundant experience in organizing and implementing energy conservation projects and activities.

- Strong leader in iron and steel industry.
- Good relationship with iron and steel enterprises.
- Strong ability in organization and coordination.
- Highly qualified staff

Tasks:

- Although Jigang and Laigang signed pilot agreements of the VA project sponsored by the Energy Foundation, there is a lot of work (such as monitoring and assessment) that is yet to be conducted. Therefore, the VA pilot for the two enterprises will be implemented in this project. Two additional enterprises will be selected from iron and steel industry to carry out VA pilot in this project.
- Coordinate, supervise and be responsible for all activities of this subcontract
- Convene workshops, expert meetings, and training linked to VA projects.
- Organize activities to promote VA in the sphere of iron and steel industry
- Participate in investigation of enterprises of iron and steel, and lead the production of investigative reports.
- Design and set criteria for the selection of nominated enterprises and for the selection of pilot enterprises that are willing to undertake a VA project.
- Develop the outline of VA Pilot Project Plan for the iron and steel industry (leadership structure, benchmarking, target-setting and so on).
- Write report of energy consumption and inventory of energy conservation programs/measures of pilot enterprises in iron and steel industry.
- Coordinate subcontract for
- design and complete the VA Pilot Project Plan of the iron and steel industry.
- organize the evaluation and acceptance meeting of the impact of VA implementation.

Key deliverables/outputs:

- Develop criteria for selecting pilot enterprises for VA pilot in iron and steel industry, and the draft of VA Pilot Project Plan (energy efficiency indexes, energy saving measures) (1st-18th month).
- Submit investigation report, which includes production, energy consumption, energy efficiency, the tendency of enterprise development and so forth, of the selected enterprises (4th-9th month).
- Annual reports on audit and assessment of the pilot enterprise during VA implementation, and final self-assessment report (7th-36th month).

(3) Organize and coordinate the VA pilot implementation in the chemical industry (A1)

Duration for contract implementation: 3 years

Qualifications:

- With abundant experience on organizing and implementing energy conservation projects and activities.
- Strong rallying point in chemical industry
- Good relationship with chemical enterprises.
- Strong ability in organization and coordination.
- Highly qualified staff.

Tasks:

- Coordinate, supervise and be responsible for all activities of this subcontract
- Convene workshops, expert meetings, and training linked to VA projects.
- Organize activities to promote VA in the sphere of chemical industry

- Participate in investigation of enterprises of chemical industry, and lead the production of investigative reports.
- Design and set criteria for the selection of nominated enterprises and for the selection of pilot enterprises that are willing to undertake a VA project.
- Develop the outline of VA Pilot Project Plan for the chemical industry (leadership structure, benchmarking, target-setting and so on).
- Write report of energy consumption and inventory of energy conservation programs/measures of pilot enterprises in chemical industry
- Coordinate subcontract to
- design and complete the VA Pilot Project Plan of the chemical industry.
- organize the evaluation and acceptance meeting of the impact of VA implementation.

Key deliverables/outputs:

- Develop criteria for selecting pilot enterprises for VA pilot in chemical industry, and the draft of VA Pilot Project Plan (energy efficiency indexes, energy saving measures) (1st-18th month)
- Submit investigation report, which includes production, energy consumption, energy efficiency, the tendency of enterprise development and so forth, of the selected enterprises (4th-9th month).
- Annual reports on audit and assessment of the pilot enterprise during VA implementation, and final self-assessment report (7th-36th month).

(4) Organize and coordinate the VA pilot implementation in the cement industry (A1)

Duration for contract implementation: 3 years

Qualifications:

- With abundant experience on organizing and implementing energy conservation projects and activities.
- Strong leader in cement industry
- Good relationship with cement enterprises.
- Strong ability in organization and coordination.
- Highly qualified staff.

Tasks:

- Coordinate, supervise and be responsible for all activities of this subcontract
- Convene workshops, expert meetings, and training linked to VA projects.
- Organize activities to promote VA in the sphere of cement industry
- Participate in investigation of enterprises of cement industry, and lead the production of investigative reports.
- Design and set criteria for the selection of nominated enterprises and for the selection of pilot enterprises that are willing to undertake a VA project.
- Develop the outline of VA Pilot Project Plan for the cement industry (leadership structure, benchmarking, target-setting and so on).
- Write report of energy consumption and inventory of energy conservation programs/measures of pilot enterprises in cement industry
- Coordinate subcontract to
- Design and complete the VA Pilot Project Plan of the cement industry.
- Organize the evaluation and acceptance meeting of the impact of VA implementation.

Key deliverables/outputs:

- Develop criteria for selecting pilot enterprises for VA pilot in cement industry, and the draft of VA Pilot Project Plan (energy efficiency indexes, energy saving measures) (1st-18th month)

- Submit investigation report, which includes production, energy consumption, energy efficiency, the tendency of enterprise development and so forth, of the selected enterprises (4th-9th month).
- Annual reports on audit and assessment of the pilot enterprise during VA implementation, and final self-assessment report (7th-36th month).

(5) Development and promotion of an energy efficiency design code for the cement industry (A2)

The sub-contracting party is required to develop and promote an energy efficiency design code for the cement industry and assist in the implementation of the code.

Contract period: 24 months

Qualifications:

- Several years of experience in energy efficiency research and application in the cement industry;
- Competent institutional capacity in project organization, co-ordination and implementation;
- Competent staff familiar with domestic cement enterprises' characteristics of energy consumption and technological process, and knowledgeable about advanced domestic and foreign cement energy efficiency technologies and their applications;
- Relevant experience in development/revision of design code for the cement industry;
- Good relationship with domestic cement enterprises and other relevant institutions.

Tasks:

- Establish a project team to undertake the following tasks:
- Organize an investigation of the current situation of the domestic cement industry, including characterization of the production technologies and types of energy sources consumed, benchmarking technical and economic energy consumption indices of the existing cement enterprises, description of current situation of energy use in the cement industry, estimation of the potential for the application of new energy efficiency technologies.
- Organize an analysis of the best energy efficiency practices and energy efficiency design codes as well as the effects of their application in the international cement industry;
- Organize the development of a draft energy efficiency design code for the cement industry on the basis of the information and data collected in the abovementioned activities;
- Organize a series of advisory conferences for soliciting comments of cement enterprises and cement energy efficiency experts on the developed draft energy efficiency design code for the cement industry;
- Improve the draft energy efficiency design code for the cement industry and submit it to the State Bureau of Quality and Technical Supervision for approval;
- Hold a series of advisory conferences for working out a plan for implementing the energy efficiency design code for the cement industry and submit the plan to the State Bureau of Quality and Technical Supervision;
- Assist the holding of a news conference at which the State Bureau of Quality and Technical Supervision will formally announce the energy efficiency design code for the cement industry;
- Assist the organization of a class of training on the energy efficiency design code for the cement industry to train the designers of the relevant engineering design institutes, the relevant government functionaries in charge of the examination and approval of industrial

- production capacity construction projects, the workers of local energy efficiency monitoring centers and the relevant persons in charge of bank credit;
- Organize an appraisal of the energy-saving and emission-reducing effects of the application of the energy efficiency design code for the cement industry; and
 - Assist the holding of a workshop on the application of the energy efficiency design code for the cement industry to brief cement enterprises on the result of appraisal and study how to more effectively implement the design code in the cement industry.
 - Develop a M&E plan of this activity, organize and co-ordinate domestic and international experts to monitor and evaluate this activity at an interval of half a year, estimate energy savings and related CO2 emission reductions from this activity.

Key deliverables/outputs:

- Complete an investigation report about the technological equipment of the cement industry, the current situation of energy consumption and energy efficiency technologies for the cement industry and their applications by the 4th month of the contract period;
- Complete a comprehensive analysis report about the best practices of energy efficiency in the international cement industry, the energy efficiency design codes for the cement industry and the effects of their application by the 4th month of the contract period;
- Complete the development of a draft energy efficiency design code for the cement industry by the 10th month of the contract period;
- Complete the improvement of the draft energy efficiency design code for the cement industry by the 12th month of the contract period;
- Complete the formulation of a plan for the implementation of the energy efficiency design code for the cement industry and submit the plan to the State Bureau of Quality and Technical Supervision by the 13th month of the contract period;
- Assist the holding of a class of training on the energy efficiency design code for the cement industry by the 15th month of the contract period;
- Completion and submission of M&E reports to PMO every half a year during the contract period.

(6) Development and implementation of an energy efficiency design code for the petrochemical industry (A2)

The sub-contracting party is required to develop and promote an energy efficiency design code for the petrochemical industry and assist the implementation of the code.

Contract period: 24 months (output II)

Qualifications:

- Years of experience in energy efficiency research and application in the petrochemical industry;
- Competent institutional capacity in project organization, co-ordination and implementation;
- Competent staff familiar with domestic petrochemical enterprises' characteristics of energy consumption and technological process, and knowledgeable about advanced domestic and foreign petrochemical energy efficiency technologies and their applications;
- Relevant experience in development/revision of design code for the petrochemical industry;
- Good relationship with domestic petrochemical enterprises and other relevant institutions.

Tasks:

- Establish a project team to undertake the following tasks:
- Organize an investigation of the current situation of the domestic petrochemical industry, including the production technologies, equipment and technical and economic indexes of

the existing petrochemical enterprises, the energy consumption indexes of different technologies, the types of energy sources consumed, the current situation of energy efficiency in the petrochemical industry, the application of new energy efficiency technologies and etc. Based upon this investigation, the sub-sector of the petrochemical industry will be identified for development of an energy efficiency code.

- Organize an analysis of the best energy efficiency practices and energy efficiency design codes as well as the effects of their application in the international petrochemical industry;
- Organize the development of a draft energy efficiency design code for the petrochemical industry on the basis of the information and data collected in the abovementioned activities;
- Organize a series of advisory conferences for soliciting the comments of petrochemical enterprises and petrochemical energy efficiency experts on the developed draft energy efficiency design code for the petrochemical industry;
- Improve the draft energy efficiency design code for the petrochemical industry and submit it to the State Bureau of Quality and Technical Supervision for approval;
- Hold a series of advisory conferences for working out a plan for implementing the energy efficiency design code for the petrochemical industry and submit the plan to the State Bureau of Quality and Technical Supervision;
- Assist in the holding of a news conference at which the State Bureau of Quality and Technical Supervision will formally announce the energy efficiency design code for the petrochemical industry;
- Assist in the organization of a class of training on the energy efficiency design code for the petrochemical industry to train the designers of the relevant engineering design institutes, the relevant government functionaries in charge of the examination and approval of industrial production capacity construction projects, the workers of local energy efficiency monitoring centers and the relevant persons in charge of bank credit;
- Organize an appraisal of the energy-saving and emission-reducing effects of the application of the energy efficiency design code for the petrochemical industry; and
- Assist in the holding of a workshop on the application of the energy efficiency design code for the petrochemical industry to brief petrochemical enterprises on the result of appraisal and study how to more effectively implement the design code in the petrochemical industry.
- Develop a M&E plan of this activity, organize and co-ordinate domestic and international experts to monitor and evaluate this activity at an interval of half a year, figure out energy savings and related CO2 emission reductions from this activity.

Key deliverables/outputs:

- Complete an investigation report about the technological equipment of the petrochemical industry, the current situation of energy consumption and energy efficiency technologies for the petrochemical industry and their applications by the 4th month of the contract period;
- Complete a comprehensive analysis report about the best practices of energy efficiency in the international petrochemical industry, the energy efficiency design codes for the petrochemical industry and the effects of their application by the 4th month of the contract period;
- Complete the development of a draft energy efficiency design code for the petrochemical industry by the 10th month of the contract period;
- Complete the improvement of the draft energy efficiency design code for the petrochemical industry by the 12th month of the contract period;

- Complete the formulation of a plan for the implementation of the energy efficiency design code for the petrochemical industry and submit the plan to the State Bureau of Quality and Technical Supervision by the 13th month of the contract period;
- Assist the holding of a class of training on the energy efficiency design code for the petrochemical industry by the 15th month of the contract period;
- Completion and submission of M&E reports to PMO every half a year during the contract period.

(7) Establishment and demonstration implementation of optimization design criteria for existing and new motor systems (A3.1)

The services of a contractor will be sought in order to establish and demonstrate implementation of optimal design criteria for existing and new motor systems.

Contract duration: 36 months.

Qualifications:

- Relevant experience in similar projects;
- Competent institutional capacity in project organization, co-ordination and implementation;
- Competent staff with knowledge and experience of motor system optimization design;
- Good relationship with engineering design institutes and other relevant institutions.

Tasks:

Task 1: Establishment of optimization design criteria for existing and new motor systems.

- Conduct review of design criteria for motor system that have already been developed for use in China and other countries. Identify key features for new Chinese optimization design criteria for both existing and new motor systems, which are to be established.
- Develop an outline for new Chinese optimization design criteria for motor systems, with focus on motor systems with use of medium-voltage, large power motors.
- Hold a series of consulting meetings to provide feedback on the outline developed, with involvement of staff from relevant engineering design institutes, manufacturers of motor system components, large users, and motor system energy conservation experts.
- Revise the outline based on the feedback, and prepare a draft of new Chinese optimization design criteria for both existing and new motor systems.
- Hold a series of consulting meetings to invite comments and suggestions on the draft criteria from relevant engineering design institutes, manufacturers of motor system components, large users, and motor system energy conservation experts.
- Prepare final version of optimization design criteria for motor systems based on the comments and suggestions collected.
- Final criteria submitted to relevant government agencies for approval.
- Conduct a news conference to announce the release of the optimization design criteria for motor systems, and publicize the criteria.
- Prepare training material on the optimization design criteria developed for motor systems.
- Hold a series of consulting meetings to develop an implementation plan for the optimization design criteria for motor system, and submit it to relevant government agency.

Task 2: Demonstration implementation of optimization design criteria for existing and new motor systems

- Develop a plan for assisting 4 engineering design institutes to use the optimization design criteria for motors systems developed in Output 1. Plan to include criteria and process for selecting participating design institutes.

- Select at least four engineering design institutes to participate in demonstrative use of the optimization design criteria for motor systems in terms of criteria and process developed.
- Conduct training in use of the optimization design criteria for senior staff at the 4 design institutes. Trainees will be asked to bring a current design problem to the training, which will be used to illustrate how the optimization design criteria applies to their current projects.
- Organize and co-ordinate both international and national experts to visit each of the 4 design institutes one month after the training to provide additional technical assistance on how to use the optimization design criteria for current projects.
- Organize and co-ordinate each trainee to complete at least two motor system designs using the optimization design criteria.
- Organize and co-ordinate both international and national experts to visit each of the 4 design institutes one year after the training to provide further technical assistance on how to use the optimization design criteria.
- Organize and co-ordinate each of the 4 design institutes, with help from both international and national experts, prepare two case studies on successful projects that were developed using the design criteria, which will be used for education and training purpose in both Phase 1 and Phase 2.
- Conduct a workshop to announce the release of the case studies and to discuss further plans to popularize the design criteria.

Task 3:

- Develop a M&E plan of this activity, organize and co-ordinate domestic and international experts to monitor and evaluate this activity at an interval of half a year, figure out energy savings and related CO2 emission reductions from this activity.
- Ensure that energy savings of 0.5 Mtce and 2 Mtce are achieved by years 2 and 3 respectively.

Key deliverables/outputs:

- By 1st month of the contract duration, a M&E plan for above-mentioned activities developed and submit to PMO.
- By 3rd month of the contract duration, a review report completed on design criteria for motor system that have already been developed for use in China and other countries.
- By 5th month of the contract duration, an outline developed for new Chinese optimization design criteria for motor systems
- By 9th month of the contract duration, a draft of new Chinese optimization design criteria prepared.
- By 11th month of the contract duration, final criteria submitted to relevant government agencies.
- By 12th month of the contract duration, training material on the optimization design criteria for motor systems developed.
- By 13th month of the contract duration, a plan for assisting 4 engineering design institutes developed.
- By 15th month of the contract duration, at least four engineering design institutes selected to participate in demonstrative use of the optimization design criteria.
- By 18th month of the contract duration, training in use of the optimization design criteria for senior staff at the 4 design institutes conducted.
- By 30th month of the contract duration, eight case studies on successful optimization projects developed by the 4 engineering design institutes.
- By 36th month of the contract duration, a workshop to announce the release of the case studies conducted.
- Completion and submission of M&E reports to PMO every half a year during the contract period.

**(8) Development of an energy efficiency-labeling scheme for variable speed drives
(A3.1)**

The services of a contractor will be sought to undertake development of an energy efficiency-labeling scheme for variable speed drives. The contract duration for these services is expected to be 12 months.

Qualifications:

- Years of relevant experience in energy efficiency labeling research;
- Competent institutional capacity in project organization, co-ordination and implementation;
- Competent staff with knowledge and experience of variable speed drives and their performance labeling;
- Good relationship with domestic relevant institutions.

Tasks:

- Compile and review available Chinese and international standards and labeling schemes for variable speed drives.
- Develop an outline for proposed labeling scheme including technical criteria and an implementation plan.
- Conduct a series of consulting meetings to solicit comments and suggestions of manufacturers of motor system components, experts of energy efficiency labeling, and motor system energy conservation experts on the outline for the labeling scheme.
- Develop a full draft of the proposed labeling scheme including technical criteria and an implementation plan.
- Conduct a series of consulting meetings to solicit comments and suggestions of manufacturers of motor system components, experts of energy efficiency labeling, and motor system energy conservation experts on the draft labeling scheme.
- Revise the draft labeling scheme, and submit it to relevant government agency for review and approval.
- Conduct a news conference to announce the labeling scheme for variable speed drives by relevant government agency.
- Develop an M&E plan of this activity, organize and co-ordinate domestic and international experts to monitor and evaluate this activity at an interval of half a year.

Key deliverables/outputs:

- By 1st month of the contract duration, a M&E plan for above-mentioned activities developed and submit to PMO.
- By 3rd month of the contract duration, a review report completed on available Chinese and international standards and labeling schemes for variable speed drives completed.
- By 5th month of the contract duration, an outline developed for proposed labeling scheme including technical criteria and an implementation plan.
- By 9th month of the contract duration, a full draft of the proposed labeling scheme developed.
- By 11th month of the contract duration, final labeling scheme submitted to relevant government agencies.
- By 12th month of the contract duration, a news conference conducted to announce the labeling scheme.
- Completion and submission of M&E reports to PMO every half a year during the contract period.

(9) Support for capacity building for motor systems energy conservation service organizations (A3.1)

The services of a contractor will be sought to build capacity of motor systems energy conservation service organizations. The contract duration for these services is expected to be 36 months.

Qualifications:

- Competent institutional capacity in project organization, co-ordination and implementation;
- Capacity and relevant experience in development and implementation of similar training programs;
- Competent staff with good English skill;
- Good relationship with motor systems energy conservation service organizations and other relevant institutions.

Tasks:

- Develop selection criteria for motor systems energy conservation service organizations and select four such organizations for capacity building support.
- Develop criteria to select experts to be trained at each of the four organizations, including organization staff, other local service providers, and staff at large enterprises that can implement multiple projects at their facilities. Select trainees in terms of criteria developed.
- Assisting in purchasing measurement equipment for these four organizations.
- Organize and conduct set of five training programs for the four service organizations – one each on motors/drives, pumping systems, fan systems, compressed air systems and business aspects of running a motor optimization service organization. International and domestic experts and senior staff from existing service organizations will deliver training courses. Prepare and translate training materials, working from materials developed as part of UNIDO project. Training courses will include extensive field work and will directly result in several completed retrofit projects.
- Organize and co-ordinate international and domestic experts to visit the four organizations to review their work, and provide technical assistance and additional training. Visits are spaced apart, to give the centers time to apply lessons from the previous visit. International and Domestic experts provide additional assistance via telephone and email.
- With help from experts and the four service organizations, develop a brochure for enterprises explaining motor system optimization and how to obtain optimization services, building on materials prepared under UNIDO project. Case studies from the UNIDO project are also reproduced for distribution by the four service organizations to enterprises.
- Organize and co-ordinate the four energy conservation service organizations to offer a series of 1-day workshops for enterprises in their provinces/industries to teach basic optimization techniques and to interest enterprises in implementing optimization retrofit projects. Each center will run a minimum of 5 such workshops.
- Organize and co-ordinate the four energy conservation service organizations to conduct plant assessments. Each organization will conduct at least 10 assessments.
- Organize and co-ordinate the four energy conservation service organizations to provide technical assistance to enterprises to implement optimization retrofit projects. Each organization will complete at least 4 projects.
- Commit the 4 organizations Prepare case studies on model optimization projects. Each organization will complete at least 2 case studies.

- Develop a M&E plan of this activity, organize and co-ordinate domestic and international experts to monitor and evaluate this activity at an interval of half a year, figure out energy savings and related CO2 emission reductions from this activity.

Key deliverables/outputs:

- By 1st month of the contract duration, a M&E plan for above-mentioned activities developed and submit to PMO.
- By 4th month of the contract duration, a selection criteria developed, and four organizations selected for capacity building support.
- By 12th month of the contract duration, measurement equipment for these four organizations purchased.
- By 12th month of the contract duration, 3 training programs for the four service organizations conducted.
- By 18th month of the contract duration, a brochure developed for enterprises explaining motor system optimization and how to obtain optimization services.
- By 24th month of the contract duration, another 2 training programs for the four service organizations conducted.
- By 30th month of the contract duration, at least 8 case studies developed by the four service organizations.
- By 36th month of the contract duration, 20 1-day workshops for enterprises conducted by the four service organizations.
- By 36th month of the contract duration, 40 plant assessments conducted by the four service organizations.
- By 36th month of the contract duration, TA provided by the four service organizations to enterprises to implement at least 16 optimization retrofit projects
- Completion and submission of M&E reports to PMO every half a year during the contract period.

(10) Education and training of enterprises on motor systems energy conservation (A3.1)

The services of a contractor will be sought to undertake education and training of enterprises on motor systems. The contract duration for these services is expected to be 18 months.

Qualifications:

- Competent capacity and relevant experience in organization and implementation of similar training programs;
- Understanding the training needs of enterprises in motor systems energy conservation;
- Good relationship with relevant domestic institutions.

Tasks:

- Develops training course for enterprises based on other educational materials developed for this project and new economic operation guidelines under the UNIDO project.
- Develop selection criteria and choose 5 cities in which to offer training workshops.
- Organize and offer training seminars in each of the 5 cities.
- Develop a M&E plan of this activity, organize and co-ordinate domestic and international experts to monitor and evaluate this activity at an interval of half a year.

Key deliverables/outputs:

- By 1st month of the contract duration, a M&E plan for above-mentioned activities developed and submit to PMO.
- By 4th month of the contract duration, training course, including training materials, developed.
- By 5th month of the contract duration, 5 cities chosen in which to offer training workshops.

- By 6th month of the contract duration, one training seminar conducted in one of the cities chosen.
- By 12th month of the contract duration, another two training seminars conducted in another two of the cities chosen.
- By 18th month of the contract duration, final two training seminars conducted in remaining two of the cities chosen.
- Completion and submission of M&E reports to PMO every half a year during the contract period.

(11) Development of energy efficiency standards for industrial energy use equipments
(A3.2)

Develop energy efficiency standards for the 4 industrial energy using equipment (electric transformers, industrial fans, industrial boilers and cooling unit (heat pump) used for central air conditioners) respectively, and compile relevant training textbooks.

Contract executing time period: 3 years;

Qualifications:

- The sub-contractor is the technical unit responsible for the development of energy efficiency standards approved by the State Administration of China for Standardization
- Several years of experience in the research and development of national energy efficiency standards
- Several years of experience with international cooperation for the research of energy efficiency standards.

Tasks:

- Collect and analyze international energy efficiency standards, international performance standard, domestic and international test method standards of the 4 above mentioned equipment;
- Based on the above analysis, evaluate relevant international practice and successful experience for the research and development of the energy efficiency standards of the specified equipment, and make comparison of the level of domestic and international standards;
- Organize an international workshop in China or a suitable location abroad, and to work with some international experts on defining the methodology and approach to be used to develop standards, and to understand how energy efficiency standards of industrial energy using equipment are successfully developed, designed and implemented in other countries, understand the supporting policies and regulations for energy efficiency standards of other countries, and coordination and promotion role of industrial associations;
- Organize and conduct broad research on the relevant equipment, purchase sample equipment and conduct test on the energy efficiency index, collect and analyze relevant data, understand the energy efficiency level of existing products in the market;
- Conduct statistical research and engineering/economic analysis, establish analytical and predictive model, research and determine the minimum energy efficiency index for each equipment (mandatory), especially research the reach standard (target limited value of energy efficiency) for electric transformers,;
- Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary); conduct analysis and prediction on the energy conservation impact, environmental impact and economic benefit;

- Organize and hold project group meeting respectively, discuss and determine the standard documents for discussion, standard documents for comment, and standard documents for examination;
- Organize workshops or seminars (including various stakeholders) to collect comments on the draft standard documents from manufactures and experts in various fields;
- Organize expert examination meeting and finish standard document for approval and technical supporting report for each standard;
- Submit the standards to the State Administration of China for Standardization and the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China for approval and promulgation;
- Hold two news conferences after the formal promulgation of the standards
- Compile training textbook for each standard, and formally print and publish these books;
- Assist manufactures to meet these equipment standards.
- Develop project Monitoring and Evaluating (M&E) plan so as to monitor the project activities, as well as develop a baseline and gather information for the final project evaluation.

Key deliverables/outputs:

- Submit standard documents for approval and the technical supporting reports of electric transformers and the cooling unit (heat pump) used for central air-conditioners in December, 2004, and try to submit the formal standard documents at the end of 2005
- Finish and submit the textbook for the propaganda and training of the above two standards in March, 2005
- Submit standard documents for approval and technical supporting reports for electric fans in October, 2005; and try to submit the formal standard document in June, 2006;
- Finish and submit the textbook of propaganda for the energy efficiency standards of electric fans in Feb. 2006;
- Submit standard document for approval and technical supporting reports for industrial boilers in May, 2005;
- Finish and submit the textbook of propaganda for the energy efficiency standards of industrial boilers in June, 2006;
- Submit proposal for the activities of the EUEEP second stage in June, 2006.

(12) Energy-Efficiency labeling and promotion for industrial energy use equipments (A3.2)

Contract Period: 3 Years

Qualifications:

- At least five years experience with implementation of energy-efficient labeling programs in China
- Experience with the management of international cooperation projects, especially GEF projects
- Contractor must have experienced mechanical and electrical engineers, economists, marketing and advertising specialists on staff with international training in the setting of labels

Main Tasks:

- Study and evaluate the current energy conservation-labeling program in China and find out the barriers and lessons learned in its implementation. Develop a techno-economic analysis model for end-use energy consumption products and identify product priority order for labeling based on these studies and analysis in industrial field.
- Develop and perfect the labeling procedure and implementation documents for the selected products based on the national requirements for the products labeling. This

activity should be in addition to current labeling work on energy-saving products in China.

- Identify the testing laboratories for the selected products, and harmonize their testing methods and test procedures. Train test personnel. The selection of the testing laboratories will be based on the capacity audit on the qualification, quality control system, testing equipment, and personnel capacities, etc.
 - Launch the labeling program immediately after the above-mentioned preparation work has been finished.
 - Develop the guidelines for label usage and help manufactories in the correct use of the label.
 - Develop and implement the post-labeling supervision procedure to monitor the labeled products regularly.
 - Develop and launch the technical guidelines for government procurement of energy efficient products based on the labeling technical requirements and labeling results.
 - Develop project monitoring and evaluating (M&E) plan so as to monitor project activities, as well as to develop a baseline and gather information for the final project evaluation
 - At the end of this project, summarize the implementing experiences of the project and provide suggestions for improvement
- Key deliverables/outputs:
- Report on product priority study of energy efficiency labeling in China industrial field
 - Compilation of labeling procedures
 - Labeling implementing regulations for the selected products
 - Certification and label-using guideline
 - Technical guidelines for the government energy efficient purchase of the labeled products;

(13) Development of energy efficiency standards for at least five types of commercial and residential equipment, and assist in increasing sales of energy-efficient air-conditioners (A3.3)

Contract period: 3 years;

Qualifications:

- Long time experience for the research and development of national energy efficiency standards;
- Long time international cooperation experience for the research of energy efficiency standards
- Contractor must have experienced mechanical and electrical engineers, economists, marketing and advertising specialists on staff with international training in the setting of standards for commercial and residential equipment

Tasks:

- Choose five widely used appliances and office equipment such as room air conditioners, washing machines, commercial refrigerators, electric and gas water heaters, microwave ovens, duplicating machines, fax machines etc, collect relevant research materials on successful experiences domestically and internationally;
- Broadly collect materials and data domestically and internationally on energy efficiency, life, operating time, development cost, technical options, and market demand etc. Process these data and conduct comparative study;
- Hold 3 workshops for different kinds of equipment, collecting comments from various stakeholders, discuss and determine the analytical plan;

- Establish mathematical analysis model, analyze the energy conservation impact, economic impact, and environmental impact in 10/20 years after the implementation of these standards;
 - According the analytical results, evaluate and list the priority order for the research and development of the energy efficiency standards, and bring forward suggestions to the government;
 - Develop and establish dynamic energy efficiency standard database, collect energy efficiency data and other relevant data of various kinds of products, establish analytical model;
 - Collect and analyze international energy efficiency standards, international performance standard, domestic and international test method standards of the 5 equipment selected:
 - Evaluate the implementation effect and existing problem of energy efficiency standards which will be revised;
 - On the basis of the above analysis, evaluate the relevant research results and international practices and successful experience, and make comparison of the standard level between domestic standard and standards of other countries;
 - Provide assistance to the PMO in the organization of oversea study tour(18 participants, visiting 4 countries in 30 days) to study the methods and experience used in other countries in the analysis, research, development, promotion and implementation of appliances and office equipment energy efficiency standards;
 - Conduct survey on the energy efficiency index of relevant equipment, purchase sample equipment and conduct energy efficiency test; collect and analyze relevant data and understand the present energy efficiency level of these products;
 - Conduct statistical study and engineering/economic analysis, establish the analytical and predictive model, determine the minimum energy efficiency index for these equipment (mandatory);
 - Specify the energy efficiency index used in the promotion of energy conservation certification/labels (voluntary). The technical options are to develop the evaluating values of energy conservation (voluntary) or specify the energy efficiency levels such as A, B, C, D, E etc on the basis of mandatory energy efficiency level requirement (minimum energy efficiency requirement). Conduct analysis and prediction on the energy conservation impact, environmental impact and economic benefit;
 - Organize project group meeting respectively, discuss and determine standard documents for discussion, standard documents for comments and standard documents for examination;
 - Organize workshops or seminars to collect comments on the draft standard documents from manufactures and experts in various fields;
 - Organize expert examination meeting and finish standard document for approval and technical supporting report for each standard;
 - Submit standards to the State Administration of China for Standardization and the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China for approval and promulgation;
 - Organize 2 news conferences after the formal promulgation of standards;
 - Compile and formally publish textbooks of propaganda and implementation for each standard;
 - Assist manufactures to meet these equipment standards;
 - Develop project Monitoring and Evaluating (M&E) plan so as to monitor the project activities.
 - Monitoring will ensure that the market penetration of the five (or more) energy efficient products reaches 10% of new product sales
- Key deliverables/outputs:

- Submit the priority order for the development of energy efficiency standards and the suggestive report to the government at the end 2004;
- Submit the energy efficiency database software and the design & guidance of the software at the end 2004;
- Submit standard document for approval and the technical supporting report of the revised room air conditioner standard in December, 2004, and submit the formal standard document of the standard at the end of 2005;
- Finish and submit the textbook for the propaganda and training of room air conditioner standard in March, 2005
- Submit standard documents for approval and technical supporting reports for commercial refrigerators and microwave ovens in December, 2005; and try to submit the formal standard document in July, 2006;
- Finish and submit the textbook of propaganda for the energy efficiency standards of commercial refrigerators and microwave ovens in March, 2006
- Submit the standard documents for approval and the technical supporting reports of electric water heaters and duplicating machines in April, 2006;
- Finish and submit the textbook of propaganda for the energy efficiency standards of electric water heaters and duplicating machines in June, 2006
- Submit proposal for the activities of the second stage.
- Ensure and report that the market penetration of the five (or more) energy efficient products reaches 10% of new product sales

(14) Energy-Efficiency labeling and promotion of five types of commercial and residential equipment (A3.3)

Contract Implementing Period: 3 years

Qualifications:

- In accordance with the national qualifications requirements for product labeling; get the national approval to set energy-efficiency labels
- At least five years' experiences of implementing the energy-efficient labeling program in China
- Have experiences of undertaking the international cooperation projects, especially the GEF projects

Tasks:

- Identify experts and sub-contractors conduct the following activities.
- Choose possible commercial and residential equipments such as Set-top box, dehumidifier, commercial refrigerators, gas water heaters, electric heater, residential radiator, indoor lighting fixtures, outdoor lighting fixtures, street lighting, traffic signal light, and projector and so forth to conduct priority study for labeling activities. Organize an international training on product priority study. Conduct comprehensive research and collect related information. With the support from international experts, identify product priority order for labeling with the consideration on elements such as energy-efficient potential analysis, market impact capability of products, enterprises' interest on the certification, technical level and relative performance standards of products, testing capability of lab, operational technical feasibility, and national requirement and rules on the scope of certification, etc.
- Study and evaluate the current energy efficiency-labeling program in China and find out the barriers and lessons learned in the implementation.
- Develop and perfect the labeling procedure and implementation documents for five selected products based on the national requirements for the product labeling.

- Identify the test laboratories for the selected products, and harmonize their testing methods and testing procedures as well as the testing person training.
 - Launch the labeling immediately after the above-mentioned prepare work has been finished.
 - Develop the post-labeling supervision procedure to supervise the labeled products at regular time.
 - Develop a labeling database to normalize all the labeling activities as well as to provide an information inquiry system of high-efficiency energy-consuming products for consumers.
 - Organize an international training to learn and study the international experiences on the implementation and policy support of the governmental procurement for energy-efficient products.
 - Do some research work on government energy efficiency procurement policy and provide policy suggestions for government on how to establish and perfect government procurement system, which harmonized with the labeling activities in this project, for energy-efficient products.
 - Develop technical guidelines for the governmental energy efficiency procurement based on the technical requirements of energy efficiency labeling and labeling results.
 - Develop the integrated marketing and communication plan to promote the labeled products, and conduct promotion activities to encourage more manufactories to apply for energy efficiency labeling. Train manufactures on how to apply for energy efficiency labeling.
 - Develop and deliver leaflets about the labeling results and the benefits of using EE products.
 - Establish a web site that provides labeled products information to consumers to guide their purchase of EE products. The web site should be renewed timely with the implementing of energy efficiency labeling.
 - Make air conditioners as a pilot to find out the barriers of market promotion of EE products and conduct consumer education.
 - Organize an international workshop to understand the strategy and implementation of energy-efficiency labeling program abroad, and find out the harmonization feasibility between china's energy efficiency labels with its international counterparts.
 - Analyze the barriers on the mutual recognition between the domestic and overseas energy-efficiency labels and explore the possible ways and do some technical preparation work for the international harmonization.
 - Develop project Monitoring and Evaluating (M&E) plan so as to monitor the project activities, as well as develop a baseline and gather information for the final project evaluation.
 - Monitoring will ensure that the market penetration of the five (or more) energy efficient products reaches 10% of new product sales
 - At the end of this project, to summarize the implementing experiences of the project and provide the suggestions for improvements in the next phase.
- Key deliverables/outputs:
- Report on product priority study of energy efficiency labeling in China residential and service field;
 - The compilation of labeling procedures;
 - The labeling implementing regulations for the first batch (at least 2) of labeled products;
 - The integrated marketing and communication plan of the labeled products;
 - Report on the barriers of high-efficiency air-conditioners market promotion;
 - The technical guidelines for the governmental energy efficient purchase of the first batch of products;

- The labeling implementation regulations for the second batch (at least 3 additional) products.
- Ensure and report that the market penetration of the five (or more) energy efficient products reaches 10% of new product sales

(15) Development and test of the tools, techniques and procedures necessary to establish the energy management information system (A4)

The services of a contractor will be sought to develop and test the tools, techniques and procedures necessary to establish the energy management information system.

Contract duration: 12 months.

Qualifications:

- Years of relevant experience in industrial energy statistics and energy efficiency analysis;
- Competent institutional capacity in project organization, co-ordination and implementation;
- Competent staff familiar with energy consumption statistics practice of key energy intensive enterprises;
- Relevant experience in similar software development;
- Good relationship with the State Statistics Bureau and other relevant institutions.

Tasks:

Task 1: establish an industrial energy consumption statistics indicators system meeting international practice

- Conduct review of definitions and calculation approaches of energy consumption indicators for domestic primary energy-intensive industrial products, and identify problems remaining for solution.
- Assist in organizing, and participate in one international study tour of enterprises energy consumption statistics to learn international information and experience of energy statistics methods and indicators system, with a focus on learning definitions and calculation approaches of energy consumption indicators for foreign primary energy-intensive industrial products.
- Based on data and information collected from above-mentioned activities and relevant findings of PDF B, improve definitions and calculation approaches of energy consumption indicators for domestic primary energy-intensive industrial products, and, based on this, establish an industrial energy consumption statistics indicators system meeting international practice as well as Chinese special situation.

Task 2: develop and test one software that analyzes enterprise energy consumption statistics

- Conduct survey on key energy-intensive enterprises to learn current conditions of their energy consumption statistics, and identify problems remaining for solution.
- Based on findings of the survey on key energy-intensive enterprises, and the industrial energy consumption statistics indicators system established, develop an analysis software of enterprises energy consumption statistics.
- Test the developed analysis software of enterprises energy consumption statistics in at least 6 typical key energy-intensive enterprises selected.
- Hold a series of consulting meetings to invite comments and suggestions of key energy-intensive enterprises, energy statistics experts on the software developed.
- Improve functions of the analysis software based on comments and suggestions collected.
- Task 3: Develop a monitoring and evaluation plan for this activity, and submit it to PMO. Organize and co-ordinate domestic and international experts to monitor and evaluate this activity at an interval of half a year, and prepare and submit M&E reports to PMO.

- Monitoring plan should ensure that EMISRP is operational in more than 50% of the 7000 enterprises by the end of year 3, and that by then plans are underway to assure that the EMISRP data base is updated and maintained annually

Key deliverables/outputs:

- By 1st month of the contract duration, an M&E plan for above-mentioned activities developed and submit to PMO.
- By 3rd month of the contract duration, a review report completed on definitions and calculation approaches of energy consumption indicators for domestic primary energy-intensive industrial products.
- By 4th month of the contract duration, completion of one report on major findings from the international study tour of enterprises energy consumption statistics.
- By 6th month of the contract duration, an industrial energy consumption statistics indicators system meeting international practice established.
- By 6th month of the contract duration, a survey report completed on energy consumption statistics situation of key energy-intensive enterprises.
- By 9th month of the contract duration, one analysis software of enterprises energy consumption statistics developed.
- By 10th month of the contract duration, one report on test results of the analysis software of enterprises energy consumption statistics in at least 6 typical key energy-intensive enterprises
- By 12th month of the contract duration, submission of the improved analysis software and one complete users' manual.
- Completion and submission of M&E reports every half a year.

(16) Establishment and trial operation of the energy management information system for key energy-intensive enterprises (A4)

The services of a contractor will be sought to assist in establishment, and conduct trial operation of the energy management information system for key energy-intensive enterprises.

Contract duration: 24 months

Qualifications:

- Years of relevant experience in management and operation of similar information systems;
- Competent institutional capacity in project organization, co-ordination and implementation;
- Competent staff with skills of analysis and treatment of energy consumption statistics data of key energy intensive enterprises;
- Good relationship with the State Statistics Bureau and other relevant institutions.

Tasks:

Task 1: establish the energy management information system for key energy-intensive enterprises

- Assist the State Statistics Bureau (SSB) to establish the energy management information system covering at least 3500 key energy-intensive enterprises nationwide. The SSB will do this mainly by using its authority and its existing enterprises data collection channels.

Task 2: trial operation of the energy management information system for key energy-intensive enterprises

Task 2.1: energy consumption statistics training for staff from key energy-intensive enterprises .

- Conduct one three-day, 100-person energy consumption statistics training for staff from key energy-intensive enterprises with weak energy consumption statistics capacity, main

contents of which include training for use of the analysis software of enterprises energy consumption statistics, calculation approaches of energy consumption indicators of primary energy-intensive industrial products, etc.

Task 2.2: collection, analysis and management of energy consumption statistics data of key energy-intensive enterprises. Including:

- Collect energy consumption statistics data of key energy-intensive enterprises using existing enterprises data collection channels of the SSB.
- Conduct statistics analysis of data collected.
- Build up an energy consumption statistics database for key energy-intensive enterprises, operate and maintain the database.

Task 2.3: energy consumption statistics information reporting of key energy-intensive enterprises.

- Compile annual reports on energy consumption statistics information of key energy-intensive enterprises based on results of the statistics analysis.
- Print the annual reports on energy consumption statistics information of key energy-intensive enterprises compiled.
- Deliver the printed annual reports to relevant government agencies, and other interesting parties through appropriate channels.

Task 3: Assessment of operation effectiveness of the energy management information system for key energy-intensive enterprises

- Conduct one assessment of operation effectiveness of the energy management information system for key energy-intensive enterprises, including assessment of roles in supporting government energy efficiency policies decision-making, and in promoting energy efficiency of key energy-intensive enterprises. Specific assessment activities may include visits to relevant government agencies, and questionnaire survey on key energy-intensive enterprises covered by the energy management information system, etc..

Task 4: workshop of the energy management information system

- Hold a two-day, 100-person workshop of the energy management information system to spread the assessment results of operation effectiveness of the energy management information system for key energy-intensive enterprises, and explore how to expand the energy management information system to more key energy-intensive enterprises.

Task 5: Develop a M&E plan of this activity, organize and co-ordinate domestic and international experts to monitor and evaluate this activity at an interval of half a year, figure out energy savings and related CO₂ emission reductions from this activity, and prepare and submit M&E reports to PMO every half a year.

- Monitoring should ensure that EMISRP is operational in more than 50% of the 7000 enterprises by the end of year 3, and that by then plans are underway to assure that the EMISRP data base is updated and maintained annually

Key deliverables/outputs:

- By 1st month of the contract duration, a M&E plan for above-mentioned activities developed and submit to PMO.
- By 3rd month of the contract duration, completion of one energy consumption statistics training for staff from key energy-intensive enterprises.
- By 6th month of the contract duration, completion of establishment of the energy management information system for key energy-intensive enterprises.
- By 12th month of the contract duration, an energy consumption statistics database for key energy-intensive enterprises established.
- By 12th month of the contract duration, completion of one annual report on energy consumption statistics information of key energy-intensive enterprises.

- By 18th month of the contract duration, completion of one assessment report on operation effectiveness of the energy management information system.
- By 21st month of the contract duration, completion of one workshop of the energy management information system for key energy-intensive enterprises.
- By 24th month of the contract duration, completion of another annual report on energy consumption statistics information of key energy-intensive enterprises.
- Operation and maintenance of the energy consumption statistics database for key energy-intensive enterprises until the end of the contract duration.
- Completion and submission of M&E reports every half a year.
- Ensure that EMISRP is operational in more than 50% of the 7000 enterprises by the end of year 3, and that by then plans are underway to assure that the EMISRP database is updated and maintained annually

A.4: Training Activities

1. Overseas Training Activities/Workshops:

a) International Training in VA (A1)

21 attendees (two groups) will attend 3-weeks of international training during the project. The aim of this training is to learn approaches to successfully design and implement VA plans from other countries that have successfully implemented VA programs, and to understand government policies that have been established to support VA projects.

b) International study tour on the research and development of energy efficiency standards (A3.2)

During the execution period of the project, organize one study tour to two European countries (8 persons visiting 2 countries in 20days) to understand how energy efficiency standards of industrial energy using equipment are successfully developed, designed and implemented in these countries, understand the supporting policies and regulations for energy efficiency standards of other countries, and coordination and promotion role of industrial associations.

c) International study tour of the research and development of energy efficiency standards or to attend international conferences (A3.3)

During the execution period of the project, organize two study tours to Europe, America or Asia-Pacific countries/or to attend an international conference to understand how to successfully develop, design and implement energy efficiency standards of energy using equipment, understand the supporting policies and regulations for energy efficiency standards of other countries, and coordination and promotion role of industrial associations.

- 9 persons to Europe and America, 15 days;
- 9 persons to Asia-Pacific countries/and /or to attend an international conference, 15 days.

d) International training on Energy-Efficiency Labeling and products analysis (A3.3)

Collect information and study the implementation of international energy-efficiency labeling programs for the end-use energy-consuming products. In order to achieve the project goal, international training will be conducted to fully understand the implementation details of certification. In this training, the analysis method and model will also be developed with the technical support from international organizations. Potential training agencies include US Lawrence Berkeley National Laboratory, the US Energy Star program, European Energy Efficient Labeling Program, etc. and 3 persons, 20 days.

e) International training on Governmental Energy Efficiency Procurement (A3.3)

Learn and study international experiences on the implementation and policy support for the government procurement of energy-efficient end-use energy-consuming products. The training mainly focuses on the details of government purchase activities, especially the technical and trade effort and requirement on the purchase. SETC had earlier arranged

several study tours on the government energy conservation, but they had mainly focused on policy issues. This activity will allow participants to learn about the actual implementation methods that transform policy into activities thus achieving actual energy and cost saving (3 persons, 20 days).

- f) International workshop on Harmonization between China's Energy Efficiency Labels and International counterparts (A3.3)

The workshop will be conducted by a foreign agency, which has a good relationship with many countries and experience with energy-efficient certification programs. The workshop will mainly focus on the implementing strategy and specific application program, products test program, the products energy-consuming technical level, and the monitoring system embedded in international energy-efficiency labeling programs. The workshop will be a good opportunity for China to build relationships and communication channels with the relevant overseas organizations; and to explore the feasibility for international harmonization of labels.

- g) International study tour of enterprises energy consumption statistics (A4)

One international tour to study enterprises' energy consumption statistics to learn about energy statistics methods and indicators systems, with a focus on learning definitions and calculation approaches of energy consumption indicators for foreign primary energy-intensive industrial products (5 members 4 weeks). Location: North America (UN, LBNL, 1 week), Europe (EU, IEA, 3 weeks).

Domestic training activities/workshops:

(1) Workshop to Review Project Progress (A1)

- During the implementation, there will be six project progress workshops. Each workshop will last two days, with some 30 attendees. The PMO and the subcontractors, and experts will communicate and discuss and resolve questions and barriers that may arise in implementing VA pilot, in order to ensure the continued progress of the project as planned.

(2) VA Signing Ceremony (A1)

- Three one-day ceremonies with 100 attendees will be organized, when the governments and pilot enterprises will formally sign the VA in the 17th-18th months. The signing ceremonies will signal acceptance of the VA plan which will be followed by the implementation of the VA agreement in iron and steel, chemical, and cement industries.

(3) International workshop to promote VA implementation effects (A1)

- A two-day workshop with 110 attendees will be held in the 35th or 36th month of project implementation with a goal to promote the benefits of VA pilot implementation to all industries, to summarize the experience and lessons learned from the pilot, and to determine the future activities to promote VA in other industries in China.

(4) News conference on the promulgation of the energy efficiency design code for the cement industry (A2)

- A news conference on the promulgation of the energy efficiency design code for the cement industry will be held, and at the conference the State Bureau of Quality and Technical Supervision will formally announce the energy efficiency design code for the cement industry. Duration: Half a day. Participants: 60 persons.

(5) News conference on the promulgation of the energy efficiency design code for the petrochemical industry (A2)

- A news conference on the promulgation of the energy efficiency design code for the petrochemical industry will be held, and at the conference the State Bureau of Quality and Technical Supervision will formally announce the energy efficiency design code for the petrochemical industry. Duration: Half a day. Participants: 60 persons.

(6) Training on the energy efficiency design code for the cement industry (A2)

- A class for training on the energy efficiency design code for the cement industry will be held to train designers of the relevant engineering design institutes, government functionaries in charge of the examination and approval of industrial production capacity construction projects, workers of local energy efficiency monitoring centers, and relevant persons in charge of bank credit. Duration: 3 days. Participants: 100 persons.

(7) Training on the energy efficiency design code for the petrochemical industry (A2)

- A class for training on the energy efficiency design code for the petrochemical industry will be held to train designers of the relevant engineering design institutes, relevant government functionaries in charge of the examination and approval of industrial production capacity construction projects, workers of local energy efficiency monitoring centers, and relevant persons in charge of bank credit. Duration: 3 days. Participants: 100 persons.

(8) Workshop on the application of the energy efficiency design code for the cement industry (A2)

- A workshop on the application of the energy efficiency design code for the cement industry will be held to brief cement enterprises on the result of appraisal and study of how to more effectively apply the design code in the cement industry. Duration: Two days. Participants: 80 persons.

(9) Workshop on the application of the energy efficiency design code for the petrochemical industry (A2)

- A workshop on the application of the energy efficiency design code for the petrochemical industry will be held to brief petrochemical enterprises on the result of appraisal and study of how to more effectively apply the design code in the petrochemical industry. Duration: Two days. Participants: 80 persons.

A.5: Equipment To Be Purchased

Equipment to be purchased for four motor systems energy conservation service organizations is as follows (A3.1). This equipment is recommended by international motor system experts, and is necessary for conducting energy audits of motor systems. Currently the three types of equipment are not available in China, and hence need to be procured from abroad using GEF funds.

- (1) Non-sine comprehensive electricity parameters measurement instruments (four)
- (2) Mechanical parameters measurement instruments for motors(four)
- (3) High velocity wave recorders (four)

Total budget for the equipment is US\$150,000.

B.1 Terms of Reference for International Experts (Component B)

Activity Number B1

1. Post Title: International expert for building energy consumption statistics

Duration: 1 expert, 7days /first year, 7days/ second year

Qualifications:

- senior engineer/professor
- Have more than 10 years of working experience in statistics field
- Be familiar to building energy efficiency consumption statistics, or specialized in the methodology of building energy consumption statistics
- Understand the analytical methods used for energy efficiency standard
- Understand the situation of building energy consumption situation in China
- Have experience about building energy consumption statistics in developed country

Language: Fluency English

Budget: \$17,880

Duties:

- Introduce the BECS related experiences in developed countries
- Provide suggestion to building energy consumption statistics to sub-contractor
- Judge the methodology of BECS

Expected Deliverables/Outputs: P

- Presentation of experience about BECS
- Report of Confirming BECS systems with subcontractor
- Comments on the methodology of BECS

2

Activity Number B2.1

Post Title Technical expert of developing the building energy efficiency application regulations

Duration: 1 expert, 12days

Qualification:

- senior engineer/professor
- Have more than 10 years of practical and/or academic experience in the study and application of building energy efficiency regulations and technology
- Familiar with energy efficiency technology and regulations in developed countries
- Familiar with building energy efficiency technology, or specialized on building materials
- Experience with formulation of regulations and standards of building energy efficiency in his/her own country or other countries
- Understand China's building energy efficiency situation, especially the Hot Summer and Warm Winter Zone.

Language: Fluency English/Chinese

Budget: \$11,440

Duties:

- Assemble a compendium of relevant international standards; study and analyze these standards and provide the project group members with analytical reports and photocopies of these standards

- Introduce the applied building energy efficiency Standards and regulations in developed countries and provide relevant material and documents
- Review and evaluate the relevant Chinese regulations presently enforced with Chinese experts and project group members
- Review and analyze Chinese building energy consumption data and conduct analysis with project group members
- Provide suggestions to project group members on the formulation of building energy efficiency regulations and standards
- Provide training to the relevant government agencies on the setting up and evaluation of building energy efficiency standards
- Participate in designing the building energy efficiency application regulations and labeling workshops/meetings
- Provide assistance and suggestions in solving problems on standards and standard development procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Comments on the three building energy efficiency application regulations in China

Expected Deliverables/Outputs:

- Reports (English) on the relevant international energy efficiency standards and application experience
- Documentation of the building energy efficiency Standards and regulations in developed countries
- Documentation of the evaluation of relevant Chinese standards presently enforced in China
- Documentation of the analysis of Chinese building energy consumption data
- Suggestions and technical advice on the development of relevant energy efficiency standards in China
- Report on the training provided to the relevant government agencies on the setting up and evaluation of the building energy efficiency regulations
- Documentation on the technical assistance provided in solving problems on standards and standard development procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Documentation of the analysis of Chinese building energy efficiency application regulations at the international level

3

Activity Number B2.2

Post Title: Expert of developing the standard of energy efficiency retrofitting on existing public building

Duration: 1 expert, 20days

Qualification:

- Senior engineer/professor
- Have more than 10 years of working and/or academic experience in the study and application of building energy efficiency standards
- Familiar with building energy efficiency technology, or specialized on building materials
- Experience with formulation of regulations and standards of building energy efficiency in his/her own country or other countries
- Familiar with building energy efficiency standards on existing public building in developed country
- Familiar with energy efficiency retrofitting on existing public building

- Understand China's building energy efficiency situation, especially the existing public building

Language: Fluency English/Chinese

Budget: \$16,400

Duties:

- Assemble a compendium of international building energy efficiency standards on existing public building; study and analyze these standards and provide the project group members with analytical reports and photocopies of these standards
- Introduce the practice experience of the energy efficiency retrofitting on existing public building in developed countries
- Review and analyze Chinese energy consumption data on existing public building and conduct analysis with project group members
- Provide suggestions to project group members on the formulation of building energy efficiency standards on existing public building
- Provide training to the relevant government agencies on the setting up and evaluation of building energy efficiency standards on existing public building
- Participate in designing the building energy efficiency standards on existing public building and labeling workshops/meetings
- Provide assistance and suggestions in solving problems on standards and standard development procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Comments on the building energy efficiency standards on existing public building

Expected Deliverables/Outputs:

- Reports (English) on the relevant international building energy efficiency standards and application experience on existing public building
- Documentation of the implementation of the energy efficiency standards on existing public building in developed countries
- Documentation of the analysis of energy consumption data on existing public building in China
- Suggestions and technical advice on the development of relevant building energy efficiency standards on existing public building in China
- Report on the training provided to the relevant government agencies on the setting up and evaluation of the building energy efficiency standards on existing public building
- Documentation on the technical assistance provided in solving problems on standards and standard development procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Documentation of the analysis of Chinese building energy efficiency standards on existing public building at the international level

4

Activity Number B2.3

Post Title: Expert of review and update of the standard developed for residential building in Heating Zone

Duration: 1expert, 6days

Qualification:

- senior engineer/professor
- Have more than 10 years of working and/or academic experience in the study and application of building energy efficiency standards
- Familiar with building energy efficiency technology, or specialized on building materials

- Experience with formulation of regulations and standards of building energy efficiency in his/her own country or other countries
- well- experiences about building energy efficiency in cold zone
- Familiar with energy efficiency retrofitting on existing building
- Understand Chinese building energy efficiency situation, especially the residential building in Heating Zone

Language: Fluency English/Chinese

Budget: \$7,720

Duties:

- Introduce the international practice experience of the energy efficiency standards on residential building in Heating Zone
- Review and analyze Chinese energy consumption data on residential building in Heating Zone and conduct analysis with project group members
- Provide suggestions to project group members on the formulation of building energy efficiency standards on residential building in Heating Zone
- Provide training to the relevant government agencies on the setting up and evaluation of building energy efficiency standards on residential building in Heating Zone
- Participate in designing the building energy efficiency standards on residential building in Heating Zone and labeling workshops/meetings
- Provide assistance and suggestions in solving problems on standards and standard development procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Comments on the building energy efficiency standards on residential building in Heating Zone

Expected Deliverables/Outputs:

- Reports (English) on the relevant international building energy efficiency standards and application experience residential building in Heating Zone
- Documentation of the analysis of Chinese energy consumption data on residential building in Heating Zone
- Suggestions and technical advice on the development of relevant building energy efficiency standards on residential building in Heating Zone in China
- Report on the training provided to the relevant government agencies on the setting up and evaluation of the building energy efficiency standards on residential building in Heating Zone
- Documentation on the technical assistance provided in solving problems on standards and standard development procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Documentation of the analysis of Chinese building energy efficiency standards on residential building in Heating Zone at the international level

5

Activity Number B2.4

Post Title: Expert for regulations for promoting building energy efficiency standards implemented

Duration: 4 experts, 16days

Qualifications:

- senior engineer/professor
- Have more than 10 years of working and/or academic experience in the economy, policy and management of energy efficient building

- Knowledgeable about the various aspects of building energy efficiency in developed countries
- Familiar with the economic stimulus mechanisms, policies and strategies concerning on building energy efficiency abroad
- Practical experiences in running building energy efficiency projects in his/her country or other countries
- Familiar with foreign legislation of building energy efficiency
- Knowledgeable about China's building energy efficiency situation

Language: Fluency English/Chinese

Budget: \$25,920

Duties:

- Assemble a compendium of building energy efficiency international legislation; study and analyze these and provide the project group members with analytical reports and photocopies of these legislation
- Introduce the legislation experience for promoting building energy efficiency in developed countries and provide relevant material and documents
- Analyze the problem and state of building energy efficiency standards implemented in China
- Provide suggestions to project group members on regulations for promoting building energy efficiency standards implemented
- Participate in designing legislation for promoting building energy efficiency in China and labeling the workshops/meetings
- Provide assistance and suggestions in solving problems on promoting standards implement and regulation development procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Comments on the legislation for promoting building energy efficiency in China

Expected Deliverables/Outputs:

- Reports (English) on the international legislation of building energy efficiency
- Documentation of the legislation experience for promoting building energy efficiency in developed countries
- Analysis report on the problem and state of building energy efficiency standards implemented in China
- Suggestions on the legislation for promoting building energy efficiency in China
- Documentation on the assistance provided in solving problems on promoting standards implement and regulation development procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Documentation of the analysis of Chinese legislation for promoting building energy efficiency at the international level

6

Activity Number B2.5

Post Title: Expert of incentive policies for more efficient buildings, compliant with market economy

Duration: 1 expert, 14 days

Qualifications:

- senior engineer/professor
- Have more than 10 years working and/or academic experience in the economy, policy and management of energy efficient building
- knowledgeable about the various aspects of energy efficient building abroad

- Familiar with the economic stimulus mechanisms, policies and strategies concerning energy efficient buildings abroad
- Practical experiences in running building energy efficiency projects in his/her country or other countries
- Familiar with foreign energy efficiency in building and economic incentive policies
- Knowledgeable of China's building energy efficiency situation

Language: Fluency English/ Chinese

Budget: \$16,680

Duties:

- Assemble a compendium of the international incentive policies of building energy efficiency; study and analyze these and provide the project group members with analytical reports and photocopies of these policies
- Introduce the implement experience of incentive policies for more efficient buildings in developed countries and provide relevant material and documents
- Analyze the problem and state of building energy efficiency incentive policies in China
- Provide suggestions to project group members on incentive policies for more efficient buildings compliant with market economy
- Participate in designing incentive policies for more efficient buildings in China and labeling the workshops/meetings
- Provide assistance and suggestions in solving problems on promoting standards implement and designing incentive policies procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Comments on the economic incentive policy for more efficient building in China

Expected Deliverables/Outputs:

- Reports (English) on the international incentive policies of building energy efficiency
- Documentation of the implement experience of incentive policies for more efficient buildings in developed countries
- Analysis report on the problem and state of building energy efficiency incentive policies in China
- 4Suggestions on the incentive policies for more efficient buildings compliant with market economy
- Documentation on the assistance provided in solving problems on promoting standards implement and designing incentive policies procedures raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Documentation of the analysis of the economic incentive policy for more efficient building in China at the international level

Activity Number B2.6

Post Title Expert of study and design of a rating system of energy consumption for new residential building

Duration1 expert, 10 days/ 3 years

Qualifications:

- senior engineer/professor
- Have more than 10 years of practical and academic experience in building energy efficiency field
- Be familiar to building energy efficiency technology, or specialized on building materials
- well- experience with building energy efficiency
- Knowledgeable of current China's building energy efficiency situation,
- Research and practice on energy rating system for buildings for many years, and

- Deep researches on the building energy consultant evaluation index system

Language Fluency English or Chinese

Budget: \$10,500

Duties

- Provide materials/documents of successful international programs on buildings energy rating system
- Cooperate with Chinese experts to develop a detailed scheme to design, implement and evaluate rating system of energy consumption for new urban residential buildings in China
- Provide technical assistance in the development and the implementing rules of China's rating system of energy consumption for new urban residential buildings, and
- Provide technical assistance in the implementation of the rating system

Expected Deliverables/Outputs:

- Analysis report on rating systems of energy consumption for new building in developed countries
- Report on any technical assistance provided in the development of rating system of energy consumption for new residential building in China
- Report on any technical assistance provided in the implementation of rating system of energy consumption for new residential building in China

B3

8

Activity B3.1.1

Post Title Management experts of capacity building on building code and its implement in Shanghai

Duration 1 experts, 18days

Qualification:

- Senior engineer/professor
- More than 10 years of working experience in building energy efficiency field
- Be familiar to building energy efficiency technology, or specialized on building materials
- Well-experiences about building energy efficiency on development of policies and laws
- Good knowledge of energy efficiency situation in Chinese buildings, especially in the Hot Summer and Cold Winter Zone

Language: Fluency English or Chinese

Budget: \$23,160

Duties:

- Introduce the building energy efficiency policy, management, technologies, and advance experience on implement of building code from foreign countries;
- Consultant for governors and professional designers in Shanghai;
- Expected Deliverables/Outputs:
- Report of foreign contents and methods of management regulations on building energy efficiency
- Give suggestions to improve the capacities of implement code in Shanghai.

9

Activity B3.1.2

Post Title Management experts of capacity building on building code and its implement in Chongqing

Duration 1 experts, 26days

Qualification:

- Senior engineer/professor
- More than 10 years of working experience in building energy efficiency field
- Be familiar to building energy efficiency technology, or specialized on building materials
- Well-experiences about building energy efficiency on development of policies and laws
- Good knowledge of China's building energy efficiency situation, especially the Hot Summer and Cold Winter Zone.

Language: Fluency English or Chinese

Budget: \$32,120

Duties:

- Introduce the building energy efficiency policy, management, technologies, and advance experience on implement of building code from foreign countries;
- Consultant for governors and professional designers in Chongqing;
- Expected Deliverables/Outputs:
- Report of foreign contents and methods of management regulations on building energy efficiency
- Give suggestions to improving the capacities building of implement code in Chongqing

10

Activity B3.1.3

Post Title Technique expert of capacity building on building code and its implement in Shenzhen

Duration 1experts, 28 days

Qualification:

- Senior engineer/professor
- More than 10 years of working experience in building energy efficiency field
- Be familiar to building energy efficiency technology, or specialized on building materials
- Familiarity with Chinese building energy efficiency situation.

Language: Fluency English or Chinese

Budget: \$36,120

Duties:

- Introduce the building energy efficiency experience on implement of building code from foreign countries;
- Present technology about energy efficiency technologies in developed country
- Consultant for governors and professional designers in Shenzhen;

Expected Deliverables/Outputs:

- Report of foreign contents and methods of management regulations on building energy efficiency
- Give suggestions to improving the capacities building of implement code in Shenzhen

11

Activity B3.1.3

Post Title: Management expert of capacity building on building code and its implement in Shenzhen

Duration 1experts, 26 days

Qualification:

- Senior engineer/professor
- More than 10 years of working experience in building energy efficiency field

- Well-experiences about building energy efficiency on development of policies and laws
- Familiarity with Chinese building energy efficiency situation,
- With well-experience of deep research on management of building energy efficiency

Language: Fluency English or Chinese

Budget: \$29,360

Duties:

- Introduce the building energy efficiency management experience on implement of building code from foreign countries;
- Consultant for governors and professional designers in Shenzhen;

Expected Deliverables/Outputs:

- Report of Foreign Contents and Method of Management Regulations on Building Energy Efficiency
- Give suggestions to improve the capacities building of implement code in Shenzhen

12

Activity B3.2

Post Title Management experts of building energy efficiency for capacity building on code and its implement for other cities

Duration 1 expert, 9days

Qualification:

- Senior engineer/professor
- More than 10 years of working experience in relation to the management of energy efficiency buildings;
- Experience of formulating training materials for EEB;
- Experience of working in China, and knowledge of China's situation, especially the Hot Summer and Cold Winter Zone, Hot Summer and Warm Winter Zone
- Familiar with the implement of building energy code in other countries, approaches for the development of energy efficiency standards.

Language: fluency English

Budget: \$13,580

Duties:

- Train the governors and professional designers in pilot cities and other cities;

Expected Deliverables/Outputs:

- Improve the capacities of implement energy efficiency standard in other cities in Hot Summer and Cold Winter Zone, Hot Summer and Warm Winter Zone

13

Activity B3.4

Post title: Experts of BEE assessment for developing information technique of implement code

Duration: 1person, 12 days

Qualifications:

- senior technologic consultants /professor
- Have more than 10 years working and/or academic experience in the assessment system and examining tools of building energy efficiency
- Knowledgeable about the model for the assessment of building energy efficiency and the development of the computer aided management system for the assessment of building energy efficiency in developed countries

- Practical experiences in assessment for developing information technique of implement code in his/her country or other countries
- Understand the situation of building energy efficiency in China, particularly regarding the practical situation in places where enjoy warm winters and hot summers and Shanghai

Language: Fluency English/ Chinese

Budget: \$15,440

Duties:

- Introduce the model for the assessment of building energy efficiency and the development of the computer aided management system for the assessment of building energy efficiency in developed countries and provide relevant material and documents
- Analyze the situation of building energy efficiency in China, particularly regarding the practical situation in places where enjoy warm winters and hot summers and Shanghai
- Provide suggestions to project group members on the development of the model for the assessment of building energy efficiency and the development of the computer aided management system for the assessment of building energy efficiency
- Participate in designing model for the assessment of building energy efficiency and the development of the computer aided management system in China and labeling the workshops/meetings
- Provide assistance and suggestions in designing model for the assessment of building energy efficiency and the development of the computer aided management system raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Comments on the model for the assessment of building energy efficiency in China

Expected Deliverables/Outputs:

- Documentation of the model for the assessment of building energy efficiency and the development of the computer aided management system for the assessment of building energy efficiency in developed countries
- Analysis report on the situation of building energy efficiency in China, particularly regarding the practical situation in places where enjoy warm winters and hot summers and Shanghai
- Suggestions on the model for the assessment of building energy efficiency and the development of the computer aided management system
- Documentation on the assistance provided in designing model for the assessment of building energy efficiency and the development of the computer aided management system raised by project group members and stakeholders, Chinese experts and Chinese government officials
- Documentation of the analysis of the model for the assessment of building energy efficiency in China at the international level

14

Activity B3.6.2

Post Title: Expert for Piloting Study on Low-Energy Buildings in Shanghai

Duration: 1 expert, 42 days

Qualifications:

- Senior engineer/professor
- Knowledgeable in the research on energy-efficient construction technology

- Have more than 10 years of working experience in the technologies and applications of low energy building
- Have an intimate knowledge of special features of technologies and development trend in foreign countries in low energy building fields.
- Experience of working in China, and understand the situation of building energy efficiency situation in China, particularly regarding the practical situation in places where enjoy warm winters and hot summers and Shanghai

Language: Fluency English /Chinese

Budget: \$50,040

Duties:

- Introduce advanced foreign experiences in green building technology, as well as policies and laws regarding green building in foreign countries based on the special features of Shanghai (Technical research and application of building energy efficient cladding; New technology application of recycled energy and controlling techniques; Natural ventilation system design and research; Building energy-efficiency and Indoor environment). Cooperate with Chinese experts to complete the study. Based on the experience in green building, recommend technologies suitable to the situation of Shanghai.

Expected Deliverables/Outputs:

- Put forward proposals on the application of green building technologies in Shanghai

15

Activity B3.6.3

Post Title: Experts on Research and Application of Green and Low Energy Consumption Construction Standard of Shenzhen

Duration: 1 expert, 15 days

Qualification:

- Senior engineer/professor
- Knowledgeable about engaging in the research on green and low energy construction technology
- Have more than 10 years of working experience in the technologies and applications of green building and low energy building.
- Knowledgeable about an intimate knowledge of special features of technologies and development trend in foreign countries in green building fields.
- Experience of working in China, and understand the situation of building energy efficiency situation in China, particularly regarding the practical situation in places where enjoy warm winters and hot summers and Shenzhen

Language: Fluency English

Budget: \$21,300

Duties:

- introduce Provide materials/documents about advanced foreign experiences in green building technology, as well as policies and laws regarding green building in foreign countries based on the special features of Shenzhen and places where enjoy warm winters and hot summers. Put forward proposals regarding the application of green building technologies in Shenzhen. Cooperate with Chinese experts to complete the study.

Outputs:

- Put forward proposals on the application of green building technologies in Shenzhen.

16

Activity B3.6.5

Post Title: **Expert of EEB for piloting and studying on incentive system and management supervising molding in Chongqing**

Duration: 1 person, 10 days

Qualification:

- Senior engineer/professor
- Have more than 10 years of working experience in relation to the economy, policy and management of energy efficiency buildings;
- Experience of policy research working in China, and knowledge of China's situation, especially China's policy
- Familiar with foreign low -energy building incentive policy.

Language: Fluency English

Budget: \$14,200

Duties:

- consultation with Chinese expert for energy efficiency of building incentive policy in Chongqing. Introduce advanced foreign incentive system and management supervising molding. Based on the situation of Chongqing, put forward proposals regarding the incentive system and management supervising molding in Chongqing.

Expected Deliverables/Outs:

- Provide policy consultation

17

Activity B3.6.6

Post title: Experts or professor for Consummating and promoting the Concept of the Green Building

Duration: 1expert, 20days

Qualification

- Senior engineer/professor
- Have more than 10 years of working experience in the technologies and applications of green building
- Have an intimate knowledge of special features of technologies and development trend in foreign countries in green building fields.
- Experience of working in China, and understand the situation of building energy efficiency situation in China

Language: Fluency English

Budget: \$24,400

Duties:

- Provide model of promotion green building in other countries, assist the identification of key technologies and impediments for the promotion of green building in China and give the advice on design principle and theory of the green building under the condition of the local climate and resources of different regions in China. Cooperate with Chinese experts to complete the model of promotion of green building in China.

Expected Deliverables/Outputs:

- Model of promotion of green building in other countries and related paper-based materials for the identification of advanced technologies and impediments for the promotion of green building. Proposal to establish model of promotion of green building in China.

18

Activity B3.6.7

Post title: expert of solar energy building for improving the better understanding and promoting the concept of solar energy building

Duration: 1expert, 8days

Qualification:

- Senior engineer/professor
- Have more than 10 years of working experience in the technologies and applications of solar energy building
- Have an intimate knowledge of special features of technologies and development trend in foreign countries in solar energy building fields.
- Understand the situation of building energy efficiency situation in China

Language: Fluency English

Budget: \$8,960

Duties:

- present the technologies of solar energy building in other countries, analyze and assess the suitability to China; provide technological consultant; help to find the barriers on promotion of solar energy in buildings in China

Outputs:

- analysis and summary report on the applicability of the technologies for promotion of solar energy in China, report on assessment of the processes and achievements for solar energy buildings in other countries

19

Activity B3.7.1

Post Title: BEE expert for Establish the Audit and Record System for BEE in China, similar to the Moscow energy passport

Duration 2 experts, 30 days

Qualifications

- Senior engineer/professor
- Have more than 10 years of working experience in auditing and record field
- Be familiar to Moscow energy passport
- Understand the analytical methods used for energy efficiency standard
- Understand the situation of building energy efficiency situation in China

Language Fluency English

Budget: \$26,900

Duties:

- Introduce the establishment, implementation, effect and barriers of Moscow energy passport, analysis the suitability of this system in China and provide proposal and advice on this activity

Expected Deliverables/Outputs

- Research report on the establishment and implementation of Moscow energy passport, and proposals on the establishment the audit and record system for BEE in China

B4

20

Activity B4. 1

Post Title: Policy Experts of BEE for Information Dissemination

Duration: 2 experts, 50 days

Qualifications:

- Senior engineer/professor
- Have more than 10 years of working experience in relation dissemination to the economy, policy and management of energy efficiency buildings;
- Experience of dissemination working in China, and knowledge of China's situation, especially China's policy
- Familiar with the economic stimulus mechanisms, policies and strategies concerning energy saving buildings in other countries.

Language: Fluency English

Budget \$63,000(including international travel)

Duties:

- Assist the PMO in convening domestic or international workshops and training on BEE policy formulation and program design, implementation and evaluation.
- Assist in introducing advanced foreign expertise; Assist in designing and analyzing public poll questionnaires.
- Assist in providing international expertise with respect to policies and incentives.
- Assist in providing overseas examples, as well as running and management practices of energy saving building projects.
- Cooperate with Chinese experts to develop detailed methods on ways to design, implement and evaluate BEE schemes in the identified pilot.
- Assist to effectively remove the existing barriers blocking the implementation in China.

Expected Deliverables/Outputs:

- Provide expert consulting various communication activities.
- Report on any technical assistance provided in the implementation of BEE activities in the pilot cities.
- Assist in providing evaluation report on the performance of the activities in the pilot cities.
- Suggest on the activities of BEE that will be implemented in China.

21

Activity B4. 1

Post Title: Technical Experts of BEE for Information Dissemination

Duration: 1 expert, 35 days

Qualifications:

- Senior engineer/professor.
- Experience of developing information system in BEE fields.
- Familiar with dissemination working, especially in China.
- Have expertise in dissemination on BEE fields, with more than 10 years of working experience.
- Experts on building equipment engineering design and operational management, building materials, and energy saving buildings design.

Language: Fluency English

Budget \$57,700(including international travel)

Duties:

- Introduce the experiences of developed countries in building information systems for energy saving buildings, and provide advice and opinions on different aspects of these events.

- Assist in providing overseas examples, as well as running and management practices of energy saving building projects.
- Assist in recommending advanced overseas new technologies and new products for energy saving buildings, and in introducing the development trend of energy technology worldwide.
- Assist in introducing overseas examples and designing trends of energy saving buildings.

Expected Deliverables/Outputs:

- Provide expert consulting for various communication activities.
- Assist in designing BEE information management system scheme
- Assist in collection of relevant information
- Assist in establishing and running BEE supervising information system.
- Assist in training operators of BEE information management system and trial operating it in four pilot cities.
- Assist in evaluation of BEE information system

22

Activity B4. 2

Post Title: Policy experts of BEE for establish new training mechanism and system.

Duration: 2 experts, 5 days /person

Qualifications:

- Senior engineer/professor
- More than 10 years working experience in economy, policy or management of energy efficiency buildings;
- Experience of compiling training materials for EEB;
- Experience of working in China, and knowledge of China's situation, especially China's policy
- Familiar with the economic incentive mechanisms, policies and strategies about energy efficiency buildings in other countries, approaches for the development of energy efficiency standards.

Language: Fluency English

Budget: \$ 14,200

Duties:

- Provide materials/documents of relevant international policies, standards and incentive mechanisms and analyze all of these;
- Provide suggestion for establish training system in China
- Provide suggestions to serial teaching materials;
- Assist in domestic and foreign training.

Expected Deliverables/Outputs:

- Reports in English about BEE policies and incentive mechanisms;
- Suggestions to serial teaching materials.

23

Activity B4. 2

Post Title: Technology experts of BEE for Establish new training mechanism and system

Duration: 2 experts, 5 days/person

Qualifications:

- Senior engineer/professor
- Have more than 10 years of working experience in the energy efficiency buildings field,;
- Experience of training working, especially in China, and knowledge of China's situation
- Familiar with international technologies on building materials building equipment engineering design and operational management, design of energy efficiency buildings as well as their recent development.
- Understand the analytical methods used for energy efficiency standards, and familiar with the energy efficiency standard status of other countries.

Language: Fluent English

Budget: US \$ 14,200

Duties:

- Provides overseas examples, as well as engineering design, operation & management, and design of energy saving buildings;
- Assist in domestic training and foreign training;
- Provide suggestions and assistances to serial teaching materials;

Expected Deliverables/Outputs:

- Reports of overseas examples in engineering design, operation & management, and design of energy saving buildings;
- Training overseas (5 days);
- Domestic training (5 days)
- Suggestions to serial teaching materials

B5

24

Activity B5.1

Technical experts on very low energy consuming buildings

Post Title: Technical Experts on Very Low Energy Consuming Buildings

Duration 1 expert, 30 days

Qualifications

- Master degree or higher
- Familiar with the newest applied foreign technologies on very low energy consuming building of foreign countries
- Strong ability to coordinate and arrange the activities for international studies and visits on very low energy consuming building

Language: English (Chinese desired but not essential)

Budget \$ 15,000

Duties:

- Recommend 3~5 typical sites on very low energy consuming building for international studies and visits, be responsible for coordinating with these sites and arranging the activities of study tour with the related persons of these sites
- Provide relative information on the newest applied foreign technologies on very low energy consuming building of foreign countries
- Submit a report on the developing process and the energy saving effect on very low energy consuming building technologies of foreign countries

Expected Deliverables/Outputs

- Recommend 3~5 typical sites on very low energy consuming building for international studies and visits, coordinate and arrange the activities of the study tour

- Provide relative information on the newest applied foreign technologies on very low energy consuming building of foreign countries
- Submit a report on the developing process and the energy saving effect on very low energy consuming building technologies of foreign countries

25

Activity B5.1

Post Title: Market Exploitation Experts on Very Low Energy Consuming Buildings

Duration 1 expert, 15 days

Qualifications:

- Senior engineer
 - Master degree or higher
 - Familiar with exploiting the market of very low energy consuming building
 - Keep good relationship with the relative domestic sub-tractors
- Language English (Chinese desired but not essential)

Budget:\$ 12,000

Duties

- Establish good relationship with the relative domestic sub-tractors
- Provide relative information on the foreign experience and lessons on exploiting the market of very low energy consuming building
- Attend the international symposium on very low energy consuming building organizing by this project and introduce the market barriers, the developing potentials and relative solutions to promote very low energy consuming buildings
- Submit the report on the foreign experience and policies to promote very low energy consuming buildings, relative technologies and relative products

Expected Deliverables/Outputs:

- Provide a report on the foreign experience and lessons on exploiting the market of very low energy consuming building
- Attend the international symposium to introduce the market barriers, the developing potentials and relative solutions to promote very low energy consuming buildings
- Submit the report on the foreign experience and policies to promote very low energy consuming buildings, relative technologies and relative products

26

Activity B5.1

Post Title: Technical and Economic Analysis Experts

Duration 1 expert, 25 days

Qualifications Senior engineer

- Master degree or higher
 - Familiar with technical and economic analysis and evaluation method on very low energy consuming building technologies
- Language: English (Chinese desired but not essential)

Budget:\$18,000

Duties:

- Attend the international symposium organizing by this project and introduce the international technical and economic analysis and evaluation method on very low energy consuming building technologies
- Cooperate with relative domestic experts and support to carry out technical and economic analysis and evaluation on relative very low energy consuming building case studies
- Submit the report on the technical and economic analysis and evaluation on representative foreign very low energy consuming building case studies

Expected Deliverables/Outputs

- Provide a report on international technical and economic analysis and evaluation method on very low energy consuming building technologies
- Carry out technical and economic analysis and evaluation on relative very low energy consuming building case studies with relative domestic experts
- Submit the report on the technical and economic analysis and evaluation on representative foreign very low energy consuming building case studies

B.2: Terms of Reference of National Experts (Component B)

Activity B 5

B5.1

1. Technical evaluation experts on very low energy consuming building technologies (B5.1~B5.4)

Post Title: Technical Evaluation Experts on Very Low Energy Consuming Building Technologies

Duration:360 days, 4 persons

Qualifications:

- Master degree or higher
- Familiar with technologies on very low energy consuming building technology
- Several years of experience in energy efficiency research and practice in the very low energy consuming building technologies
- Familiarity with low energy consuming building technological process
- Knowledgeable about advanced domestic and foreign very low energy consuming building technologies and their applications
- Experience of being responsible for or participation in the design or implementation of domestic low energy consuming building projects

Language: Chinese and English

Budget: US\$ 72,000

Duties:

- Attend the international visits on very low energy consuming building and submit the visiting reports
- Support this project to adaptable analysis and evaluation on the application of the foreign very low energy consuming building technologies and products in China
- Attend the symposiums and workshops on very low energy consuming building organizing by this project
- Attend the domestic survey on very low energy consuming building technologies and products in China and submit the report on the current developing status and the future developing trend of very low energy consuming building technologies and products in China
- Assess the application effect of walling system and roofing thermal insulating system developed by the project
- Choose and testify the products developed by B5 and low energy consuming technology, walling system and air conditioning system which can be brought onto the list of standards

Expected Deliverables/Outputs

- Help to conduct technical analysis and evaluation on the application of the foreign very low energy consuming building technologies and products in China
- Attend the domestic survey on very low energy consuming building technologies and products in China
- Submit the report on the current developing status and the future developing trend of very low energy consuming building technologies and products in China
- Evaluation report on the application effect of walling system and roofing thermal insulating system
- Help to develop advanced walling system and air conditioning system

2 Market analysis experts

Post Title: Market Analysis Experts

Duration: 90 days, 1 person

Qualifications:

- Master degree or higher
- Familiar with market on very low energy consuming building technologies in China

Language: Chinese and English

Budget: US\$ 18,000

Duties:

- Attend the domestic survey on very low energy consuming building technologies and products in China and submit the survey report
- Attend the symposiums and workshops on very low energy consuming building organizing by this project
- Submit the report on the market barrier analysis, developing potential analysis and relative solution to remove the market barriers on very low energy consuming building technologies and products in China

Expected Deliverables/Outputs

- Submit the survey report on very low energy consuming building technologies and products in China
- Submit the report on the market barrier analysis, developing potential analysis and relative solution to remove the market barriers on very low energy consuming building technologies and products in China

3 Technical and economic analysis experts

Post Title: Technical and economic analysis experts

Duration: 140 days, 1 person

Qualifications:

- Master degree or higher
- Strong ability of technical and economic analysis and evaluation on very low energy consuming building

Language: Chinese and English

Budget: US\$ 28,000

Duties:

- Attend the international symposium organizing by this project and introduce the technical and economic analysis and evaluation method on very low energy consuming building technologies in China
- Cooperate with relative international experts and carry out technical and economic analysis and evaluation on relative very low energy consuming building case studies
- Submit the report on the technical and economic analysis and evaluation on representative Chinese very low energy consuming building case studies

Expected Deliverables/Outputs

- Provide the technical and economic analysis and evaluation method on very low energy consuming building technologies in China
- Conduct technical and economic analysis and evaluation on relative very low energy consuming building case studies
- Submit the report on the technical and economic analysis and evaluation on representative Chinese very low energy consuming building case studies

4 Building energy efficiency policy experts

Post Title: Building Energy Efficiency Policy Experts

Duration: 150 days, 1 person

Qualifications:

- Master degree or higher
- Long-term experiences on building energy efficiency policies
- Familiar with the incentive policies to promote very low energy consuming building in foreign countries

Language: Chinese and English

Budget: US\$ 30,000

Duties:

- Attend the domestic and international visits and surveys, submit the evaluation report on the domestic and international policies to promote very low energy consuming building
- Attend the international symposiums organizing by this project and introduce the market barriers and encourage policies on prompting very low energy consuming building
- Attend the symposiums and workshops about this project
- Submit the report on the recommending policies to promote very low energy consuming building in China

Expected Deliverables/Outputs

- Submit the evaluation report on the domestic and international policies to promote very low energy consuming building
- Submit the report on the recommending policies to promote very low energy consuming building in China

5. Technical experts on thermal insulating materials

Post Title: Technical Experts on Thermal Insulating Materials

Duration: 100 days, 1 person

Qualifications:

- Several years of experience in energy efficiency research and practice in the thermal insulating materials
- Familiarity with thermal insulating materials characteristics of energy consumption and technological process;
- Knowledgeable about advanced domestic and foreign thermal insulating materials technologies and their applications;
- Experience of being responsible for or participation in the design or implementation of domestic thermal insulating materials efficiency projects;
- Understand the level of technological equipment and the current situation of energy efficiency in the domestic thermal insulating materials.

Language: Chinese

Budget: US\$ 20,000

Duties:

- Attend the surveys and analysis on the current status of thermal insulating materials in designated cities and submit a report on the current application status of thermal insulating materials in the cities

- Attend the R&D of low-cost roofing thermal insulating materials and submit a report of low-cost thermal insulating roofing materials

Expected Deliverables/Outputs

- Submit a report on the current application status of thermal insulating materials in designated cities
- Submit a report of low-cost thermal insulating roofing materials

6. Technical experts on walling materials

Post Title: Technical Experts on Walling Materials

Duration: 600 days, 4 persons

Qualifications:

- Several years of experience in energy efficiency research and practice in the walling materials
- Familiarity with walling materials characteristics of energy consumption and technological process;
- Knowledgeable about advanced domestic and foreign walling materials technologies and their applications;
- Experience of being responsible for or participation in the design or implementation of domestic walling materials efficiency projects;
- Understand the level of technological equipment and the current situation of energy efficiency in the domestic walling materials.

Language: Chinese and English

Budget: US\$ 120,000

Duties:

- Attend the surveys on thermal insulating walling materials in designated cities and submit a report on the current application status of thermal insulating walling materials in the cities
- Attend the assessments on the application of walling system in energy consuming building use in designated cities and submit the assessment report on low-cost, high efficient walling system that utilized local materials and walling system in low energy consuming building use in the cities
- Attend the R&D of one kind of composite wall panel for outside use suitable for low energy consuming buildings and submit a report of composite wall panel for outside use and its properties and energy consuming effect
- Develop standard (draft) and applying regulation (draft) for composite wall panel for outside use

Expected Deliverables/Outputs

- Submit a report on the current application status of thermal insulating walling materials in designated cities
- Submit a assessment report on low-cost, high efficient walling system that utilized local materials and walling system in low energy consuming building use in designated cities
- Submit a report of composite wall panel for outside use and its properties and energy consuming effect
- Develop standard (draft) and applying regulation (draft) for composite wall panel for outside use

B.3: Sub-contracts (Component B)

1. Sub-contract of the collection of data on building energy use as basis for setting and assessing impacts of standards

Contract executing time period: 3 years

Qualification requirements

- The leading unit will be in charge of the general design, management, and participating in the sub-activities. It should be a university or institute, which is special on the BECS or BEE science and technology research. In the leading unit, there must be adequate specialists full of BECS related experience with high ranking. The laboratory and equipment to carry out this study should be essential. Further, the leading unit has closed cooperation with MOC and related international institutes for experience exchange.

Budget: \$ 456,120

Main tasks

- 1 Establish data needs for urban residential and commercial buildings in four pilot cities and create survey instrument to gather data
- Investigation on Building Energy Use Statistical System in domestic and overseas, and process an international symposium to introduce the BECS related experiences in developed countries as well as the experiences of energy statistics in other industrial field in China, comprehensive discussion on the establishment of BEC Stat. system in China
- Process a workshop to discuss BEC Stat. index systems as well as the Stat. Channels, and research and establish statistical index system on Building Energy Use
- 1.3 Create the database on Building Energy Use in four pilot cities
- 1.4 Define the feasible survey instrument
- 1.5 Process a workshop to apprise the BEC Stat. index systems organized by MOC, and delivery a document to the pilot cities local governments asking for working with establishing the BEC Stat. systems
- 2 Gather data by survey instrument
- 2.1 Define the range of data collection
- 2.2 Establish the channel of data collection
- 2.3 Train the data collectors
- 2.4 Collect the survey data
- 3 Perform measurements on selected buildings
- 3.1 Define the objects and methods of typical investigation
- 3.2 Measure the building energy use data on selected buildings in four pilot cities
- 3.3 Process a workshop on BEC Stat. methodology - database and the treatment methods, stat. model and analytical software, experiences exchange of the accomplished works
- 4 Analysis and reconcile the statistical data
- 4.1 Work with the National Bureau of Statistics to reconcile the overall survey results and process statistical data
- 4.2 Revise the database on Building Energy Use in four pilot cities
- 5 Use the results of this work in the four pilot cities as a baseline for the establishment of Energy Efficiency Standards
- 5.1 Using the results of energy use statistic, provide the baseline for the establishment regional Energy Efficiency Standards
- 5.2 Process a workshop to present the accomplished works and summary of the implementing of BECS in pilot cities, experiences exchange, then to lay out a course for the consequent stages
- 6 To assess impacts of standards (Shanghai)
- 6.1 Performs surveys and measurements in Shanghai

- 6.2 Assess impacts of standards of Shanghai

Expected Deliverables/Outputs:

- Investigation reports on Building Energy Use Statistical System in overseas
- Investigation reports on Building Energy Use Statistical System in domestic
- Establish statistical index system on Building Energy Use
- Create the data needs on Building Energy Use in four pilot cities
- Define the feasible survey instrument, and require the local governments of pilot cities to perform this work by conveying the documents of MOC
- Statistical forms on Building Energy Use in four pilot cities
- Measurement data forms on special index of building energy use in four pilot cities
- Result analysis reports on Building Energy Use Statistical Data
- Provide the baseline for the establishment regional Energy Efficiency Standards

B2

Subcontract of Activity B2.1

2. Develop building energy efficiency application regulations for Guangdong province

Contract executing time period: 3 years

Qualification requirements

- Institutes involved in policy research or building energy efficiency research for a long time in national level, have higher level professional experts of relative fields in the construction; have good and long-time cooperation relationship with local governments, and knowledge of national and Guangdong province situations; have experience on international cooperation.
- The executive units can be the units who formulate the residential Standards of The Hot Summer and Warm Winter Zone, and these units should be supported by the local government.

Budget: \$26,000

Main tasks

- Review the existing regulations in other provinces in China, and investigate on the situation of the Hot Summer and Warm Winter Zone, based on the Residential Building Code being formulated;
- Investigate and study on the Application regulation in Guangdong Province
- Process a workshop to formulate the application regulation
- After acknowledgment of Construction Administration, issue and release of Guangdong application regulations

Output:

- Investigation reports on the situation of the Hot Summer and Warm Winter Zone, based on the Residential Building Code being formulated
- Investigation report on the application regulation in Guangdong Province
- Building Energy Application Regulation in Guangdong Province

3. Develop building energy efficiency application regulation for Guangxi Autonomous Region

Contract executing time period: 3 years

Qualification requirements

- Institutes involved in policy research or building energy efficiency research for a long time in national level, have higher level professional experts of relative fields in the construction;

- Have good and long-time cooperation relationship with local governments, and knowledge of national and Guangxi situations; Experience on international cooperation.
- The executive units can be the units who formulate the residential Standards of The Hot Summer and Warm Winter Zone, and these units should be support by the local government.

Budget: \$26000

Main tasks:

- Review the exit regulations in other provinces in China, and investigate on the situation of the Hot Summer and Warm Winter Zone, based on the Residential Building Code being formulated;
- Investigate and study the application regulation in Guangxi Province
- Process a workshop to formulate the application regulation
- After acknowledge of Construction Administration, issue and release of Guangxi Autonomous Region application regulations

Output:

- Investigation report on the application regulation in Guangxi Province
- Building Energy Application Regulation in Guangxi Autonomous Region

4. Sub-contract of develop the building energy efficiency application regulation for Fujian province

Contract executing time period: 3 years

Qualification requirements:

- Institutes involved in policy research or building energy efficiency research for a long time in national level, have higher level professional experts of relative fields in the construction;
- Have good and long-time cooperation relationship with local governments, and knowledge of national and Fujian I situation;
- Experience on international cooperation.
- The executive units can be the units who formulate the residential Standards of The Hot Summer and Warm Winter Zone, and these units should be support by the local government.

Budget: \$26560

Main tasks

- Review the exit regulations in other provinces in China, and investigate on the situation of the Hot Summer and Warm Winter Zone, based on the Residential Building Code being formulated;
- Investigate and study the Application regulation in Fujian Province
- Process a workshop to formulate the application regulation
- After acknowledge of Construction Administration, issue and release of Fujian application regulations

Output:

- Investigation report on the application regulation in Fujian Province
- Building Energy Application Regulation in Fujian Province

Subcontract of Activity B2.2

5. Sub-contract of developing Standards of Energy Efficiency Retrofitting on Existing Public Buildings

Contract executing time period: 3 years

Qualification requirements:

- Institutes involved in policy research or building energy efficiency research for a long time in national level, have higher level professional experts of relative fields in the construction; have good and long-time cooperation relationship with local governments, and knowledge of national situations in China; Experience on international cooperation.
- The executive units can be the units who formulate the residential Standards of Energy Conservation Design Standard for New Heating Residential Buildings, and these units should be support by the local government.

Budget: \$79,600

Main Task:

- To organize the experts who are worked in building energy efficiency area and in architectural research & design institutes
- Assimilate the advantages from the same kind of standard and specification of the international advanced country and zone
- Investigate Chinese energy consumption situation on existing public building
- Strive for the technical support of the foreign experts,
- Establishment the Standard of Energy Efficiency Retrofitting Regulation for Existing Public Buildings, according to the climate zoning and the Building characteristic of China.

Expected Deliverables/Output:

- Investigation report on Chinese energy consumption situation on existing public building
- Establish the Standard of Energy Efficiency Retrofitting on Existing Public Building.²

Subcontract of Activity B2.3

6. Sub-contract for amending the building energy efficiency design standard

Contract executing time period: 3 years

Qualification requirements:

- Institutes involved in policy research or building energy efficiency research for a long time in national level, have higher level professional experts of relative fields in the construction;
- Have good and long-time cooperation relationship with local governments, and knowledge of national situations in China; Experience on international cooperation.
- The executive units can be the units who formulate the residential Standards of Energy Conservation Design Standard for New Heating Residential Buildings, and these units should be support by the local government.

Budget: \$46,280

Main Task:

- To organize the experts who are worked in building energy efficiency area and in architectural research & design institutes
- Summarize the experience and achievement from the building energy efficiency work in the severe cold and cold zones

²The Energy Efficiency Codes for New Public Buildings including cooling system will be issued by the end of 2004 and will be implemented after issuance soon. That means that the energy efficiency codes of cooling system for new public buildings should be carried out in parallel when the EUEEP is launched.

In the Component B 2.2 of the Project Document, it is indicated that development of Energy Efficiency Standards for Retrofitting Existing Public Buildings will be implemented as part of project activities. Cooling system codes will be a key part of the standards, as the energy use for cooling and heating is the main source of energy consumption in public buildings both in new and in existing buildings in China.

- Assimilate the advantages from the same kind of standard and specification of the similar climate foreign zones
 - Investigate Chinese energy consumption situation on residential Buildings in heating zone
 - Strive for the technical support of the foreign experts
 - Emendate the current Energy Conservation Design Standard for new Heating Residential Buildings(JGJ26-95), and rename this standard as the Energy Efficiency Design Standard for Residential Buildings in Severe Cold and Cold Zones
 - To select a large city of the severe cold and cold zones to carry out the promotion of the standard content and the technical training activity of Design Standard for Residential Buildings in Severe cold and Cold Zone. The training activity should be setup by the local chief building division. The number of the personnel who take part in each training activity is no less than 100
- Expected Deliverables/Output:
- Investigation report on Chinese energy consumption situation on residential Buildings in heating zone
 - Revision the origin energy-saving standard and carry out the execution of the new Energy Efficiency Design Standard for Residential Buildings in Severe Cold and Cold Zones
 - The new standard can enhance the energy-saving rate from 50 percent to 60 - 65 percent.

Subcontract of Activity B2.4

7. Study of regulations for promoting building energy efficiency standards implemented

Contract executing time period: 3years

Qualification requirements:

- The part should be a university or scientific research institution engaged in scientific research of energy efficiency in buildings for a long time. It required:
- 1 Full specialty setting including the specialty of technology, economy, environment, law, society, management and so on and supported by high arrangement subject such as doctor spot and 211 main subject;
- 2 Being attentive for the development of laws and regulations of energy efficiency in buildings at home and abroad all the time and having a great deal of laws and regulations information;
- 3 Having gone along many international corporation research projects and had successful corporation experiences.
- 4 Having a certain foundation of administrative laws and regulations of energy efficiency in buildings and high-blooded corporation research relations with MOC and unit cities.
- 5 Having possessed of professionals in technique, economy, society, law, environment and management, reasonable structure of knowledge, the title of a technical post and age, strong strength of accomplishing research assignment.

Budget: \$154,080

Main tasks:

- Investigate the regulations for the standards in China and other countries
- Studying executive condition of the NO. 76 Minister Order
- Studying 21 national places where have legislated
- Studying the condition about abroad legislation of energy efficiency in building
- Workshops of investigating the regulations for the standards in China and comparing the effects of the regulations in China with that of other countries
- Compare the effect of the regulations for the standards in China with that of other countries, and process a Workshop of evaluating comparison report of the regulations for the standards

- Conduct a workshop to evaluate the comparison report and proposing advice on and creating the programs of the regulations for the standards to the four pilot cities
- Make a trial program of the regulations in pilot cities and process a workshop of proposing the advice on the regulations for the standards in four pilot cities to evaluate the effect of the trial programs
- After a workshop of proposing advice on legislation decision-making for central government, proposing advice on legislation decision-making for central government

Output:

- Investigation report on the regulations for the standards in China and other countries
- Comparison report on the regulations for the standards in China with that of other countries
- Evaluation report on comparison report of the regulations for the standards
- Consultations for pilot cities to legislation decision-making
- Evaluation report about legislation schema in pilot cities
- Consultations for central government to legislation decision-making

Subcontract of Activity B2.5

8. Study and assessment on incentive policies for more efficient buildings, compliant with market economy

Contract executing time period: 3 years

Qualification requirements:

- The project undertaker must have the ability to be devoted to building energy efficiency research and economic policies research at the same time, it must be college or research institute.
- The project leader must be an expert & professor who is specializing building energy efficiency and economic policies, at the same time he or she must have the following experiences: he or she must shoulder and finish some provincial or ministerial research projects on building energy efficiency over ten years;
- He or she must shoulder and finish some national research projects on real estate economy;
- He or she is shouldering national research projects that are related to building energy efficiency policy. It is the duty of institute to implement and finish the project activity and gain the achievement.

Budget: \$213,320

Main task:

- To investigate and assess incentive policies of other countries, including developed countries and developing countries, and process a Workshop of discussion investigation report on economic incentive policies of other countries
- To assess local condition for incentive policies in the four pilot cities and if possible, elsewhere, and process a Workshop of discussion investigation report on economic incentive policies in the four pilot cities and other typical cities
- To assess the influence of former and exiting incentive policies for buildings, supported by national government, and process a Workshop of discussion assessment report on the influence of former and exiting incentive policies for energy efficient buildings
- After a Workshop of discussion and evaluate the effect of implementing consultation plan in the four pilot cities, organized by MOC, to propose advice on incentive policies for more efficient buildings for central government, and process a Workshop of discussion the advice on economic incentive policies for more efficient buildings

Expected Deliverables/Output:

- Assessment report on economic incentive policies of building energy efficiency in other countries
- Assessment report on the influence of former and exiting incentive policies for buildings energy efficiency, supported by national government
- Assessment report on local condition for incentive policies in the four pilot cities
- Consultation plan on economic incentive policies in the four pilot cities
- Report on executive effect of energy efficient buildings in the four pilot cities
- Proposal on incentive policies for more efficient buildings for central government

Subcontract of Activity B2.6

9. Study and design of a rating system of energy consumption for new residential buildings

Contract executing time period: 3 years

Qualification requirements

- The undertaker has been engaged in BEE for a long term, should be wealthy in experience of BEE. It should have cooperation experiences with abroad. It should have knowledge about developed countries and be familiar with BEE standards in China. It should be familiar with BEE situation in China. It should have experiences to develop documents that promote BEE technologies for government.

Budget: \$89,500

Main task:

- Investigating the establishment and implementation of building energy consumption evaluating (BECE) and labeling system (BCELS) in western countries;
- International workshop of labeling system on building energy consumption. Introduce experience on development and implement of evaluating and labeling of building energy consumption of developed countries, and give advice on how to develop relative systems in China
- Study on and propose the BECE index system of energy consumption evaluation of residential buildings, and aiming at the system of evaluating and labeling of building energy consumption, MOC organize conference and invite experts to modify and perfect both the systems;
- Study on the BECE measurement technique for residential buildings;
- Study on the labeling system of residential buildings
- Initial test the BCELS:
- Initial test the energy rating system at least in one pilot city (e.g. Shanghai);
- MOC will organize experts to summarize the initial test of energy rating system in pilot programs, so as to make sure the dissemination activity in next phase, and evaluate and summarizing the initial test, proposing implementing scheme for next phase.
- Develop a monitoring plan aiming at the activities above.

Expected Deliverable/Output:

- Report on the investigating of (BCELS) in western countries
- The BECE index system
- Plan of establish the labeling system of residential buildings
- Evaluation report of the initial test of the energy rating system in pilot program;
- Implementing scheme for next phase.

B3

Subcontract of Activity B3.1.1

10. Capacity building on implementation of building energy efficiency code in Shanghai

Contract executing time period: 3 years

Qualification requirements:

- Universities or scientific research institutes that involved in building energy efficiency research for a long time, have higher level professional experts of EEB with good reputation in the construction; have sufficient higher level professional personals and enough time to undertake the research; be familiar with the EEB, have good relation with the construction administrative agencies of central and local governments.

Budget: \$77,530

Main task:

- Review on management regulations and relative systems in buildings energy efficiency in other cities;
- Set up institutes and management system to promote Shanghai energy efficiency in building;
- Organized by Shanghai Construction Committee, investigate and study on management regulations of Shanghai energy efficiency code in building;
- During compiling the standards, develop training plan and compile relative training materials so as to advance the implement of these standards;
- Train the governors and professional designers separately in Shanghai on the implement of standards.

Expected Deliverables/Output:

- By administration means and conferences, disseminate all the management regulations and standards of Shanghai building energy efficiency, to the owners, designers, constructors, engineer, and so on;
- Disseminate the training experience, methods, and training books to all over the country; after acknowledged by MOC.

Subcontract of Activity B3.1.2

11. Capacity building on code and its implement in Chongqing

Contract executing period: 3years

Qualification requirements

- Universities or scientific research institutes involved in building energy efficiency research for a long time, have higher level professional experts of EEB who have good reputation in the construction; have sufficient higher level professional personals and enough time to undertake the research; be familiar with the EEB, have good relation with the construction administrative agencies of central and local governments.

Budget: \$107,880

Main task:

- Review management regulations in civic buildings energy efficiency in other cities;
- Organized by Chongqing Construction Committee, investigate and study on management regulations of civic building energy efficiency code of Chongqing;
- Set up institutes for energy efficiency buildings;
- During the study and formulation of regulations, develop training system and compile relative training materials so as to advance the implement of new regulations;
- Train the governors and professional designers separately in Chongqing.

Expected Deliverables/Output:

- Draft of management regulations of building code in Chongqing for energy efficiency buildings;
- Training plan and training materials for the governors and professional designers
- Training governors and professional designers in Chongqing;

Subcontract of Activity B3.1.3

12. Sub-contract of the capacity building on code and its implement in Shenzhen

Contract executing period: 3years

Qualification requirements:

- Institutes involved in policy research or building energy efficiency research for a long time in national level, have higher level professional experts of relative fields in the construction;
- Have good and long-time cooperation relationship with local governments, and knowledge of national situations of China;
- Have experience on international cooperation.
- The executive units should be the units who formulate the residential Standards of Energy Conservation Design Standard for New Heating Residential Buildings, and the local government should support these units.

Budget: \$184,520

Main task:

- Investigate and study to develop Shenzhen Building Energy Efficiency Plan
- While the formulation of Standards of Hot Summer and Warm Winter Zone, develop the execution details of Shenzhen, so as to implement the computer tools from B 3.4
- Organize energy efficiency civil building design competition, so as to improve the energy efficiency consciousness of the public and the designers in Shenzhen;
- During the formulation of the execution details, develop training system and compile relative training materials;
- Train the governors and professional designers separately in Shenzhen.
- Expected Deliverables/Output:
- Report on “Shenzhen Building Energy Efficiency Plan”
- Training plan and training materials for the governors and professional designers;
- Execution details of civil building energy efficiency standards of Shenzhen
- Training governors and professional designers in Shenzhen;

Subcontract of Activity B3.2

13. Sub-contract of capacity building to other cities in region in key aspects of standards implementation

Contract executing period: 3years

Qualification requirements

- Project executive organization has better to be a consortium, which main part must be at least qualified with the following requirements: Directly under or in a subordinate position of Ministry of Construction; Provided with rich experience and network of cooperative trainings with foreign institutes, establishing cooperative relations with foreign institutes and experts; Successfully organized large-scale prevalent surveys and professional surveys in the field of project construction;

- Have personnel system database and successfully organized national or regional trainings in the field of project construction, enriched with experience of compiling professional teaching materials;
- Have urban infrastructure establishment, including database and large Internet of centralized heating, gas, public traffic and water supply.
- The other part of consortium must be qualified with at least following requirements: Have training bases of professional construction energy efficiency, including the majors of heating, gas supply, air-conditioning, ventilation and wall materials etc, have equipments related with teaching, experiment and accommodation;
- Have equipments related with heating, metering heating, central air-conditioning, renewable energy and wall materials and form into system which can provide technical flat roof and experimental equipments to teaching demonstration and practice;
- Have experience of training of domestic building energy efficiency, project supervision and energy saving associated with other countries;
- At least have experience of professional teachers of heating, air-conditioning, building materials, project supervision and compiling teaching materials;
- Have long-time and good relations with the organizations of construction spot, estate developers, supervision companies and heat plants, can provide good spot teaching and visiting conditions to trainees;

Budget: \$76,420

Main task:

- Summary the training experience, methods in pilot cities, and offer materials for the modify of training books, as well as forming the training systems in Hot Summer and Cold Winter Zone, Hot Summer and Warm Winter Zone, aimed at governors and professional designers. MOC will organize a conference to evaluate the training books and issue them;
- With the support of Urban Construction Governments in these zones, train governors and professional designers by trainers from pilot cities, in the Sino-France Center of Building Energy Efficiency;
- Summary the experience of the training, and modify the training materials and training system. And in the second stage, spread the training books and training systems, which aimed at governors and professional designers in Hot Summer and Cold Winter Zone, Hot Summer and Warm Winter Zone, to the whole country.

Output:

- Aimed at governors and professional designers, compiling the training books and forming the training systems in Hot Summer and Cold Winter Zone, Hot Summer and Warm Winter Zone.
- Training governors and professionals from other cities in Hot Summer and Cold Winter Zone, Hot Summer and Warm Winter Zone;
- Modified the training materials and training system.

Subcontract of Activity B3.3

14. Subcontract of assessing trial implementation in Shanghai to learn from Shanghai's experience of implementing standard

Contract executing period: 3 years

Qualification requirements

- Institutes, involved in policy research or building energy efficiency research for a long time in national level, have higher level professional experts of relative fields in the

construction; have good and long-time cooperation relationship with local governments, and knowledge of national situations of China; have experience on international cooperation.

Budget: \$70,000

Main task:

- With the help of Shanghai Construction Commission, summarize the successful experience of promoting BEE in Shanghai in the last decade, including the policy and regulation, criteria of BEE design codes, information dissemination, education and training, capacity enhancement, R&D of BEE techniques and promoting, etc, and process a workshop of discussion evaluation report on implementation of building energy standards in Shanghai and other several cities
- With the help of Construction Governments in pilot cities, evaluate initial implementation of building energy standards in several cities
- Propose advice to Chinese government on promoting BEE in the future according to the summarized experiences of the pilot cities and the success (or lesson) of other cities
- After achieve workshop of discussion proposal on promoting building energy efficiency in the future and spread the proposal to the whole country, disperse the summarized experiences through activity B4
- Expected Deliverables /Output:
- Evaluation report on implementation of building energy standards conducted first in Shanghai (for 1 million ? residential buildings)
- Evaluation report on initial implementation of building energy standards in several cities
- Proposal on promoting building energy efficiency in the future

Subcontract of Activity B3.4

15. Information technology in the implementation of BEE standards

Contract executing time period: 3 years

Qualification requirements

- Universities or scientific research institutes involved in building energy efficiency research for a long time, have higher level professional experts of EEB with good reputation in the construction;
- Have sufficient higher level professional personals and enough time to undertake the research;
- Be familiar with the EEB and conscious of the EEB monitoring systems of overseas; have strong records of international collaboration;
- Have the research experience (e.g. won the award in domestic or overseas) in the implementing Information Technology in construction field. Have the experience in the software development in building design and management;
- Have good relation with the construction administrative agencies of central and local governments.

Budget: \$44,560

Main task:

- Develop the model for the assessment of BEE
- Concerning the problem of assessment of BEE, provide corresponding solutions. Integrate all the technology indices and assessment standards of BEE with information

technology to form a systematic assessment model. This model can complete the BEE assessment in theory.

- Develop computer aided management system for the assessment of BEE Establish the system of assessment and record for BEE on the basis of the model for the assessment of BEE. Develop computer aided management system according to the characteristic of regions of China, which is used to assess and examine BEE and put on records towards BEE for the administration department.
- Application and improvement of computer aided management system for the assessment of BEE
- How is the effect of the software when the computer aided management system for the assessment of BEE is developed? It must be tested through the practice. The software will be used in the pilot city of Chongqing. Make out the assessment report on the application, improve the software and introduce the software to the whole country.

Expected Deliverables/Output:

- Study reports: The model for assessment of BEE
- Software: The computer aided management system for the assessment of BEE
- Study reports: Application report of the computer aided management system for the assessment of BEE

Subcontract of Activity B3.5

16. Building capacity of building code officials and other key organizations in the use of the rating system

Contract executing time period: 3 years

Qualification requirements

- Project executive organization has better to be a consortium, which main part must be at least qualified with the following requirements: Directly under or in a subordinate position of Ministry of Construction;
- Provided with rich experience and network of cooperative trainings with foreign institutes, establishing cooperative relations with foreign institutes and experts; Successfully organized large-scale prevalent surveys and professional surveys in the field of project construction;
- Have personnel system database and successfully organized national or regional trainings in the field of project construction, enriched with experience of compiling professional teaching materials;
- Have urban infrastructure establishment, including database and large Internet of centralized heating, gas, public traffic and water supply.
- The other part of consortium must be qualified with at least following requirements: Have training bases of professional construction energy efficiency, including the majors of heating, gas supply, air-conditioning, ventilation and wall materials etc, have equipments related with teaching, experiment and accommodation;
- Have equipments related with heating, metering heating, central air-conditioning, renewable energy and wall materials and form into system which can provide technical flat roof and experimental equipments to teaching demonstration and practice;
- Have experience of training of domestic building energy efficiency, project supervision and energy saving associated with other countries;
- At least have experience of professional teachers of heating, air-conditioning, building materials, project supervision and compiling teaching materials;

- Have long-time and good relations with the organizations of construction spot, estate developers, supervision companies and heat plants, can provide good spot teaching and visiting conditions to trainees

Budget: \$70,000

Main task:

- Aiming at the rating system developed in B2, compile training plan and training books, and process a Workshop of discussion the training plans and training books on rating system.
- Train a subset of building code officials and organizations in the use of rating system, in the Sino-France Center of Building Energy Efficiency
- Summarize the experience of training

Output:

- Train a subset of building code officials and organizations in the use of rating system in order to promote the implementation of BEE policies and regulations

Subcontract of Activity B3.6.1

17. Pilot study on low-energy buildings in Beijing (solar energy buildings)

Contract executing time period: 3 years

Qualification requirements

- The undertaker has been engaged in BEE for a long term, should be wealthy in experience of BEE. It should have cooperation experiences with abroad. It should have knowledge about developed countries and be familiar with BEE standards in China. It should be familiar with BEE situation in China. It should have experiences to develop documents that promote BEE technologies for government. It should used to take state science and research project about the solar energy used in building.

Budget: \$150,000

Main Task:

- Organize the experts and relevant organizations to visit low -energy buildings at home and abroad, process a Workshop of discussion the investigation reports on the low-energy buildings at home and abroad, and learn their successful experience and design blue print of solar energy buildings in Beijing
- after a Workshop of discussion the construction blue print of solar energy buildings, convey the construction units, design units and monitor units, and construct the solar energy buildings by blue print,
- finish construction and debugging
- Test the heating capability of solar energy buildings, gather the data of energy efficiency, be compared with other heating manners, summarize the excellence design of solar energy buildings under different conditions, Visit the pilot project of solar energy buildings in Beijing, discuss the investment analysis report, technique and economy evaluation reports on solar energy buildings, and make the investment analysis, compile technique and economy evaluation reports.
- Draw a draft of design and construct technology regulations in solar energy buildings, and process a Workshop of technology regulation in solar energy building to discuss draft of design and construct technology regulations in solar energy buildings and deliver the information to the other cities, organize the experts' evaluation conference and disseminate the information to the other cities.

Expected Deliverable/Output:

- To bring forward to solar energy building mode adapted to Beijing

- The frequency of the report being read, referred and quoted, the range of investigation achievement can be transmitted.
- 100 thousand m2 solar energy buildings

Subcontract of Activity B3.6.2

18. Pilot study on low-energy buildings in Shanghai

Contract executing time period: 3 years

Qualification requirements

- Famous universities and research units, such as Chongqing University, are to execute this activity. Universities or scientific research institutes involved in building energy efficiency research for a long time, have integrated specialty representing all disciplines in construction field (including urban planning, architectural design and technology, built environment, building services engineering, water supply and drainage, disposal of waste solids, building material, green illumination, project management); Have high level sustain subjects (such as doctor degree station, national “211??” program or key laboratory); have higher level professional experts with overseas experience of green building research or design;
- Have long and close relationship with overseas institutions and universities acting in green building research and design; have organized international conference or symposium on sustainable development on building and environment; have sufficient higher level professional personals and enough time to undertake the research;
- Have available laboratories and experimental devices of green building research and design;
- Have good relation with the construction administrative agencies of central and local governments;

Budget: \$252,160

Main task:

- Organize the experts and relevant organizations to visit low -energy buildings at home and abroad, learn their superior technology, put forward the design plan on demonstration project of low-energy buildings in Shanghai
- Construct the low -energy buildings in Shanghai
- Track and test the efficient energy in low -energy buildings, carry out the examine systems for building energy efficiency
- Summarize the construction experience and spread to the other cities through training and media propaganda

Expected Deliver ables/Output:

- Design plan on demonstration project of low-energy buildings, and process a Workshop of discussion the design plan on low -energy buildings in Shanghai
- Completion of 1 million m2 newly built energy efficient buildings
- Completion of 1400 m2 low energy consumption experimental office building for demonstration and 600 m2 energy efficient resident building for demonstration
- After a Workshop of discussion the test reports on energy consumption and the technique economy analysis reports on low-energy buildings, carry out energy consumption test and analysis for the energy efficient demonstration buildings, and process a Workshop of Summarizing the constructing experience of low-energy buildings, deliver the information to the other cities through exhibition

Subcontract of Activity B3.6.3

19. Research and application of green and low energy consumption construction standard of Shenzhen

Contract execution time period: 3years

Qualification requirements

- Famous universities and research units are to execute this activity. Universities or scientific research institutes involved in building energy efficiency research for a long time, have integrated specialty representing all disciplines in construction field (including urban planning, architectural design and technology, built environment, building services engineering, water supply and drainage, disposal of waste solids, building material, green illumination, project management);
- Have high level sustain subjects (such as doctor degree station, national “211??” program or key laboratory); have higher level professional experts with overseas experience of green building research or design;
- Have long and close relationship with overseas institutions and universities acting in green building research and design;
- Have organized international conference or symposium on sustainable development on building and environment; have sufficient higher level professional personals and enough time to undertake the research;
- Have available laboratories and experimental devices of green building research and design; have good relation with the construction administrative agencies of central and local governments;
- Research units, which have had intensive, research on the social economic development status, citizen’s living standards and the building energy efficiency features of Shenzhen. Moreover, organizations that have compiled the Design Standard of Shenzhen Energy Efficient Residential Building, to execute these activities

Budget: \$228,700

Main tasks:

- Finish the researches of the integrated advanced green building technology, and hold trainings and seminars on the green building technology, standards and attestation system of foreign countries; furthermore, and hold trainings on the standards and technologies of energy-efficient building, water conservation, environment-friendly green building materials of China.
- Apply them into the design of a green and low energy-consumption demonstration building
- Apply the building as a platform carry out series of activities for information dissemination

Expected Deliverables/Output:

- Construct a green and low energy-consumption demonstration platform,
- Accumulate experience for the integration and application, as well as market promotion of green and low energy-consumption building technology.

Subcontract of Activity B3.6.4

20. Establish the evaluation grades and labeling system for energy efficiency residential

Contract executing time period: 3 years

Qualification requirements

- Famous universities and research units are to execute this activity. Universities or scientific research institutes involved in building energy efficiency research for a long time, have integrated specialty representing all disciplines in construction field (including urban planning, architectural design and technology, built environment, building services engineering, water supply and drainage, disposal of waste solids, building material, green illumination, project management);
- Have high level sustain subjects (such as doctor degree station, national “211” program or key laboratory);
- Have higher level professional experts with overseas experience of green building research or design; have long and close relationship with overseas institutions and universities acting in green building research and design;
- Have organized international conference or symposium on sustainable development on building and environment; have sufficient higher level professional personals and enough time to undertake the research; have available laboratories and experimental devices of green building research and design;
- Have good relation with the construction administrative agencies of central and local governments;

Budget: \$97,110

Main task:

- Study and establish the evaluation grades and labeling system for energy efficiency residential buildings in Shanghai.
- Process a Workshop of discussion preliminary plan: Focus on evaluation grades and labeling system for energy efficiency residential buildings in Shanghai;
- Process a Workshop of Promoting evaluation grades and labeling system: Focus on evaluation grades and labeling system for energy efficiency residential buildings in Shanghai
- Expected Deliverables/Output:
- Finish the establishment of the grades and labeling system for energy efficiency to residential building in Shanghai

Subcontract of Activity B3.6.5

21. Sub-contract of pilot and study on building energy efficiency incentive system and management supervising molding in Chongqing

Contract executing time period: 3years

Qualification requirements

- Famous universities and research units, such as Chongqing University, are to execute this activity. Universities or scientific research institutes involved in building energy efficiency research for a long time, have integrated specialty representing all disciplines in construction field (including urban planning, architectural design and technology, built environment, building services engineering, water supply and drainage, disposal of waste solids, building material, green illumination, project management);
- Have high level sustain subjects (such as doctor degree station, or key laboratory); have higher level professional experts with overseas experience of green building research or design;
- Have long and close relationship with overseas institutions and universities acting in green building research and design;

- Have organized international conference or symposium on sustainable development on building and environment;
- Have sufficient higher level professional personals and enough time to undertake the research;
- Have available laboratories and experimental devices of green building research and design; have good relation with the construction administrative agencies of central and local governments;.

Budget: 205,800

Main Task:

- Analyses different policy instruments to promote more efficient buildings in domestic and abroad.
- Process a Workshop of discussion policy of incentive to promote more efficient building
- Develop management supervising molding in Chongqing. Carry out an incentive policy pilot to establish policy and regulation on building energy efficiency incentive system and management supervising molding in Chongqing.

Expected Deliverables/Output:

- Analysis report on building energy efficiency incentive policy pilot in Chongqing

Subcontract of Activity B3.6.6

22. Sub-contract of Consummate and Promote the Concept of the Green Building that Adapt to the Regional Character of the Climate and the Resource of China

Contract executing time period: 3years

Qualification requirements

- Famous universities and research units, such as Chongqing University, are to execute this activity. Universities or scientific research institutes involved in building energy efficiency research for a long time, have integrated specialty representing all disciplines in construction field (including urban planning, architectural design and technology, built environment, building services engineering, water supply and drainage, disposal of waste solids, building material, green illumination, project management);
- Have high level sustain subjects (such as doctor degree station); have higher level professional experts with overseas experience of green building research or design;
- Have long and close relationship with overseas institutions and universities acting in green building research and design; have organized international conference or symposium on sustainable development on building and environment;
- Have sufficient higher level professional personals and enough time to undertake the research;
- Have available laboratories and experimental devices of green building research and design; have good relation with the construction administrative agencies of central and local governments;

Budget: \$143,600

Main Task:

- Investigate and analyses the status of the Green Building in china, and process a Workshop of discussion concept of green building to Perfect the contents of green building and assess the model of promotion of green building in other country;
- Assess the foreign mode of the Green Building; by a workshop, identify the new technologies and barriers for promoting the concept of the Green Building; Consummate the mode and the system of the Green Building in the varied section climate and resource character;

- Advance the principle and theory of design that suit to the varied section climate and resource character in china, and provide the theoretic guidance for the development of the Green Building in china, and process a staff training on green building.

Expected Deliverables/Output:

- The investigating report of Green Building
- The assessing report of the foreign mode on promoting Green Building
- The study report of identifying the new technologies and barriers for promoting the concept of Green Building
- The principle and theory of Green Building's design that suit to the varied section climate and resource character in china
- Personnel training the public popularizing and publicizing and educating stuff.

Subcontract of Activity B3.6.7

23. Improving understanding and to promote the concept of solar energy building in accordance with the location, local climate and resource

Contract executing time period: 3 years

Qualification requirements

- The undertaker engaged in BEE for a long term, should be wealthy in experience of BEE.
- With experience of co-operation with international agency
- It should have knowledge about developed countries and be familiar with BEE standards in China.
- It should be familiar with solar energy situation in China.
- It should have experiences to develop solar energy state project.

Budget: \$51,040

Main task:

- Investigate and review the definition of solar energy building, including utilization of solar water heater with residential buildings, and process Workshops of technologies of solar energy building in other countries and situation in China
- Assess the processes and achievements for solar energy buildings in other countries
- Process a Workshop of suitable technologies of solar energy building to China, the barriers in promotion of the new concept in China, and establish the identification of the advanced technologies adapted to China and barriers in promoting the concept of solar energy building and perfect integration of solar water heater into residential buildings

Expected Deliverables/Output:

- Investigate and assess the processes and achievements for solar energy building in other countries
- Investigate and assess the processes and achievements of solar energy use in buildings in China
- Research on the advanced technologies adapted to China and barriers in promoting the concept of solar energy building

Subcontract of Activity B3.7.1

24. Sub-contract of Establish the Audit and Record System for BEE in China, similar to e Moscow energy passport

Contract executing time period: 3 years

Qualification requirements

- Agency involved in policy research or building energy efficiency research for a long time in national level, has higher-level professional experts of relative fields in the construction.
- Institutes involved in policy research or building energy efficiency research for a long time in national level, have higher level professional experts of relative fields in the construction;
- Have good and long-time cooperation relationship with local governments, and knowledge of national situations in China;
- Experience on international cooperation.

Budget: \$107,320

Main task:

- Investigate and learn Moscow energy passport, and process According to the investigation of Moscow energy passport, conduct an international conference to discuss and draft out the audit and record system for BEE suitable to Chinese situation;
- Summarize the successes and lessons in promoting BEE codes in the four pilot cities, and study the feasibility to establish the audit and record system for BEE in China, which is similar to Moscow energy passport;
- MOC will organize experts to collect comments on the proposals of the audit and record for BEE in China, so as to summarize the effect of the system, and draft out the proposal on establishing the audit and record system for BEE in China;
- Develop a monitoring plan aiming at the activities above.

Expected Deliverables/Output:

- Investigation report on Moscow energy passport;
- Research report on the successes and lessons in promoting BEE codes in the four pilot cities;
- Research report on the feasibility to establish the audit and record system for BEE in China;
- The proposal on establishing the audit and record system for BEE in China

Subcontract of Activity B3.7.1

25. Sub-contract of test the audit and record system for BEE in Chongqing

Contract executing time period: 3 years

Qualification requirements:

- Universities, associations, institutes and research units are to execute pilot activities in Chongqing.
- Agency involved in policy research or building energy efficiency research for a long time in national level, has higher-level professional experts of relative fields in the construction.
- Institutes involved in policy research or building energy efficiency research for a long time in national level, have higher level professional experts of relative fields in the construction;
- Have good and long-time cooperation relationship with local governments, and knowledge of Chongqing national situations in China;
- Experience on international cooperation.

Budget: \$125,780

Main tasks

- Take part in Summarizing the successes and lessons in promoting BEE codes in Chongqing;
- Training method of the audit and record system for BEE in Chongqing, and implement the trial program in Chongqing, and process a workshop to evaluate its effect;
- Provide proposals on the audit and record system for BEE in China.

Expected Deliverables/Output:

- Report on the experience and barriers of promoting BEE codes in Chongqing;
- Report on the implementation of the audit and record system in Chongqing;
- Proposals on the audit and record system for BEE in China

Subcontract of Activity B3.7.2

26. Promoting renovation of existing buildings to implement BEE Codes

Contract executing time period: 3 years

Qualification requirements

- Institutes involved in policy research or building energy efficiency research for a long time in national level, have higher level professional experts of relative fields in the construction;
- Have good and long-time cooperation relationship with local governments, and knowledge of national situations in China;
- Experience on international cooperation.

Budget: \$100,000

Main task:

- Investigate the renovation of foreign existing buildings, and learn their successful experiences;
- According to actual situation of Beijing, carry out detailed renovation schemes, and start 1-2 pilot projects by processing workshop;
- Collect the data of energy consumption per area of pilot projects with renovation, and calculate the costs/benefits
- Draft out design and construction criterion for existing buildings renovation;
- Draft out incentive policy and co-finance proposal for existing buildings renovation, which will be provided to Government as reference, and process a workshop to evaluate the effect of the pilot projects, analyses the barriers and carry out the work plan for next phase.

Expected Deliverables/Output:

- Investigation report on foreign experience of existing buildings renovation;
- Pilot projects of existing buildings renovation;
- Evaluation report on the effect of existing buildings renovation;
- Design and construction criterion for existing buildings renovation;
- Draft of incentive policy, co-finance proposal, compensation for existing buildings renovation.

B4

Subcontract of Activity B4.1

27 Integrate and identify the fundamental knowledge on BEE and survey achievements during the initial period of EUEEP project program, and establish the specific plan that could be disseminated to the public in pilot cities

Contract executing time period: 1st year

Qualification requirements:

- It has been engaged in construction field for more than 10 years and can profoundly master, understand and implement the national policies and technical standards on urban construction and BEE.
- Possession of the Ministry of Construction's information on national urban construction and the network resources for collecting, reorganizing and releasing information about human resources and the relevant databases, and have a national construction information statistics system.
- Strong ability to communicate and coordinate with the Ministry of Construction, the construction administration authorities of all provinces and municipalities, the other units in the construction field, the experts in these fields and the key domestic universities, colleges and research institutions.
- Profound understanding about China GEF End Use Energy Efficiency Program and be familiar with the relevant departments of the Ministry of Construction.
- Experience ability of successfully operating large-scale propaganda activities in the system of the Ministry of Construction.
- Experience in directing important research jobs in the field of construction.
- Experience ability of cooperation for international projects.
- Professional persons with special knowledge about BEE.

Budget: \$51,950

Main tasks:

- Integrate and identify the fundamental knowledge on BEE, and to establish the professional contents on public dissemination through media.
- Conduct the social survey on the consciousness, knowledge and skill of five groups of people, i.e. government officials, the public, real estate developers, product manufacturers, and technical employees in pilot cities
- By use of administrative channel between central and local construction areas, based on the above information recognition and social survey, establish the specific plans of disseminating to the various groups through media in the B4.1.4, B4.1.5, B4.1.6 and B4.1.7 activities

Expected Deliverables/Outputs:

- Summarize the results of energy saving building demonstration projects of the Ministry of Construction.
- Experiences acquired from finished international cooperation projects;
- New technologies and new products developed and applied by the Ministry of Construction.
- Summarize and collect policies and regulations as well as operational aspects of Chinese local governments at various levels.
- Make general census of BEE consciousness and knowledge grasped by public and practitioners in pilot cities during the initial period of Chinese GEF BEE project.

Subcontract of B4.1.2

28 The Establishment of the BEE Supervision Information System

Contract executing time period: 3 years;

Qualification requirements:

- It has been engaged in construction field for more than 10 years and can profoundly master, understand and implement the national policies and technical standards on urban construction and BEE.
- Possession of the Ministry of Construction's information on national urban construction and the network resources for collecting, reorganizing and releasing information about human resources and the relevant databases, and have a national construction information statistics system.
- Strong ability to communicate and coordinate with the Ministry of Construction, the construction administration authorities of all provinces and municipalities, the other units in the construction field, the experts in these fields and the key domestic universities, colleges and research institutions.
- Profound understanding about China GEF End Use Energy Efficiency Program and be familiar with the relevant departments of the Ministry of Construction.
- Experience ability of organizing training in the system of the Ministry of Construction.
- Experience ability of cooperation for international projects.
- Experience to develop national level databases and statistical software for the building sector.
- Professional persons with special knowledge about BEE.

Budget: \$ 128,700

Main tasks:

- Create BEE information resource database
- Operate the GEF online service in Ministry of Construction's website, and develop and maintain the BEE network
- Process one forum on the MIS structure of construction energy saving and construction, establish the BEE supervision information system

Expected Deliverables/Outputs:

- Set up integrated information management system and database of BEE at the center and four pilot cities including Beijing, Shanghai, Chongqing and Shenzhen; collect, process and analyze the relevant data information of BEE owned by the center and four pilot cities including Beijing, Shanghai, Chongqing and Shenzhen, so as to offer full-fledged, timely and accurate statistics data, provide references and scientific means of administrative supervision for the government's decision-making and ensure a timely and smooth communication of information.
- Based upon energy conservation expert system, offer technical support to the development of energy conservation projects.
- With the establishment of electronic transaction platform, offer a fundamental platform for the commercialization of relevant BEE projects and provide conditions for extensive propagation of energy conservation projects.
- Through public information spreading network system, promote the governments and civilians' BEE consciousness and form public consciousness of energy conservation, thereby offering concussive environment for extensive propagation of energy conservation projects.
- Provide the project office of GEF BEE with information management support during project management process; achieve dynamic project management of the entire process covering project advancement, quality control, supervision management, capital investment, etc.

Subcontract of B4.1.3

29 Launch an initiative to start the promotion of China's BEE process mainly in pilot cities

Contract executing time period: 1st year

Qualification requirements:

- It has been engaged in construction field for more than 10 years and can profoundly master, understand and implement the national policies and technical standards on urban construction and BEE.
- Possession of the Ministry of Construction's information on national urban construction and the network resources for collecting, reorganizing and releasing information about human resources and the relevant databases, and have a national construction information statistics system.
- Strong ability to communicate and coordinate with the Ministry of Construction, the construction administration authorities of all provinces and municipalities, the other units in the construction field, the experts in these fields and the key domestic universities, colleges and research institutions.
- Profound understanding about China GEF End Use Energy Efficiency Program and be familiar with the relevant departments of the Ministry of Construction.
- Experience ability of successfully operating large-scale propaganda activities in the system of the Ministry of Construction.
- Experience in directing important research jobs in the field of construction.
- Experience ability of cooperation for international projects.
- Professional persons with special knowledge about BEE.

Budget: \$29,175

Main tasks:

- Jointly launch an initiative to promote China's BEE campaign by the Ministry of Construction (GEF) and the governments of pilot cities, which will be supported by CCTV, local TV stations in pilot cities, and the press and media, propaganda and report will be made by media including the national media and one media in the upwards of 2 pilot cities
- Jointly process a prize winning name-collecting activity in national media and influential media in the upwards of 2 pilot cities, and publicize the relevant circumstances of this EUEEP project to attract the broad attention and participation from all groups of society
- Hold a press conference in Beijing, to publicize the contents of the initiative document, the results of the name-collecting and name-crowning activity, and the major contents of dissemination campaign by the Ministry of Construction (GEF) and pilot cities. And then publicize the gist and content of this EUEEP project (buildings sector), thus to mobilize the public's enthusiasm on the attention on and participation in BEE.

Expected Deliverables/Outputs:

- 4 pilot cities sign a joint initiative document
- A name-collecting and name-crowning activity
- 10 news reports by the press
- One press conference

Subcontract of B4.1.4 based on B4.1.3 activity

30 Process a Sustained Dissemination Campaign Towards the Public

Contract executing time period: 3 years

Qualification requirements:

- The executive unit shall be a subsidiary of the Ministry of Construction, such as Information Center of MOC, Culture Center of MOC, has the qualification of an

independent legal entity. It has been engaged in construction field for more than 10 years and can profoundly master, understand and implement the national policies and technical standards on urban construction and BEE.

- Possession of the Ministry of Construction's information on national urban construction and the network resources for collecting, reorganizing and releasing information about human resources and the relevant databases, and have a national construction information statistics system.
- Strong ability to communicate and coordinate with the Ministry of Construction, the construction administration authorities of all provinces and municipalities, the other units in the construction field, the experts in these fields and the key domestic universities, colleges and research institutions.
- Profound understanding about China GEF End Use Energy Efficiency Program and be familiar with the relevant departments of the Ministry of Construction.
- Experience ability of successfully operating large-scale propaganda activities in the system of the Ministry of Construction.
- Experience in directing important research jobs in the field of construction.
- Experience ability of cooperation for international projects.
- Professional persons with special knowledge about BEE.

Budget: \$155,550

Main tasks:

- Transmit and intensify public's consciousness, fundamental knowledge on BEE by mass media and community network in pilot cities.

Expected Deliverables/Outputs:

- Shoot 1 volumes of scientific popularization TV special topics on BEE, which will be broadcasted by CCTV and star TVs in the upwards of 2 pilot cities, and will be also made into CD to be released to the selected schools and communities in the upwards of 2 pilot cities.
- Volumes of scientific popularization, publicizing materials on BEE and to be released to the schools and communities in the upward of 2 pilot cities. One volume per year.
- Combined with the publicizing of China's Energy Conservation Week, release commonweal advertisements on China's GEF BEE in upwards of 2 pilot cities, once per year.
- Organize various media, including central media and local media in the upwards 2 pilot cities, and process a prize winning solicit articles activity, the excellent articles will be put to insertion in the press.
- A professional column about BEE on a national media.

Subcontract of B4.1.5 Based on B4.1.3

31. Develop and maintain a sustained dissemination campaign towards government officials

Contract executing time period: 3 years;

Qualification requirements:

- The executive unit shall be a subsidiary of the Ministry of Construction, such as Information Center of MOC, Culture Center of MOC, has the qualification of an independent legal entity. It has been engaged in construction field for more than 10 years and can profoundly master, understand and implement the national policies and technical standards on urban construction and BEE.

- Possession of the Ministry of Construction's information on national urban construction and the network resources for collecting, reorganizing and releasing information about human resources and the relevant databases, and have a national construction information statistics system.
- Strong ability to communicate and coordinate with the Ministry of Construction, the construction administration authorities of all provinces and municipalities, the other units in the construction field, the experts in these fields and the key domestic universities, colleges and research institutions.
- Profound understanding about China GEF End Use Energy Efficiency Program and be familiar with the relevant departments of the Ministry of Construction.
- Experience ability of successfully operating large-scale propaganda activities in the system of the Ministry of Construction.
- Experience in directing important research jobs in the field of construction.
- Experience ability of cooperation for international projects.
- Professional persons with special knowledge about BEE.

Budget: \$86,650

Main tasks:

- To enhance decision-making and management ability on BEE of government officials process interactive discussion, review and exchange both at home and abroad in pilot cities.
- Organize leaders of municipal construction authorities in charge and professionals in pilot cities to learn the advanced foreign management experience of BEE.

Expected Deliverables/Outputs:

- Combined with the publicizing of China's Energy Conservation Week, one high level governmental forum on BEE respectively in Beijing.
- Shoot 1 volume of TV professional topics on the management and decision-making of BEE, and broadcast once in CCTV and upwards of 2 local star TV stations, and to be made into VCD.
- Professional books on management and decision-making of BEE.

Subcontract of Based on B4.1.3 activity

32 Develop and maintain a sustained dissemination campaign towards employees, real estate developers and product manufacturers

Contract executing time period: 3 years

Qualification requirements:

- The executive unit shall be a subsidiary of the Ministry of Construction, such as Information Center of MOC, Culture Center of MOC, has the qualification of an independent legal entity. It has been engaged in construction field for more than 10 years and can profoundly master, understand and implement the national policies and technical standards on urban construction and BEE.
- Possession of the Ministry of Construction's information on national urban construction and the network resources for collecting, reorganizing and releasing information about human resources and the relevant databases, and have a national construction information statistics system.
- Strong ability to communicate and coordinate with the Ministry of Construction, the construction administration authorities of all provinces and municipalities, the other units in the construction field, the experts in these fields and the key domestic universities, colleges and research institutions.

- Profound understanding about China GEF End Use Energy Efficiency Program and be familiar with the relevant departments of the Ministry of Construction.
 - Experience ability of successfully operating large-scale propaganda activities in the system of the Ministry of Construction.
 - Experience in directing important research jobs in the field of construction.
 - Experience ability of cooperation for international projects.
 - Professional persons with special knowledge about BEE.
- Budget: \$90,500
Main tasks:
- Enhance the knowledge and skill levels of employees, to intensify the investment consciousness of BEE and establish platforms for interaction and exchange for real estate developers and product manufacturers in pilot cities.
 - Expected Deliverables/Outputs:
 - Meetings for Design Standard for Energy Efficiency of Residential Buildings in Hot Summer and Warm Winter zone, and Design Standard for Energy Efficiency of Public Buildings
 - Professional books on the aspects of the Standards, design, supervision and operation, investment and financing analysis of BEE
 - Shoot and make 1 volume of professional topics on the investment and financing, and return on investment of BEE, and broadcast once in CCTV and upwards of 2 local star TV stations, and to be made into VCDs.
 - Seminars on the investment and financing patterns of BEE.
 - Technology exchange meeting on domestic and foreign technology and products

Subcontract of B4.1.7

33 Report and popularize the periodic outputs of this EUEEP project activities (buildings sector)

Contract executing time period: 2nd-3rd year

Qualification requirements:

- The executive unit shall be a subsidiary of the Ministry of Construction, such as Information Center of MOC, Culture Center of MOC, has the qualification of an independent legal entity. It has been engaged in construction field for more than 10 years and can profoundly master, understand and implement the national policies and technical standards on urban construction and BEE.
- Possession of the Ministry of Construction's information on national urban construction and the network resources for collecting, reorganizing and releasing information about human resources and the relevant databases, and have a national construction information statistics system.
- Strong ability to communicate and coordinate with the Ministry of Construction, the construction administration authorities of all provinces and municipalities, the other units in the construction field, the experts in these fields and the key domestic universities, colleges and research institutions.
- Profound understanding about China GEF End Use Energy Efficiency Program and be familiar with the relevant departments of the Ministry of Construction.
- Experience ability of successfully operating large-scale propaganda activities in the system of the Ministry of Construction.
- Experience in directing important research jobs in the field of construction.
- Experience ability of cooperation for international projects.

- Professional persons with special knowledge about BEE.

Budget: \$97,275

Main tasks:

- Publicize phased achievements of B1-B5 in pilot cities.
- Expected Deliverables/Outputs:
- Report on the effect of evaluation of the building energy consumption statistics in pilot cities
- Collection of policies and regulations and collection of consultation plans, financing mechanism research and the making of policy experiments of BEE
- Local popularization conference of demonstration project

Subcontract of B4.1.8

34 Through survey, organize an overall evaluation on the implementation and dissemination effect of this EUEEP project (buildings sector), and establish the dissemination plan for the next phase

Contract executing time period: 3rd year

Qualification requirements:

- The executive unit has been engaged in construction field for more than 10 years and can profoundly master, understand and implement the national policies and technical standards on urban construction and BEE.
- Possession of the Ministry of Construction's information on national urban construction and the network resources for collecting, reorganizing and releasing information about human resources and the relevant databases, and have a national construction information statistics system.
- Strong ability to communicate and coordinate with the Ministry of Construction, the construction administration authorities of all provinces and municipalities, the other units in the construction field, the experts in these fields and the key domestic universities, colleges and research institutions.
- Profound understanding about China GEF End Use Energy Efficiency Program and be familiar with the relevant departments of the Ministry of Construction.
- Experience ability of successfully operating large-scale propaganda activities in the system of the Ministry of Construction.
- Experience in directing important research jobs in the field of construction.
- Experience ability of cooperation for international projects.
- Professional persons with special knowledge about BEE.

Budget: \$49,500

Main tasks:

- The social survey on the consciousness, knowledge and skill of five groups, i.e. government officials, the public, technical employees, real estate developers, and product manufacturers in pilot cities at the end of the third year of the project.
- An overall evaluation on the implementation and dissemination effect of this EUEEP projects (buildings sector), and establishes the dissemination plan for the next phase.

Expected Deliverables/Outputs:

- Investigation report on five groups of people's BEE consciousness, knowledge, skills, investment and returns, investment intention and production direction, analyze and evaluate the results of information propagation during this phase.
- Propagation plan of next phase of BEE work.

Subcontract of Activity B4.2

35 Establishment of sustainable, open training mechanism and efficiently dissemination system of BEE (B4.2.1).

Contract executing time period: 3 years;

Qualification requirements:

- Project executive organization has better to be a consortium, which main part must be at least qualified with the following requirements:
- Provided with rich experience and network of cooperative trainings with foreign institutes, establishing cooperative relations with foreign institutes and experts;
- Successfully organized large-scale prevalent surveys and professional surveys in the field of project construction;
- Have personnel system database and successfully organized national or regional trainings in the field of project construction, enriched with experience of compiling professional teaching materials;
- Have urban infrastructure establishment, including database and large Internet of centralized heating, gas, public traffic and water supply;
- The other part of consortium must be qualified with at least following requirements:
- Have training bases of professional construction energy efficiency, including the majors of heating, gas supply, air-conditioning, ventilation and wall materials etc, have equipments related with teaching, experiment and accommodation;
- Have equipments related with heating, metering heating, central air-conditioning, renewable energy and wall materials and form into system which can provide technical flat roof and experimental equipments to teaching demonstration and practice;
- Have experience of training of domestic building energy efficiency, project supervision and energy saving associated with other countries;
- At least have experience of professional teachers of heating, air-conditioning, building materials, project supervision and compiling teaching materials;
- Have long-time and good relations with the organizations of construction spot, estate developers, supervision companies and heat plants, can provide good spot teaching and visiting conditions to trainees;

Budget: \$ 27,300

Main tasks:

- With the support of Ministry of Construction, process market survey in pilot cities;
- Establish new training mechanism (the training method “ trainee—training—trainer”) and training system (includes training layout, training network, training material, training teachers, training sites) and disseminate them;
- Organize experts to evaluate the training results under the new training system and mechanism, to find out the gaps from pre-made goals, and to provide advice on perfecting the new system and mechanism, and analyze and evaluate effect of training;
- Continuous update and perfect to the new training mechanism and training system.

Expected Deliverables/Outputs:

- Market investigation report in pilot cities;
- New training mechanism and system;
- Relative professional trainees and administrative authorities grope new training mechanism and system;
- Evaluation and summary report on the new training mechanism and training system; upgrading layout for the next phase.

36 Formulate training mechanism and teaching materials on code implementation of BEE, three types of typical climate regions, mayors, the ability construction of training institutions in pilot cities on China's BEE (B4.2.2).

Contract executing time period: 3 years;

Qualification requirements:

- Project executive organization has better to be a consortium, which main part must be at least qualified with the following requirements:
- Provided with rich experience and network of cooperative trainings with foreign institutes, establishing cooperative relations with foreign institutes and experts;
- Successfully organized large-scale prevalent surveys and professional surveys in the field of project construction;
- Have personnel system database and successfully organized national or regional trainings in the field of project construction, enriched with experience of compiling professional teaching materials;
- Have urban infrastructure establishment, including database and large Internet of centralized heating, gas, public traffic and water supply;
- The other part of consortium must be qualified with at least following requirements:
- Have training bases of professional construction energy efficiency, including the majors of heating, gas supply, air-conditioning, ventilation and wall materials etc, have equipments related with teaching, experiment and accommodation;
- Have equipments related with heating, metering heating, central air-conditioning, renewable energy and wall materials and form into system which can provide technical flat roof and experimental equipments to teaching demonstration and practice;
- Have experience of training of domestic building energy efficiency, project supervision and energy saving associated with other countries;
- At least have experience of professional teachers of heating, air-conditioning, building materials, project supervision and compiling teaching materials;
- Have long-time and good relations with the organizations of construction spot, estate developers, supervision companies and heat plants, can provide good spot teaching and visiting conditions to trainees;

Budget: \$28,670

Main tasks:

- Formulate training mechanism and teaching materials on code implementation of BEE;
- Formulate training mechanism and teaching materials on three types of typical climate regions;
- Formulate training mechanism and teaching materials on mayors;
- Formulate training mechanism and teaching materials on the ability construction of training institutions in pilot cities on China's BEE.

Expected Deliverables/Outputs:

- Training materials of implemental BEE code in pilot cities Shanghai, Chongqing and Shenzhen for the governors and professional designers;
- Implementation of BEE code in Hot Summer and Cold Winter Zone, Hot Summer and Warm Winter Zone;
- Training materials for national mayors and trainer training;
- Series of training material for Heating Zone, Hot Summer and Cold Winter, Hot Summer and Warm Winter.

37 Adding contents of BEE in the mayors' training courses (B4.2.3)

Contract executing time period: 3 years;

Qualification requirements:

- Project executive organization has better to be a consortium, which main part must be at least qualified with the following requirements:
- Directly under or in a subordinate position of Ministry of Construction;
- Provided with rich experience and network of cooperative trainings with foreign institutes, establishing cooperative relations with foreign institutes and experts;
- Successfully organized large-scale prevalent surveys and professional surveys in the field of project construction;
- Have personnel system database and successfully organized national or regional trainings in the field of project construction, enriched with experience of compiling professional teaching materials;
- Have urban infrastructure establishment, including database and large Internet of centralized heating, gas, public traffic and water supply;
- The other part of consortium must be qualified with at least following requirements:
- Have training bases of professional construction energy efficiency, including the majors of heating, gas supply, air-conditioning, ventilation and wall materials etc, have equipments related with teaching, experiment and accommodation;
- Have equipments related with heating, metering heating, central air-conditioning, renewable energy and wall materials and form into system which can provide technical flat roof and experimental equipments to teaching demonstration and practice;
- Have experience of training of domestic building energy efficiency, project supervision and energy saving associated with other countries;
- At least have experience of professional teachers of heating, air-conditioning, building materials, project supervision and compiling teaching materials;
- Have long-time and good relations with the organizations of construction spot, estate developers, supervision companies and heat plants, can provide good spot teaching and visiting conditions to trainees;

Budget: \$ 8,100

Main tasks:

- Establish the training layout on BEE for mayors;
- Hold 3 terms of BEE training for mayors;
- Hold China's BEE high-level forums (B4.1.5).
- Expected Deliverables/Outputs:
- Training layout on BEE for mayors;
- 3 terms of mayors training on BEE (1 term per year).

38 Training government officials, designers, supervisors, operation management personnel, and developers, in 4 pilot cities and other cities, in order to enhance the BEE management, knowledge, and skill level.

Contract executing time period: 3 years;

Qualification requirements:

- Project executive organization has better to be a consortium, which main part must be at least qualified with the following requirements:
- Provided with rich experience and network of cooperative trainings with foreign institutes, establishing cooperative relations with foreign institutes and experts;

- Successfully organized large-scale prevalent surveys and professional surveys in the field of project construction;
- Have personnel system database and successfully organized national or regional trainings in the field of project construction, enriched with experience of compiling professional teaching materials;
- Have urban infrastructure establishment, including database and large Internet of centralized heating, gas, public traffic and water supply;
- The other part of consortium must be qualified with at least following requirements:
 - Have training bases of professional construction energy efficiency, including the majors of heating, gas supply, air-conditioning, ventilation and wall materials etc, have equipments related with teaching, experiment and accommodation;
 - Have equipments related with heating, metering heating, central air-conditioning, renewable energy and wall materials and form into system which can provide technical flat roof and experimental equipments to teaching demonstration and practice;
 - Have experience of training of domestic building energy efficiency, project supervision and energy saving associated with other countries;
 - At least have experience of professional teachers of heating, air-conditioning, building materials, project supervision and compiling teaching materials;
 - Have long-time and good relations with the organizations of construction spot, estate developers, supervision companies and heat plants, can provide good spot teaching and visiting conditions to trainees.

Budget: \$ 97,530

Main tasks:

- Train administrative authorities in charge to enhance BEE management level;
- Train designers on the standard and criteria of BEE, and on the advanced BEE technologies;
- Train construction engineering supervisors on BEE policies and regulations and relative criteria;
- Train operation management personnel of propriety companies on the knowledge and skill of energy consumption quantitative management;
- Train real estate developers on contents such as the development trend of BEE, and investment and financing, return, market status of BEE;
- Train relevant training institution personnel in the construction administrative system on the new training mechanism and training system;

Expected Deliverables/Outputs:

- Two terms of training institution personnel got foreign training qualification;
- Two terms of administrative authorities in charge training;
- Two terms of construction engineering supervisors training;
- Two terms of training institution personnel got domestic training qualification.
- One term of real estate developers training
- Three terms of designers training
- Three terms of operation management personnel training

B5

B5.1

39 Survey on the Current Status of Very Low Energy Consuming Buildings in China

Contract period: 3 years

Qualification requirements:

- The sub-contractor should have strong ability to organize the domestic survey on very low energy consuming building technologies and products
- Know well the developing situation of very low energy consuming building technologies and products in China

Budget: \$ 41,000

Main tasks:

- Investigate the current developing status and existing problems on very low energy consuming building technologies and products in China
- Organize relative experts to carry out the domestic surveys on the current developing status of very low energy consuming buildings and relative technologies, the availability of the very low energy consuming building products, the R&D conditions and the market potential.
- Organize to complete the domestic survey report on the current developing situation and potential of very low energy consuming building technologies, products and relative industries in China
- Organize relative symposiums and workshops

Main output:

- Complete and Submit 5-6 domestic survey reports
- Based on the achievements of the domestic investigation, a report on the current developing status and potential of very low energy consuming building technologies, products and relative industries in China
- Symposiums and workshop proceedings reports

40. International Cooperation on Very Low Energy Consuming Building

Contract period 3 years

Qualification requirements:

- Good relationship with relevant international agencies on very low energy consuming building
- Good relationship with relevant Chinese government agencies
- Long-term experiences on energy efficiency and energy policies

Budget: \$ 24,250

Main tasks:

- Analyze the market barriers to the development of very low energy consuming buildings in China
- Carry out technical and economic analysis on very low energy consuming building technologies and products, study the feasibility and technical guarantee degree to promote very low energy consuming buildings in China, and analyze the reasonable time to promote very low energy consuming buildings in China.
- By policies research and investigation, summarize and evaluation the implementation experiences and effects of relative building energy efficiency policies, study the measures and policies to remove the market barriers to develop very low energy consuming buildings.

Main output

- Report on the developing process and promoting experiences of very low energy consuming buildings in foreign countries

- Report on the market barriers to the development of very low energy consuming buildings in China
- Report on technical and economic analysis on very low energy consuming building technologies and products, study the feasibility and technical guarantee degree to promote very low energy consuming buildings in China, and analyze the reasonable time to promote very low energy consuming buildings in China
- Policy recommendations on promoting frog leap development of Chinese buildings

B5.3.2

41. Sub-contract of research and application of air conditioning of building

Qualification requirements

- Have long-time research of EEB equipment, have experts of EEB equipment's researching, Can develop requirements for EEB equipment suitable for different climate regions in China, has capability of simulation analysis and practical examination for EEB equipment, has broad relationship with manufacture corporations of equipment

Budget: \$9,000

Main Task:

- Organize workshops on application of projects evaluation about air conditioning system, and make certain what are the most wanted key technology for the designs and applications of the ground source heat pump air conditioning systems and collect the current research achievements.
- Compile Ground Source Heat Pump Technical Specification on the basis of overseas advanced experiences and domestic study works.
- Evaluate application project about the ground source heat pump air conditioning systems.

Expected Deliverables/Output:

- Research reports on present ground source heat bump project
- Proceedings of the symposium on application evaluation of the ground source heat pump air conditioning systems
- The ground source heat pump air conditioning systems efficiency technical specification

B5.5

42. Surveys on the thermal insulating materials and walling materials in use of low energy consuming building

Contract period 3 years

Activity Description

- Thermal insulating materials and energy consuming walling materials are the basis for building energy consuming. At the meantime, it is of decisive importance for the properties of thermal insulating materials and energy consuming walling materials chosen to the energy consuming effect of the building. Therefore, a city will be chosen as the pilot city in this sub-contract, and surveys, analysis, tests are performed on the existed thermal insulating materials and energy consuming walling materials in the city. Research is carried out on the energy efficient walling system suitable for different

walling structure in the city, and walling systems that could improve the thermal properties of building is proposed for the area of the same climate type.

Budget: US\$ 12,000

Main Task:

- By local surveys, choose and fix on a city to carry out research on thermal insulating materials and energy consuming walling materials
- Survey on existed thermal insulating materials and walling materials used in low energy consuming buildings in the city; test on some products be chosen; analyze the thermal properties of different thermal insulating materials and walling materials
- Research on low energy consuming walling system for different walling structure suitable for climate condition of the city; propose walling systems which could improve the thermal properties of the buildings and can be optional for the climate type of the zone

Expected Deliverables/Output:

- Propose several low-cost and high-efficiency wall structures using local resources for the selected city.

B5.4

43. Survey on new energy-efficient thermal-insulation roof materials

Contract period 3 years

Qualification requirements:

- The sub-contractor should organize the domestic survey on new energy-efficient thermal-insulation roof materials
- Know well the developing situation of new energy-efficient thermal-insulation roof materials and products in China

Budget: US \$ 6,000

Main tasks:

- Investigate the current developing status and existing problems on new energy-efficient thermal-insulation roof materials and products in China
- Organize relative experts to carry out the domestic surveys on the current developing status of new energy-efficient thermal-insulation roof materials.

Expected Deliverables/Output:

- Complete and submit a report on the current developing status and potential of new energy-efficient thermal-insulation roof materials.

44. Survey on energy saving composite exterior wall panel

Contract period 3 years

Qualification requirements:

- The sub-contractor should organize the domestic survey on energy saving composite exterior wall panel.
- Know well the developing situation of on energy saving composite exterior wall panel in China

Budget: US \$ 9,000

Main tasks:

- Investigate the current developing status and existing problems on energy saving composite exterior wall panel in China.
- Organize relative experts to carry out the domestic surveys on the current developing status of energy saving composite exterior wall panel.

Expected Deliverables/Output:

Complete and Submit a report on the current developing status and potential of energy saving composite exterior wall panel.

43. Sub-contract of incorporate results of this exploration into the standards developments process

Contract executing time period: 3 years

Qualification requirements

- Universities or scientific research institutes involved in building energy efficiency research for a long time, have integrated specialty representing all disciplines in construction field (including urban planning, architectural design and technology, built environment, building services engineering, water supply and drainage, disposal of waste solids, building material, green illumination, project management); have high level sustain subjects (such as doctor degree station, national “211” program or key laboratory); Have presided the implementation of EEB demo-project, have compiled as the editor or co-editor of state-wide or local building energy efficiency standards; have sufficient higher level professional personals and enough time to undertake the research; have available laboratories and experimental devices of EEB research; have good relation with the construction administrative agencies of central and local governments.

Budget: \$9,900

Main Task:

- Elect and check low energy consumption technologies that could be incorporate into standards.
- Elect and check wall systems that could be incorporate into standards.
- Elect and check air conditioning equipments that could be incorporate into standards.
- Process a Workshop of the validation of energy efficiency technologies, walls systems and air-conditioning equipments in the establishment of BEE standards, and judge the production developed in B5 that could be incorporate into standards.

Expected Deliverables/Output:

- Recommendations about low energy efficiency technologies that could be incorporate into standards
- Recommendations about wall systems that could be incorporate into standards
- Recommendations about air conditioning equipments that could be incorporate into standards
- Document about the output of B5 that could be incorporated into standards

B.4: Training & Workshops (Component B)

B5.1

1. International workshop to promote very low energy consuming buildings in China

Activity Description

- The activity will organize about 70 international experts, domestic experts and government officials in the field of building energy efficiency to study the developing situation and trend of LECB in China and other countries, to discuss the method of technical-economic analysis on LECB and conduct the technical-economic analysis on LECBs in China and other countries and to study the incentive policies to promote LECB.

Budget: US\$21,000

B5.2

2. Study on thermal-insulation material and wall material

Activity Description

- Study on thermal-insulation material and wall material. About 4 workshops or seminars will be organized with about 50 experts for each time. The major task includes:
 - Perform comparative research on different materials for insulation and wall systems applied to new buildings and renovation of existing buildings, to improve the thermal property of buildings.
 - Perform comparative research on property and cost of building materials developed for different regions in China and satisfied for local building energy requirements, to choose low-cost and high-efficiency solutions.
 - Perform comparative research on the situation of new energy-saving materials applied to new buildings, especially to choose low-cost wall materials suitable for building energy requirement in different regions, and perform measurements and assessments on the demonstration projects, which applied new energy-saving materials.

Budget: US\$26,000

B5.3

3. Study on new energy-efficient thermal-insulation roof materials

Activity Description

- Research on the situation of new energy-efficient thermal-insulation roof materials applied to new buildings, suitable for building energy requirements in different regions.

Budget: US\$5,000

B5.4

4. Study on energy saving composite exterior wall panel

Activity Description

- Develop one product that offers the potential for widespread commercial application, perform R&D to seek a product that offers the potential for widespread commercial use composite panel for exterior wall system. It includes:
 - research on the product;
 - manufacturing of the product;
 - assessment on the properties;
 - development of product standard and applying regulation. Prepare for the application of R&D achievement to demonstration buildings. About 3 workshops or seminars will be organized with 30~ 50 experts for each time.

Budget: US\$15,000

B. 5: Equipment Purchase (Component B)

Survey Devices (for B1):

| Usage | Description | Amount | Unit Price | Cost | Purchase Method |
|---|---------------------------------------|---------------|-------------------|-------------|------------------------|
| On-site sample survey of BEC in residential buildings in the pilot cities | Data collection and treatment devices | 2 | 3,000 | 6,000 | Tendering |
| | Data treatment software | 2 | 4,000 | 8,000 | Tendering |
| On-site sample survey of BEC in commercial and public buildings in the pilot cities | Data collection and treatment devices | 2 | 2,000 | 4,000 | Tendering |
| | Data treatment software | 2 | 4,000 | 8,000 | Tendering |
| Total | | | | 26,000 | |

Budget: \$26,000

Equipment (activity B3.6.6):

| Purpose | Description | Amount | Unit Price | Cost | Purchase Method |
|--|--|---------------|-------------------|-------------|------------------------|
| Conceptualize and Promote the Concept of the Green Building that Adapt to the Region's Character, and the Climate and the Resources of China | The system of solar radiation and weather analysis | 1 | 8,000 | 8,000 | Tendering |
| | Apparatus of thermal comfort | 1 | 4,000 | 4,000 | Tendering |
| Total | | | | 12,000 | |

C.1: Terms of Reference for International Experts (Component C)

TOR numbers:

| Item | Number of IE's TOR |
|-------|--------------------|
| C1.1 | 3 |
| C1.2 | 1 |
| C1.3 | 1 |
| C2 | 1 |
| C3 | 1 |
| Total | 7 |

Details:

TOR1

C1.1

Post Title: International Expert for Building Energy Audit

Duration: 2 work-months over 3 years

Number of expert: 1

Qualifications:

- At least 8 years of practical and/or academic experience in the study and implementation of energy efficiency policy
- Knowledgeable about building energy conservation and building energy auditing, especially for building materials and central air conditioning system
- Understand China's energy situation.

Language: English or Chinese

Budget: \$35,000

Duties:

- Collecting existing building energy audit materials, reviewing and assessing existing building energy audit methods in the world
- Cooperate with Chinese experts to design building energy audit methodology and develop related training materials for initial building energy audit in the 1st year
- Cooperate with Chinese experts to improve energy auditing methodology and training materials for building energy audit with materials developed in activity B.3 and success and failures gathered from energy audit in pilots at the beginning of the 2nd year and the 3rd year
- Assist PMO to train the ECC staffs using training material.
- Providing technical assistance(when necessary) in building energy audit in factories.
- Cooperate with Chinese and international experts in developing in-depth training materials in building energy auditing
- Act as a teacher in the in-depth training
- Speak at international and domestic workshops about building energy audit in China
- Recommend measures (when necessary) to enhance the effectiveness of building energy audit.
- Based on the experience in the pilot building energy auditing projects, provide inputs for a follow-up sustainable building energy audit projects that will be implemented in the future.

Expected Deliverables/Outputs:

- Analysis report of building energy auditing methods in the world

- Documentation of designed building energy methodology
- Initial building energy auditing material in the 1st year
- Improved building energy auditing materials in the 2nd and 3rd year separately
- Initial In-depth training materials and its updated versions in 3 years
- In-depth training courses given by this expert
- Documentation of technical assistance given by the expert
- Documentation of recommended measures to enhance the effectiveness of building energy audit
- Documentation of recommendations for follow-up sustainable building energy audit in the future

TOR2

Post Title: International Experts for Industry Energy Audit

Duration: 4 work months over 3 years

Number of expert: 2

Qualifications:

- At least 8 years of practical and/or academic experience in the study and implementation of energy efficiency policy
- Knowledgeable about industrial energy conservation and industry energy auditing
- Understand China's energy situation.
- 2 experts' joint work should cover 5 energy auditing fields, including the industrial energy audit in motor EE, boiler and steam system EE, industrial furnace EE, heat isolation and EE management & financing.

Language: English or Chinese

Budget: \$68,000

Duties:

- Collecting existing industrial energy audit materials, reviewing and assessing existing industry energy audit methods in the world
- Cooperate with Chinese experts to design industry energy audit methodology and develop related training materials for initial industry energy audit in the 1st year
- Cooperate with Chinese experts to improve energy auditing methodology and training materials for industry energy audit with materials developed in activity A.2, A.3, A.4 and success and failures gathered from energy audit in pilots at the beginning of the 2nd year and the 3rd year
- Assist PMO to train the ECC staffs using this material.
- Providing technical assistance(when necessary) in building energy audit in factories.
- Cooperate with Chinese and international experts in developing in-depth training materials in industry energy auditing
- Act as teachers in the in-depth training
- Speak at international and domestic workshops about building energy audit in China
- Recommend measures (when necessary) to enhance the effectiveness of building energy audit.
- Based on the experience in the pilot building energy auditing projects, provide inputs for a follow-up sustainable building energy audit projects that will be implemented in the future.

Expected Deliverables/Outputs:

- Analysis report of industry energy auditing methods in the world
- Documentation of designed building energy methodology
- Initial industry energy auditing material in the 1st year

- Improved industry energy auditing materials in the 2nd and 3rd.
- Initial In-depth training materials and its updated versions in later years
- In-depth training courses this expert given
- Documentation of technical assistance given by the expert
- Documentation of recommended measures to enhance the effectiveness of building energy audit
- Documentation of recommendations for follow-up sustainable building energy audit in the future

TOR3

Post Title: Trainers for EEC Staffs' Short-Terms Study

Duration for contract implementation: 3 work months total

Number of expert: 6

Duration: 3 years

Qualifications:

- World famous international experts with leading knowledge and abundant practice experience in building and industry energy audit
- With good background in cooperation with China in energy conservation field, especially in energy auditing field
- Knowledgeable about the energy situation in China
- Experts who can speak Chinese is preferable

Budget: US\$55,000

Main tasks:

- Design training methodology and in-depth training materials with advanced technologies and methods
- Conduct 3 months' in-depth training for 10 ECCs' senior staffs on building and industry energy audit in countries outside China
- Providing energy audit site practice opportunities for Chinese experts
- Providing office facilities for Chinese experts

Key deliverables/outputs (all written reports to be delivered in Chinese and English):

- Training materials developed
- Training courses

TOR4

C.1.2

Post Title: International Evaluation Expert for Training Courses

Number of experts: 1

Duration: 2 work months over 3 years

Qualifications:

- Knowledgeable about evaluation method
- Be third party expert, independent from trainers and trainees.
- Had implemented evaluation project in China, experienced in co-operating with Chinese evaluation experts

Language: English or Chinese

Budget: \$50,000

Duties:

- Developing evaluation plans and kept self monitoring

- Cooperate with 2 Chinese experts to form an evaluation team
 - Coordinate with Chinese evaluation experts to evaluate at least 10 training courses given by ECC staffs
 - Interviews with trainees with particular emphasis on how they used knowledge gained in courses; interviews with trainers
 - Writing evaluation report on the effect of ECCs' training
 - Recommending next-step sustainable development measures
- Expected Deliverables/Outputs:
- Document of evaluation plan and its implementation
 - Evaluation report
 - Documentation of the recommended next-step sustainable development measures

TOR5

C.1.3

Post Title: International Survey Expert

Number of experts: 1

Duration: 2.5 work months over 3 years

Qualifications:

- Knowledgeable with survey methods
- At least 8 years' survey experience
- Had co-operated with Chinese experts in survey projects
- Knows about the energy situation in China

Language: English or Chinese

Budget: USD 60 thousand

Duties:

- Developing evaluation plans and kept self monitoring
- Coordinate with Chinese survey experts to survey the impact of the information dissemination activity
- Developing adequate survey method
- Implement survey
- Writing survey report
- Recommending next-step sustainable development measures

Expected Deliverables/Outputs:

- Monitoring plan
- Document of evaluation plan and its implementation
- Documentation of survey method
- Survey report to show the impact of the information dissemination activity
- Documentation of the recommended next-step sustainable development measures

TOR6

C.2

Post Title: International experts on Energy Conservation Law

Duration: 2.5 months total (1.25 months each) over 3 years

Number of experts: 2

Qualifications:

- The evaluation experts should possess an advanced degree in energy economics or engineering, management or similar field of work related to energy development.

- He/She should possess knowledge in one of those areas: energy efficiency management, Energy efficacy policy, Energy conservation law and regulations.
- He/She should have at least 2 or 3 times experience carry out the evaluation of energy efficiency projects, in-depth understanding of the technical, legal, institutions, understanding the M&E methods of comprehensive energy efficiency projects.

Language: English or Chinese

Budget: USD 60,000

Duties:

- Participate in the workshop on Energy Conservation Law Implementation to be held in China, giving lectures in the workshop, and sending related papers to participants
 - Prepare the international experience on implementation and system of energy efficiency laws;
 - Assist to arrange the study tours on implementation experience in abroad;
 - Review the summary report on study tours and provide comments.
- Expected Outputs (both in English and Chinese):
- Report on international experience on implementation of energy efficiency laws;
 - Feasibility report of learning from abroad in China;
 - Suggestions on second phase plan.

TOR7

C.3

Post Title: EC investment expert & EC policy study experts

Duration: 3 work-months total (1.5 work months each) over 3 years

Number of experts: 2

Qualifications:

- The sub contractor should be an advanced degree in energy economics and engineering, management or similar field. He should possess knowledge in Energy efficiency finance policy, Energy conservation law and regulations, rich experience on international energy efficiency finance. And have strongly capability of organization.

Language: English or Chinese

Budget: \$65,000

Duties:

- Study on the international experiences with effective energy efficiency financing in market economy.
- Co-organize international workshop with TOR2 sub-contractor. Co-organize workshop and participate to edit workshop proceedings
- Do some specific research work on energy conservation finance international experience.
- Based on above works write the report on the models and experiences in effective energy efficiency financing in market economy.
- Provide suggestion to china government on the profit proposed report.
- Suggestion on the financing mode that suits China's characteristics
- Do the compare research on the international experience of energy efficiency financing. Combine with China's energy investment history provide the comments on rational options.
- Analyze and comments the new mechanisms of energy financing
- Help Chinese side to organize and arrange international visit.
- Recommending next-step sustainable development measures

Expected Outputs (both in English and Chinese):

- To complete the international visit and related reports, provide enough materials and suggestions.
- Provide the research report and the workshop paper.
- Documentation of the recommended next-step sustainable development measures

C.2: Terms of Reference for National Experts (Component C)

TOR numbers:

| Item | Number of DE's TOR |
|-------|--------------------|
| C1.1 | 3 |
| C1.2 | 0 |
| C1.3 | 0 |
| C2 | 1 |
| C3 | 2 |
| Total | 6 |

Details:

TOR1

C1.1

Post Title: Domestic Expert for Building Energy Audit

Number of People: 2

Duration: 6 work-months total over 3 years

Qualifications:

- Several years of practical and/or academic experience in the study and implementation of energy efficiency policy
- Knowledgeable about building energy conservation and building energy auditing
- Has practical experience of energy auditing in China
- 2 experts' joint work should cover energy auditing of building materials and central air conditioning system

Language: Chinese and English

Budget: \$25,000

Duties:

- Collecting existing building energy audit materials, reviewing and assessing existing building energy audit methods in China
- Cooperate with International Expert to develop training materials for initial building energy audit in the 1st year
- Cooperate with International Expert to improve energy auditing method and training materials for building energy audit with materials developed in activity B.3 and success and failures gathered from energy audit in pilots at the beginning of the 2nd year and the 3rd year
- train the ECC staffs as teachers using this material.
- Cooperate with International Expert to develop in-depth training materials
- Act as teachers in the in-depth training
- Recommending next-step sustainable development measures

Expected Deliverables/Outputs:

- Analysis report of building energy auditing methods in China
- Initial building energy auditing material in the 1st year
- Improved building energy auditing materials in the 2nd and 3rd year separately
- Courses given by experts in training ECC staffs
- In-depth training materials
- Courses given by the experts in in-depth training
- Documentation of the recommended next-step sustainable development measures

TOR2

C1.1

Post Title: Domestic Expert for Industry Energy Audit

Number of People: 5

Duration: 12 work-months total over 3 years

Qualifications:

- Several years of practical and/or academic experience in the study and implementation of energy efficiency policy
- Knowledgeable about industry energy conservation and industry energy auditing
- Has practical experience of energy auditing in China
- 5 experts' joint work should cover 5 energy auditing fields, including the industrial energy auditing in motor EE, boiler and steam system EE, industrial furnace EE, heat isolation, EE management & financing.

Language: Chinese and English

Budget: \$73,000

Duties:

- Collecting existing industry energy audit materials, reviewing and assessing existing industry energy audit methods in China
 - Cooperate with International Expert to develop training materials for initial industry energy audit in the 1st year
 - Cooperate with International Expert to improve energy auditing method and training materials for industry energy audit with materials developed in activity A.2, A.3, A.4 and success and failures gathered from energy audit in pilots at the beginning of the 2nd year and the 3rd year
 - train the ECC staffs as teachers using this material.
 - Cooperate with International Expert to develop in-depth training materials
 - Act as teachers in the in-depth training
 - Recommending next-step sustainable development measures
- Expected Deliverables/Outputs:
- Analysis report of industry energy auditing methods in China
 - Initial industry energy auditing material in the 1st year
 - Improved industry energy auditing materials in the 2nd and 3rd year separately
 - Courses given by experts in training ECC staffs
 - In-depth training materials.
 - Courses given by the experts in in-depth training
 - Documentation of the recommended next-step sustainable development measures

TOR3

C1.1

Post Title: C1.1 activity Monitors

Number of People: 10

Duration: 36 work-months total over 3 years

Qualifications:

- Several years of practical and/or academic experience in the study and implementation of energy efficiency policy
- Knowledgeable about building and industry energy auditing
- Knowledgeable about monitoring and evaluation of building / industry energy auditing
- Good relationship with ECCs, enterprises and government energy conservation administrations

Language: Chinese and English

Budget: \$80,000

Duties:

- In closed cooperation with international expert, National Project Director (NPD), M&E experts of D2 and Project Management Office (PMO) to develop the Sub-project monitoring plan document.
- Discuss the methods with M&E experts. Design the monitoring methods in detail.
- Develop monitoring plan for C1.1's activities
- Monitor the development of C1.1's implementation, write monitoring report every 3 month
- Develop tracking plan to trace the development of each "energy audit case" when it begins
- Tracking the development of each "energy audit case", write tracking report at least twice per year

Expected Deliverables/Outputs:

- Monitoring plan for ECC's energy auditing work
- Periodical monitoring report for ECC's energy auditing work, at least twice per year
- Tracking plan for enterprises' Energy audit cases
- Tracking reports for enterprises' Energy audit cases

TOR4

C2

Post Title: Monitoring Experts

Duration: 1.5 work-months over 3 years

Number of expert: 1

Qualifications:

- The monitoring experts should possess an advanced degree in energy economics or engineering, management or similar field of work related to energy development. He/She should possess knowledge in one of those areas: energy efficiency management, Energy efficacy policy, Energy conservation law and regulations. He/She should have at least 2 or 3 times experience carry out the monitoring or evaluation of energy efficiency projects, in-depth understanding of the technical, legal, institutions, understanding the M&E methods of comprehensive energy efficiency projects.

Budget: USD 6,700

Duties:

- In closed cooperation with international expert, National Project Director (NPD), M&E experts of D2 and Project Management Office (PMO) to develop the Sub-project monitoring plan document.
- Discuss the methods with M&E experts. Design the monitoring methods in detail.
- Track the C2 implementation. Meet with NGOs and private sector representatives as well as experts who involve in C2 implementation.
- Write monitoring working report in each year.

Expected Outputs:

- A monitoring plan will be completed and descript in detail what is the key point of monitoring and how to identify the milestone. Briefings of monitoring progress need to be provided in each year.

TOR5

C3

Post Title: Monitoring Expert

Duration: 4 work-months over 3 years

Number of expert: 1

Qualifications:

- The monitoring experts should possess an advanced degree in energy economics and engineering, management or similar field.
- He/She should possess knowledge in energy efficiency management, Energy efficiency policy, and energy conservation investment.
- He/She should have at least 2 or 3 times experience of carry out the monitoring or evaluation of energy efficiency projects, in-depth understanding the M&E methods of comprehensive energy efficiency projects.
- Understanding the technical-economical analysis methods.

Budget: USD 15,000

Duties:

- A monitoring plan will be completed and describe in detail what is the key point of monitoring and how to identify the milestone. The briefing need provided on times.
- Cooperate with project executive director complete and deliver the reports to UNDP and PMO in time.

Expected Outputs:

- A monitoring plan that is identified by project executive director and PMO, The periodical working briefing, deliver the materials for UNDP annual trisection review meeting.

TOR6

C3

Post Title: EC investment & energy saving innovation expert

Duration: 4.5 work months over 3 years

Number of expert: 1

Qualifications:

- The contractor should be an advanced degree in energy economics and engineering, management or similar field. He should possess knowledge in Energy efficiency finance policy, Energy conservation law and regulations, rich experience on investment and technology renovate. Know well on the government examination procedure of energy conservation renovate project.

Budget: \$17,000

Duties:

- Cooperate with international experts to conduct the research on the international experience of EC financing
- Research on the cost benefit analysis of EC financing from the view of enterprises, evaluate and interpret the risks of EC financing, and analyze the possibilities of EC financing done by government or other investment institutions
- Compare EC financing with other financing issues
- Based on above works, raising recommendations about EC financing policies that to be developed by government EC administrations or government financing institutions.

Expected Outputs:

- Provide related reports and promoting establishing of energy investment benefit/cost analysis method and establish the energy consumption cost accounting system in enterprise.

- To diffuse the successful pilots experience.

C.3: Subcontracts

TOR numbers:

| Item | No. of Subcontracts |
|-------|---------------------|
| C1.1 | 8 |
| C1.2 | 7 |
| C1.3 | 5 |
| C2 | 5 |
| C3 | 3 |
| Total | 28 |

Details:

TOR1

C1.1

Post Title: One ECC conduct building energy audit

Duration for contract implementation: 3 years

Qualifications:

- Knowledgeable about building energy conservation and building energy efficiency
- Knowledgeable about building energy audit method
- Good relationship with building developers, architectures, engineers and big building energy users
- Good relationship with energy conservation administrations from central to local government

Budget: US\$120,000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Participate in all related training courses
- Send a senior staff for in-depth training
- Conduct 1 building energy audit with method developed in year 1
- Conduct 2 building energy audits with method developed in year 2
- Conduct 12 building energy audits with method developed in year 3
- Purchasing advanced energy audit equipments with non-GEF funds, and use these equipments in energy audit practice -- to guarantee the knowledge learnt in the trainings could be useful
- Providing technical support for factories(if necessary).
- Recommending next-step sustainable development measures

Key deliverables/outputs (all written reports to be delivered in Chinese and English):

- Document of monitoring plan and its implementation
- reports for each building energy audit cases
- Equipment list bought by non-GEF funds
- Documentation of technical support for factories (if any)
- Documentation of the recommended next-step sustainable development measures

TOR2

C1.1

Post Title: One ECC conduct building energy audit

Duration for contract implementation: 3 years

Qualifications:

- Knowledgeable about building energy conservation and building energy efficiency
 - Knowledgeable about building energy audit method
 - Good relationship with building developers, architectures, engineers and big building energy users
 - Good relationship with energy conservation administrations from central to local government
- Budget: US\$120,000
- Main tasks:
- Developing monitoring plans and kept self monitoring
 - Participate in all related training courses
 - Send a senior staff for in-depth training
 - Conduct 1 building energy audit with method developed in year 1
 - Conduct 2 building energy audits with method developed in year 2
 - Conduct 12 building energy audits with method developed in year 3
 - Purchasing advanced energy audit equipments with non-GEF funds, and use these equipments in energy audit practice -- to guarantee the knowledge learnt in the trainings could be useful
 - Providing technical support for factories(if necessary).
 - Recommending next-step sustainable development measures
- Key deliverables/outputs (all written reports to be delivered in Chinese and English):
- Document of monitoring plan and its implementation
 - reports for each building energy audit cases
 - Equipment list bought by non-GEF funds
 - Documentation of technical support for factories (if any)
 - Documentation of the recommended next-step sustainable development measures

TOR3

C1.1

Post Title: One ECC conduct building energy audit

Duration for contract implementation: 2 years (join from the 2nd year)

Qualifications:

- Knowledgeable about building energy conservation and building energy efficiency
 - Knowledgeable about building energy audit method
 - Good relationship with building developers, architectures, engineers and big building energy users
 - Good relationship with energy conservation administrations from central to local government
- Budget: US\$112,000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Participate in all related training courses
- Send a senior staff for in-depth training
- Conduct 2 building energy audits with method developed in year 2
- Conduct 12 building energy audits with method developed in year 3
- Purchasing advanced energy audit equipments with non-GEF funds, and use these equipments in energy audit practice -- to guarantee the knowledge learnt in the trainings could be useful
- Providing technical support for factories(if necessary).

- Recommending next-step sustainable development measures
Key deliverables/outputs (all written reports to be delivered in Chinese and English):
- Document of monitoring plan and its implementation
- reports for each building energy audit cases
- Equipment list bought by non-GEF funds
- Documentation of technical support for factories (if any)
- Documentation of the recommended next-step sustainable development measures

TOR4

C1.1

Post Title: One ECC conduct industry energy audit

Duration for contract implementation: 3 years

Qualifications:

- Knowledgeable about building energy conservation and building energy efficiency
- Knowledgeable about industry energy audit method
- Good relationship with industrial equipment manufactures, engineers, and industry energy managers
- Good relationship with energy conservation administrations from central to local government

Budget: US\$128,000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Participate in all related training courses
- Send a senior staff for in-depth training
- Conduct 1 industry energy audit with method developed in year 1
- Conduct 2 industry energy audits with method developed in year 2
- Conduct 13 industry energy audits with method developed in year 3
- Purchasing advanced energy audit equipments with non-GEF funds, and use these equipments in energy audit practice -- to guarantee the knowledge learnt in the trainings could be useful
- Providing technical support for factories(if necessary).
- Recommending next-step sustainable development measures

Key deliverables/outputs (all written reports to be delivered in Chinese and English):

- Document of monitoring plan and its implementation
- reports for each building energy audit cases
- Equipment list bought by non-GEF funds
- Documentation of technical support for factories (if any)
- Documentation of the recommended next-step sustainable development measures

TOR5

C1.1

Post Title: One ECC conduct industry energy audit

Duration for contract implementation: 3 years

Qualifications:

- Knowledgeable about building energy conservation and building energy efficiency
- Knowledgeable about industry energy audit method
- Good relationship with industrial equipment manufactures, engineers, and industry energy managers

- Good relationship with energy conservation administrations from central to local government
Budget: US\$128,000
Main tasks:
- Developing monitoring plans and kept self monitoring
- Participate in all related training courses
- Send a senior staff for in-depth training
- Conduct 1 industry energy audit with method developed in year 1
- Conduct 2 industry energy audits with method developed in year 2
- Conduct 13 industry energy audits with method developed in year 3
- Purchasing advanced energy audit equipments with non-GEF funds, and use these equipments in energy audit practice -- to guarantee the knowledge learnt in the trainings could be useful
- Providing technical support for factories(if necessary).
- Recommending next-step sustainable development measures

Key deliverables/outputs (all written reports to be delivered in Chinese and English):

- Document of monitoring plan and its implementation
- reports for each building energy audit cases
- Equipment list bought by non-GEF funds
- Documentation of technical support for factories (if any)
- Documentation of the recommended next-step sustainable development measures

TOR6

C1.1

Post Title: Once EEC Conduct Industry Energy Audit

Duration for contract implementation: 3 years

Qualifications:

- Knowledgeable about building energy conservation and building energy efficiency
- Knowledgeable about industry energy audit method
- Good relationship with industrial equipment manufactures, engineers, and industry energy managers
- Good relationship with energy conservation administrations from central to local government

Budget: US\$128,000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Participate in all related training courses
- Send a senior staff for in-depth training
- Conduct 1 industry energy audit with method developed in year 1
- Conduct 2 industry energy audits with method developed in year 2
- Conduct 13 industry energy audits with method developed in year 3
- Purchasing advanced energy audit equipments with non-GEF funds, and use these equipments in energy audit practice -- to guarantee the knowledge learnt in the trainings could be useful
- Providing technical support for factories(if necessary).
- Recommending next-step sustainable development measures

Key deliverables/outputs (all written reports to be delivered in Chinese and English):

- Document of monitoring plan and its implementation

- reports for each building energy audit cases
- Equipment list bought by non-GEF funds
- Documentation of technical support for factories (if any)
- Documentation of the recommended next-step sustainable development measures

TOR7

C1.1

Post Title: One EEC Conduct Industry Energy Audit

Duration for contract implementation: 2 years (join from the 2nd year)

Qualifications:

- Knowledgeable about building energy conservation and building energy efficiency
- Knowledgeable about industry energy audit method
- Good relationship with industrial equipment manufactures, engineers, and industry energy managers
- Good relationship with energy conservation administrations from central to local government

Budget: US\$120,000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Participate in all related training courses
- Send a senior staff for in-depth training
- Conduct 2 industry energy audits with method developed in year 2
- Conduct 13 industry energy audits with method developed in year 3
- Purchasing advanced energy audit equipments with non-GEF funds, and use these equipments in energy audit practice -- to guarantee the knowledge learnt in the trainings could be useful
- Providing technical support for factories(if necessary).
- Recommending next-step sustainable development measures

Key deliverables/outputs (all written reports to be delivered in Chinese and English):

- Document of monitoring plan and its implementation
- reports for each building energy audit cases
- Equipment list bought by non-GEF funds
- Documentation of technical support for factories (if any)
- Documentation of the recommended next-step sustainable development measures

TOR8

C1.1

Post Title: One ECC conduct industry energy audit

Duration for contract implementation: 2 years (join from the 2nd year)

Qualifications:

- Knowledgeable about building energy conservation and building energy efficiency
- Knowledgeable about industry energy audit method
- Good relationship with industrial equipment manufactures, engineers, and industry energy managers
- Good relationship with energy conservation administrations from central to local government

Budget: US\$120,000

Main tasks:

- Developing monitoring plans and kept self monitoring
 - Participate in all related training courses
 - Send a senior staff for in-depth training
 - Conduct 2 industry energy audits with method developed in year 2
 - Conduct 13 industry energy audits with method developed in year 3
 - Purchasing advanced energy audit equipments with non-GEF funds, and use these equipments in energy audit practice -- to guarantee the knowledge learnt in the trainings could be useful
 - Providing technical support for factories(if necessary).
 - Recommending next-step sustainable development measures
- Key deliverables/outputs (all written reports to be delivered in Chinese and English):
- Document of monitoring plan and its implementation
 - reports for each building energy audit cases
 - Equipment list bought by non-GEF funds
 - Documentation of technical support for factories (if any)
 - Documentation of the recommended next-step sustainable development measures

TOR9

C1.2

Post Title: Developing training material of motor EE

Duration for contract implementation: 2~12 Month

Qualifications:

- The sub-contractor should possess many senior researchers and staffs with high education level to in energy efficiency research field
- Knows the technological measures to achieve motor EE
- Knows standard, labeling, government policy issues related to motor EE
- Knows motor EE situation and future development tendency in the world

Budget: US\$25,000

Main tasks:

- Developing monitoring plans and kept self monitoring
 - Developing training material of motor EE. The ECCs or ECAs can use this material to train staffs from enterprises, government officials and other stakeholders.
 - Sending teachers participate in the training organized by national and local ECCs to teach this training material
 - Invite an international expert to comment on the outline of the training material
 - Providing technical support for factories(if necessary).
 - Recommending next-step sustainable development measures
- Key deliverables/outputs:
- Document of monitoring plan and its implementation
 - International expert's comment on the outline of the training material
 - Training material of motor EE.
 - Documentation of technical support for factories (if any)
 - Documentation of the recommended next-step sustainable development measures

TOR10

C1.2

Post Title: Developing Training Materials of Boiler and Steam EE

Duration for contract implementation: 2~12 Month

Qualifications:

- The sub-contractor should possess many senior researchers and staffs with high education level to in energy efficiency research field
- Knows the technological measures to achieve boiler and steam EE
- Knows standard, labeling, government policy issues related to boiler and steam EE
- Knows boiler and steam EE situation and future development tendency in the world

Budget: US\$25,000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Developing training material of boiler and steam EE. The ECCs or ECAs can use this material to train staffs from enterprises, government officials and other stakeholders.
- Sending teachers participate in the training organized by national and local ECCs to teach this training material
- Invite an international expert to comment on the outline of the training material
- Providing technical support for factories(if necessary).
- Recommending next-step sustainable development measures

Key deliverables/outputs:

- Document of monitoring plan and its implementation
- International expert's comment on the outline of the training material
- Training material of boiler and steam EE
- Documentation of technical support for factories (if any)
- Documentation of the recommended next-step sustainable development measures

TOR11

C1.2

Post Title: Developing Training Materials of Buildings and Central Air Conditioning EE

Duration for contract implementation: 2~12 Month

Qualifications:

- The sub-contractor should possess many senior researchers and staffs with high education level to in energy efficiency research field
- Knows the technological measures to achieve building and central air conditioning EE
- Knows standard, labeling, government policy issues related to building and central air conditioning EE
- Knows building and central air conditioning EE situation and future development tendency in the world

Budget: US\$25,000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Developing training material of building and central air conditioning EE. The ECCs or ECAs can use this material to train staffs from enterprises, government officials and other stakeholders.
- Sending teachers participate in the training organized by national and local ECCs to teach this training material
- Invite an international expert to comment on the outline of the training material
- Providing technical support for companies(if necessary).
- Recommending next-step sustainable development measures

Key deliverables/outputs:

- Document of monitoring plan and its implementation

- International expert's comment on the outline of the training material
- Training material of building and central air conditioning EE
- Documentation of technical support for companies (if any)
- Documentation of the recommended next-step sustainable development measures

TOR12

C1.2

Post Title: Developing Training Material of Industrial Furnace EE

Duration for contract implementation: 2~12 Month

Qualifications:

- The sub-contractor should possess many senior researchers and staffs with high education level to in energy efficiency research field
- Knows the technological measures to achieve industrial furnace EE
- Knows standard, labeling, government policy issues related to industrial furnace EE
- Knows industrial furnace EE situation and future development tendency in the world

Budget: US\$25,000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Developing training material of industrial furnace EE. The ECCs or ECAs can use this material to train staffs from enterprises, government officials and other stakeholders.
- Sending teachers participate in the training organized by national and local ECCs to teach this training material
- Invite an international expert to comment on the outline of the training material
- Providing technical support for factories(if necessary).
- Recommending next-step sustainable development measures

Key deliverables/outputs:

- Document of monitoring plan and its implementation
- International expert's comment on the outline of the training material
- Training material of industrial furnace EE
- Documentation of technical support for factories (if any)
- Documentation of the recommended next-step sustainable development measures

TOR13

C1.2

Post Title: Developing training material of heat insulation

Duration for contract implementation: 2~12 Month

Qualifications:

- The sub-contractor should possess many senior researchers and staffs with high education level to in energy efficiency research field
- Knows the technological measures to achieve heat insulation
- Knows standard, labeling, government policy issues related to heat insulation
- Knows heat insulation situation and future development tendency in the world

Budget: US\$25,000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Developing training material of heat insulation. The ECCs or ECAs can use this material to train staffs from enterprises, government officials and other stakeholders.

- Sending teachers participate in the training organized by national and local ECCs to teach this training material
 - Invite an international expert to comment on the outline of the training material
 - Providing technical support for factories(if necessary).
 - Recommending next-step sustainable development measures
- Key deliverables/outputs:
- Document of monitoring plan and its implementation
 - International expert's comment on the outline of the training material
 - Training material of heat insulation
 - Documentation of technical support for factories (if any)
 - Documentation of the recommended next-step sustainable development measures

TOR14

C1.2

Post Title: Developing training material of EE management and financial analysis

Duration for contract implementation: 2~12 Month

Qualifications:

- The sub-contractor should possess many senior researchers and staffs with high education level to in energy efficiency research field
- Knows the technological measures to achieve EE management
- Knows government policy issues related to EE management and financial analysis
- Knows EE management and financial analysis status and future development tendency in the world

Budget: US\$25,000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Developing training material of EE management and financial analysis. The ECCs or ECAs can use this material to train staffs from enterprises, government officials and other stakeholders.
- Sending teachers participate in the training organized by national and local ECCs to teach this training material
- Invite an international expert to comment on the outline of the training material
- Providing technical support for companies(if necessary).
- Recommending next-step sustainable development measures

Key deliverables/outputs:

- Document of monitoring plan and its implementation
- International expert's comment on the outline of the training material
- Training material of EE management and financial analysis
- Documentation of technical support for companies (if any)
- Documentation of the recommended next-step sustainable development measures

TOR15

C1.2

Post Title: Organizing evaluation for ECC staffs' training courses

Duration for contract implementation: 13~36 Month

Qualifications:

- The sub-contractor should be experienced in energy efficiency field, both in industry energy efficiency and building energy efficiency

- With enough capability to coordinate with national ECCs, local ECCs, PMO, and energy efficiency administrations from central and local government level
- Possess experienced energy efficiency evaluation expert within the institution

Budget: US\$25, 000

Main tasks:

- Organize an international evaluation team which is composed of 2 Chinese experts and 2 international experts
 - The international experts' budget is covered by TOR1 in C1.2, Chinese experts' budget is covered by this sub-contract
 - Developing evaluation plans and kept self monitoring
 - Connect with PMO and ECCs to arrange evaluation
 - Co-operate with international expert to evaluate at least 10 training courses that will be given by ECC staffs
 - Interviews with trainees with particular emphasis on how they used knowledge gained in courses; interviews with trainers
- Key deliverables/outputs:
- Document of evaluation plan and its implementation
 - Comment on the evaluation report given by international expert

TOR16

C1.3

Post-Title: Information Dissemination by national ECC

Duration for contract implementation: 3 years

Qualifications:

- Have several years experience in professional energy conservation information dissemination
- Have several years experience in implementation of international projects
- With strong nationwide influence
- Has close contacts with national energy conservation administrations and PMO
- Have experience in using advanced tools, such as website, to disseminate energy conservation information

Budget: US\$90, 000

Main tasks:

- Developing monitoring plan and implement self monitoring
 - Developing a plan for energy efficiency dissemination approved by the PMO
 - Developing advanced information dissemination tools, such as website and database, information brochures, periodic regular newsletters with frequently asked questions, displays, posters, videos, bus and billboard advertisements etc.
 - Developing energy conservation information that to be disseminated
 - Providing technical support for companies(if necessary).
 - Recommending next-step sustainable development measures
- Key deliverables/outputs:
- Document of monitoring plan and its implementation
 - Documentation of information prepared and where and how disseminated.
 - Documentation of any tools developed for information dissemination.
 - Documentation of technical support for companies (if any)
 - Documentation of the recommended next-step sustainable development measures

TOR17

C1.3

Post Title: Information Dissemination by Local EE in Location A

Duration for contract implementation: 3 years

Qualifications:

- Have several years experience in energy conservation information dissemination
- International cooperation experience is preferable
- Have much practical experience in energy conservation field

Budget: US\$30, 000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Developing a plan for energy efficiency dissemination approved by the PMO
- Helping national information dissemination center to spread energy conservation information to local government, local enterprises, and all local stakeholders
- Developing adequate tools, such as brochures, for information dissemination.
- Providing technical support for companies(if necessary).
- Recommending next-step sustainable development measures
- Key deliverables/outputs (all written reports to be delivered in Chinese and English):
- Document of monitoring plan and its implementation
- Documentation of information prepared and where and how disseminated.
- Documentation of any tools developed for information dissemination.
- Documentation of technical support for companies (if any)
- Documentation of the recommended next-step sustainable development measures

TOR18

C1.3

Post Title: Information Dissemination by Local EEC in Location B

Duration for contract implementation: 3 years

Qualifications:

- Have several years experience in energy conservation information dissemination
- International cooperation experience is preferable
- Have much practical experience in energy conservation field

Budget: US\$30, 000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Developing a plan for energy efficiency dissemination approved by the PMO
- Helping national information dissemination center to spread energy conservation information to local government, local enterprises, and all local stakeholders
- Developing adequate tools, such as brochures, for information dissemination.
- Providing technical support for companies(if necessary).
- Recommending next-step sustainable development measures
- Key deliverables/outputs (all written reports to be delivered in Chinese and English):
- Document of monitoring plan and its implementation
- Documentation of information prepared and where and how disseminated.
- Documentation of any tools developed for information dissemination.
- Documentation of technical support for companies (if any)
- Documentation of the recommended next-step sustainable development measures

TOR19

C1.3

Post Title: Information Dissemination by local ECC in location C

Duration for contract implementation: 3 years

Qualifications:

- Have several years experience in energy conservation information dissemination
- International cooperation experience is preferable
- Have much practical experience in energy conservation field

Budget: US\$30, 000

Main tasks:

- Developing monitoring plans and kept self monitoring
- Developing a plan for energy efficiency dissemination approved by the PMO
- Helping national information dissemination center to spread energy conservation information to local government, local enterprises, and all local stakeholders
- Developing adequate tools, such as brochures, for information dissemination.
- Providing technical support for companies(if necessary).
- Recommending next-step sustainable development measures

Key deliverables/outputs (all written reports to be delivered in Chinese and English):

- Document of monitoring plan and its implementation
- Documentation of information prepared and where and how disseminated.
- Documentation of any tools developed for information dissemination.
- Documentation of technical support for companies (if any)
- Documentation of the recommended next-step sustainable development measures

TOR20

C1.3

Post Title: Surveys to Determine the Effectiveness of the Dissemination

Duration for contract implementation: 3 years

Qualifications:

- The sub-conductor should possess several senior experts and well educated staffs who researches in energy conservation field
- The sub-contractor should have survey/evaluation expert who had participated international cooperated evaluation projects
- Knowledgeable about how to measure the effectiveness of information dissemination

Budget: US\$30, 000

Main tasks:

- Developing monitoring plan and implement monitoring
- Organize 2 Chinese survey experts to work with 2 international experts to achieve team work
- Coordinating with international survey expert to develop survey plans
- Developing adequate survey method
- Implementing survey
- Helping international experts to write survey reports and giving comments
- Recommending next-step sustainable development measures

Key deliverables/outputs (all written reports to be delivered in Chinese and English):

- Monitoring plan
- Document of survey implementation plan
- Survey report which is written with joint efforts
- Comments on the survey report

- Documentation of the recommended next-step sustainable development measures

TOR21

C2

Post Title: Evaluation of Energy Conservation Law Implementation

Duration: 3 years

Qualification of undertaker:

- Possess an independent corporation status, and can be responsible for legal issues
- Be a comprehensive research institute in energy conservation field with strong influence in China. The institute should be experienced in energy conservation regulation research, energy conservation policy development, energy conservation technology evaluation, and comprehensive research on energy conservation and environment.
- The institute should possess many influential senior experts who obtain high educational level or advanced technical title. And has close contact with energy management institutions, energy consumptive enterprises and industries, energy standardization institutions, energy conservation service institutions etc. The institution should understand very well about the achievements and barriers of Energy Conservation Law implementation.
- The institution should have the experience of organizing international co-operation project

Budget: USD 108,800

Duties:

- Collect and profile central and provincial regulations of Energy Conservation Law;
- Carry out surveys of implementation status of Energy Conservation Law and relevant regulations;
- Carry out surveys of management and implementation systems of Energy Conservation Law;
- Summarize the experience and lessons of implementing Energy Conservation Law in various regions and sectors;
- Organize the experience exchange of Energy Conservation Law implementation;
- Evaluate the implementation of Energy Conservation Law including the effectiveness and lessons on consistency with other laws, executive institution system, etc.
- Organize study tours in abroad and workshops and summarize the international experience on energy efficiency laws;
- Provide recommendations on perfecting Energy Conservation Law
- Organize and participate ECL implementation workshop, giving lectures in the workshop and sending related papers

Expected Outputs:

- Survey reports related ELC implementation;
- Working briefs on the evaluation of Energy Conservation Law;
- Summary reports of workshops;
- Document profiles of Energy Conservation Laws and relevant regulations;
- Policy recommendations on modifying Energy Conservation Law, possibility of learning from international experience;
- Suggesting incentives to promote Energy Conservation Law implementation.

TOR22

C2

Post Title: Study and Develop Energy Performance Standard Target System

Duration: 3 years

Qualification of undertaker

- With much research experience on energy conservation standards, and be experienced in organizing and developing national energy conservation standards.
- The research institute should possess strong research ability, with large technology support network, and good relationship with the experts from industry, building and cross-cutting areas. Able to invite social expert from all sides to participate into the development of energy efficiency standard and energy efficiency standard strategy/plan in China.
- Knows the energy efficiency standard management system in China, and understands the importance of energy efficiency standard to the implementation of Energy Conservation Law in China.
- Well understand the Energy Conservation Law and related regulations.

Budget: USD 80,000

Duties:

- Complete current status survey on China energy performance standard system and prepare a survey report including scope of products, current status of technical request level, effectiveness of standard implementation, legal guarantees, etc.
- Compare Chinese energy efficiency standard system with international ones;
- Submit the targets on strategy and plan of Chinese energy efficiency standard system including standard inventory, expected targets, etc., provide recommendations on priority of standard development, develop the study of contributions of China Energy Efficiency Standard System on meet national energy efficiency targets in next five to ten years;
- Complete the development of mandatory national standard on Energy Efficiency Technology Codes.
- The development of this energy standard system will be used as a guide in the 2nd phase of EUEEP, though it does not influence the selection of energy standard within the 1st phase.

Expected Outputs:

- Survey report of energy efficiency performance standard system;
- Strategy report and plan of China Energy Efficiency Performance Standard System development;
- Study report on contributions of China Energy Efficiency Standard System on meet national energy efficiency targets in next five to ten years;
- Coordination among governmental agencies when the Energy Efficiency Standard Technology Codes are developed.

TOR23

C2

Post Title: Study and Develop Energy Performance Labeling Target System

Duration: 3 years

Qualification of undertaker

- The undertaker should be an institution that had longtime work research experience in energy conservation standard and energy efficiency labeling field
- The research institute should possess strong research ability, with large technology support network, and good relationship with the experts from industry, building and cross-cutting areas, and main energy-intensive product manufactures. Had participated in the development of energy efficiency standard development strategy and planning in China.

- Should understand the management system of energy efficiency labeling in China.
 - Well understand the Energy Conservation Law and related regulations.
- Budget: USD 65,500
- Duties:
- Complete current status survey on China energy performance labeling system and prepare a survey report including scope of products, current status of technical request level, effectiveness of labeling implementation, legal guarantees, etc.
 - Compare Chinese energy efficiency labeling system with international ones;
 - Submit the targets on strategy and plan of Chinese energy efficiency labeling system including labeling inventory, expected targets, etc., provide recommendations on priority of labeling development, develop the study of contributions of China Energy Efficiency Labeling System on meet national energy efficiency targets in next five to ten years;
 - Complete the development of mandatory national labeling on Energy Efficiency Technology Codes.
 - The development of this energy labeling system will be used as a guide in the 2nd phase of EUEEP, though it does not influence the selection of energy standard within the 1st phase.
- Expected Outputs:
- Survey report of energy efficiency performance labeling system;
 - Strategy report and plan of China Energy Efficiency Performance labeling System development;
 - Study report on contributions of China Energy Efficiency labeling System on meet national energy efficiency targets in next five to ten years;
 - Coordination among governmental agencies when the Energy Efficiency labeling Technology Codes are developed.

TOR24

C2

Post Title: Developing Oil Product Use Guideline and Use Management Approaches

Duration: 3 years

Qualification of undertaker

- The contractor should possess enough human resource.
- The contractor should have close relationship with government, and can understand the oil conservation, oil substitution policy. Also, the institution should have good survey ability, analyze ability and research ability.
- Had conducted research on energy conservation technologies and policies in transportation oil consumption, industrial oil consumption and power generation oil consumption fields.
- understands the crucial meaning for China to promote oil conservation

Budget: USD 60,000

Duties:

- Complete surveys of oil product use status, research the potentials of saving oil, provide suggestions on oil use strategy and policies;
- Develop a plan, implementation scheme and legal guarantee measures of oil use and substitute;
- Research on guideline of oil saving and substitute.

Expected Outputs:

- Survey report on oil saving and substitute;
- Plan of oil saving and substitute
- Research report on oil saving guideline

TOR25

C2

Post Title: Information Dissemination of Energy Conservation Law Implementation

Duration: 3 years

Qualification of undertaker

- This institution should possess high level researchers, and had conducted energy conservation policy analysis and research on energy conservation management system reform
- The researchers in this institution should be knowledgeable about the developing procedure of Energy Conservation Law, and knows the historical background of Chinese Energy Conservation Law.
- The subcontractor should have close relationship with central and local energy conservation administrations, knowledgeable about the status of Energy Conservation Law's related regulations and development status of related regulations in local areas. The institution should be able to promote the development, issuing and implementation of Energy Conservation Law's related regulations.
- The sub-contractor should possess much influence on industrial and local energy conservation administrations.

Budget: USD 36,000

Duties:

- Primary capacity building on information dissemination of implementation experience of Energy Conservation Law;
- Hold several information dissemination activities such as releasing at least 10 experience materials of law implementation;
- Develop database and website for disseminating current and supplementary rules and regulations pertaining to the ECL
- Promote the development and issuing of at least 2 ELC related regulations at local level

Expected Outputs:

- Improved information dissemination capacity;
- 2-3 information dissemination and activities on law implementation;
- 2 new regulations are developed and issued.

TOR26

C3

Post Title: Current situation investigate of China energy conservation financing

Duration: 3 years

Qualification of undertaker

- The sub contractor should be a comprehensive agency that has close relationship with EECs and current energy investment agency.
- It should possess knowledge in Energy efficiency finance policy, Energy conservation law and regulations, in-depth understanding of the methods and skills of social investigations. It should understand the technical-economical analysis methods.

Budget: USD 78,000

Duties:

- Draft survey questionnaire
- Solicit comments and opinions on the draft questionnaire and finalize the questionnaire

- Distribute the finalized questionnaire, collect and analyze the backtracked materials, carry through survey interview and investigation meeting. survey on enterprises by energy saving centers nationwide (20provinces...)
- Write investigation report.

Expected Outputs:

- To deliver the requested investigation reports to project executive director and PMO, in the delivered reports should include energy efficiency financing modes, sizes, risks, whether the energy efficiency financing can mete the demand of energy technology renovate. And to explain what is developing approach, what is the obstacle of financing.
- Do in-depth review or evaluation on newly models of energy efficiency financing.
- Do deeply explain on encourage policies of energy efficiency financing in deferent province.

TOR27

C3

Post Title: Study & develop EC financing model that suits China's characteristics

Duration: 3 years

Qualification of undertaker

- The sub contractor should be an energy conservation investment agency or an EMC in local, this organization should have successful experience on energy conservation finance.
- They should understand the situation on energy efficiency financing in nationwide.

Budget: USD 55,000

Duties:

- International experience study will have laid a sound foundation for conducting this activity. However, it is still necessary to have further study on some specific experience and practices with energy efficiency financing so as that they can be borrowæd and adapted by the Chinese government. Therefore, it is necessary to make a deeper study on two or three specific energy efficiency financing means and practices. Seven experts in the field will be sent abroad to make a targeted study. On this basis and combining the achievement of situation investigation and international experience study, a suggestion will be made on the energy efficiency financing model that suits Chinese conditions.

Expected Outputs:

- Policy proposal on models of financing energy efficiency available to China's characteristics

TOR28

C3

Post Title: Energy Efficiency Finance New Model Promotion

Duration: 3 years

Qualification of undertaker

- The sub contractor should be an energy conservation investment agency or an EMC in local, this organization should have successful experience on energy conservation finance. They should understanding the situation on energy efficiency financing in nationwide.

Budget: USD 85,000

Duties:

- Study and survey the energy conservations investment risk and B/C analyzing

- Study and survey the energy conservations financing model in China, Analyze the effective of new mechanizations such as EMC, Energy conservation foundation, private and international investment, energy conservations investment vouching etc.

Expected Outputs:

- Provide related reports and promoting establish energy investment finance pilots
- To diffuse the successful pilots experience.

C.4: Training & Workshop

Training & Workshops numbers:

| Item | Number Training | Number of Workshop |
|-------|-----------------|--------------------|
| C1.1 | 3 | 0 |
| C1.2 | 3 | 0 |
| C1.3 | 0 | 0 |
| C2 | 1 | 2 |
| C3 | 1 | 1 |
| Total | 8 | 3 |

Details:

T/W 1_training:

C1.1

Energy Audit Training Courses for ECCs:

Number of trainings: 6 times

Budget: 53 thousand USD.

Location: Beijing

Duration: 3~4 days/training

Scale:

- 20~40 Trainees (may vary according to the number of sub-contractor and topic)

Description:

- During the implementation, there will be six energy audit trainings to train the ECC staffs about energy audit. Staffs from 8 sub-contracted ECCs (3 building and 5 industry) will participate in the training. 3 pairs of building energy audit training and industry energy audit training will be conducted in each year of the 3 years duration. By using training materials developed by international experts and domestic experts jointly, the training courses will ensure the contracted ECCs have the capability of implement building and industry energy audit.

T/W 2_training:

C1.1

IN-DEPTH TRAINING FOR EEC SENIOR STAFFS

Number of trainings: 2 times (in 2nd year and 3rd year)

Budget: 10 thousand USD.

Location: Beijing

Duration: 3~4 days/training

Scale: 10 Trainees

Description:

- During the implementation, the senior staffs from selected ECCs will be trained for in-depth contents of building and industry energy audit. By using the materials developed by international experts and domestic experts jointly, this training will help ECC senior staffs to understand the leading technologies and methods in building and industry energy audit, and helps them to use their advanced knowledge into building and industry energy audit.

T/W 3_training:

C1.1

International short-term study for in-depth training

Number of international study: 1 time (in 3rd year)

Budget: 90 thousand USD.

Location: Outside China

Duration: 3 month

Scale: 10 Trainees

Description:

- This international short-term study will help ECC senior staffs to learn the advanced methods and technologies in abroad. They can see with their own eyes to learn how building and industry energy audit cases are implemented in advanced countries.

T/W 4_training:

C1.2

EE Training conducted by national ECC

Number of international study: 10 times (in 2nd year & 3rd year)

Budget: US\$144, 000

Location: Beijing

Duration: 3~4days

Scale: 30 trainees

Description:

- One national ECC (national energy efficiency center or energy efficiency association) conduct training in national level after training materials are developed. The national training centers should educate teachers with training materials developed first, then the teachers from national ECCs will train students from building design institutions, industries, and officials at different level. At least 10 training courses will be given in the 2nd and 3rd year, with about 30 students in each course.

T/W 5_training:

C1.2

EE Training conducted by local ECC in location A

Number of international study: 6 times (in 2nd year & 3rd year)

Budget: US\$60,000

Location: Location A (to be decided through bidding)

Duration: 3~4days

Scale: 30 trainees

Description:

- The local ECC will conduct training for local students from building design institutions, industries, and local officials at different level after training materials are developed. . Firstly, local ECC should sent staffs to national center to get trained, then, it will conduct 6 training courses locally, with about 30 students in each course.

T/W 6_training:

C1.2

EE Training conducted by local ECC in location B:

Number of international study: 6 times (in 2nd year & 3rd year)

Budget: US\$60,000

Location: Location B (to be decided through bidding)

Duration: 3~4days

Scale: 30 trainees

Description:

- The local ECC will conduct training for local students from building design institutions, industries, and local officials at different level after training materials are developed. Firstly, local ECC should sent staffs to national center to get trained, then, it will conduct 6 training courses locally, with about 30 students in each course.

T/W 7_training:

C2

International Study Tour on ELC implementation and evaluation of its effectiveness

Time: 12th ~14th month

Budget: USD 35, 200

Duration: 15 days

Destination: designed to be USA

Scale: 8 people, central and local energy conservation policy makers, energy managers, energy policy researchers

Description:

- Investigate foreign experience in energy conservation lawmaking and implementation; investigate typical cases to show the influence of ECL implementation in abroad; explore the evaluation method to measure the overall impact of ECL and its regulation implementation; giving recommendations about how to strengthening the lawmaking and ECL enforcement by comparing Chinese and foreign situations.

T/W 8_workshop:

C2

Workshop on the Present Status Analysis of Energy Conservation Management System in China

Time: within 10th month of the 1st year

Budget: USD 23, 000

Duration: 2 days

Scale: 20 participants, from central and local energy conservation administrations and energy conservation service agencies

Description:

- Discuss about the present status of energy conservation management system in China, including its fitness with Chinese Energy Conservation Law, the advantage and capability of Chinese energy conservation management system, main deficiencies. The workshop will help to analyze and provide recommendations to perfect the government energy conservation administration system, ECL implementation training system, ECL implementation supervision system and technical support and service system.

T/W 9_workshop:

C2

Workshop on The Review of the ELC and ECL Implementation

Time: 14th ~18th month

Budget: USD 18, 000

Duration: 3 days

Scale:

- 40 participants, from central and local energy conservation administrations and energy conservation service agencies, energy conservation policy researchers,

- 2 international energy policy implementation experts

Description:

- Review present status of ECL and its related local regulations, summarize the successful experiences, problems and solutions, comment on the implementation of ECL's main items, analyze the barriers in regulation development (including coordination with other laws), enforcement and supervision system, local lawmaking promotions etc.

T/W 10_training:

C3

International study tour for experience exchange, that effective financing in market economy countries.

Time: within 8th ~ 10th month

Duration: 2 weeks

Budget: USD 54, 000

Scale: 7 people

Description:

- Exchange international EC financing experience, and study the successful EC financing cases in abroad; collect the experience on enterprise energy cost management in foreign enterprises, and EC technical retrofit financing method in foreign enterprises; government incentive policies to promote the EC financing by financing institutions, enterprise, EC service institutions etc.

T/W 11_workshop:

C3

International Workshop on Energy Efficiency Financing

Time: 10th month, the corpus will be published in the 13th month

Budget: USD 25,000

Duration: 3 days

Scale: 60 participants

Description:

- Exchange international experience in EC financing, and evaluate different EC financing methods; successful cases in China's EC financing with the help of international projects; discussions on the report of "market economy countries' EC financing experience and its adaptation in China"; comment on reports related to developing new EC mechanism, and existing EC financing policies in China

D.1: Terms of Reference of International Experts (Component D)

Post Title: National Project Coordination Committee (NPCC)

Duration: 12 months over 3 years

Duties:

- Conduct project direction;
- Oversight of the project implementation;
- Coordinate among members of NPCC if necessary;
- Periodic meetings on discussing project outcomes and policy direction, disseminating core findings of the project.

Budget: Governmental co-finance

Post Title: Chief Technical Advisor (CTA)

Duration: At least 12 months for 3 years, (preferably 18 months) more than 5 months in the first year

Qualification:

- Having a Masters or Doctorate degree in engineering, economics or another scientific field;
- More than 10 years working experience in energy efficiency area;
- Having rich international experiences in energy efficiency policies and measures, energy efficiency financing, policies and measures related to sound environment. Having knowledge on industrial energy saving, building energy efficiency, energy efficiency standards and labeling, energy auditing, etc.;
- Having international cooperation experiences in mechanism establishment and capacity building on energy efficiency, especially in China;
- Understand well the status of Chinese economic, energy and environment situation;
- Strong coordinative capability with international and domestic experts;
- Excellent literature capability.

Language: Native English (Chinese desirable but not essential)

Budget: 160,800 US\$

Duties:

- Assist the NPD to implement the project;
- Conduct and assist the NPM and Deputy Director of the PMO
- Formulate tasks for overall implementation of the project, so as to ensure that the project satisfies its targets and meets the requirements of UNDP;
- Resolve problems and barriers as they emerge in the process of EUEEP implementation, especially in external communications, and in meeting various aspects of UNDP working processes and practice;
- Coordinate the work of international and national experts during project implementation;
- Provide high level technical support to EUEEP PMO and component activities
- Provide suggestions for improving EUEEP implementation.
- Provide information of international experts resources required by PMO
- Assist the NPM to prepare, revise and compile reports and documents required by UNDP
- Assist PMO to organize and arrange international conferences and surveys.

Outputs:

- Polished reports required by UNDP and GEF;
- Regular English reports of project implementation
- English record for project implementations and suggestions
- Annual implementation plans and suggestions for project implementation

D2

International Experts

Post Title: Monitoring Experts

Duration: 8 months/3 years

Numbers of Experts: 4

Qualification:

- At least 15 years work experience in energy conservation field.
- Rich knowledge and abundant experience in all fields, such as industrial energy conservation, building energy conservation, energy auditing, energy policy and regulations, energy conservation financing etc.
- Had experience of energy and environment comprehensive evaluation, and participated in relevant comprehensive evaluations.
- Had international co-operation experience in comprehensive energy efficiency filed in China;
- Understand the general method in evaluating the effect of energy conservation, the economic effect of energy conservation project, and the environmental effect of energy conservation project.

Language: English

Budget: US\$ 92000

Tasks:

- Develop and provide training materials for capacity building training in monitoring and evaluation;
- Conduct and attend trainings on monitoring and evaluation as trainers;
- Provide presentations on monitoring methodologies in the training courses;
- Conduct monitors to carry out on sites monitoring activities in Part A, B and C.

Outputs:

- Training materials on monitoring and evaluation;
- Several monitoring work plans prepared by monitors in Part A, B and C;
- Annually executive summary reports.

Post Title: Evaluation Experts

Duration: 12.5 months/3 years

Numbers of Experts: 4

Qualification:

- At least 15 years work experience in energy conservation field.
- With rich knowledge and abundant experience in all fields, such as industrial energy conservation, building energy conservation, energy auditing, energy policy and regulations, energy conservation financing etc.
- With experience of “energy and environment comprehensive evaluation”, had participated in related comprehensive evaluations.
- With international co-operation experience in comprehensive energy conservation filed, and has broad international relationship in energy conservation field.
- Having experiences in energy conservation co-operation projects in China
- Understand the general method in evaluating the effect of energy conservation, the economic effect of energy conservation project, and the environmental effect of energy conservation project.

Language: English

Budget: US\$ 134,000

Tasks:

- Smoothly communicate with domestic evaluation experts;
- Conduct domestic evaluation experts to review and modify the implementation of monitoring plan;
- Provide assistance for arranging international evaluation training and monitoring study tours;
- Participate in the mid-term or final evaluation workshop;
- Prepare comprehensive evaluation report required by UNDP and GEF.

Outputs:

- Plans and schedule of international training and study tour;
- Comprehensive evaluation reports required by UNDP and GEF.

Post Title: Planning Experts

Duration: 2 months/3 years

Numbers of Experts: 2

Qualification:

- At least 15 years work experience in energy efficiency field.
- Rich knowledge in project sustainability;
- Having experiences of project development on energy efficiency, energy strategy, energy planning and policy study;
- Having international co-operation experience in energy planning and project development especially in China;
- Understand well the China's situation on energy efficiency.

Language: English

Budget: US\$ 20000

Tasks:

- Conduct local experts to analyze the experience and lessons of the project implementation;
- Provide assistance to local experts to prospect of the future of project and develop a draft proposal for next phase;
- Participate in relevant workshops.

Outputs:

- Summary report on experiences and lessons of the project implementation;
- An English draft proposal for next phase.

D.2: Terms of Reference of PMO (Component D)

Post Title: National Project Manager (NPM, Non-GEF fund):

Duration: 18 months/3 years (half time)

Qualification:

- A Masters Degree or higher is required.
- Career in energy research of over 15 years;
- Strong knowledge of energy strategy, energy policy and energy systems; familiar with energy technology and use in industry, buildings and other fields; energy efficiency research;
- Having rich experiences in international cooperation, and a strong capability for international information exchange;
- Having rich experiences in designing and implementing large energy efficiency projects financed by UNDP, World Bank, GEF, etc.

Language: Chinese and fluent English

Tasks:

- Assist NPD and cooperate with CTA to be in charge of the initiation, implementation, and timely completion of all activities of the whole project;
- Responsibility for coordinating with government agencies, international and domestic experts, sub-contracts and other involved institutions;
- Manage the day-to-day work of the PMO in order to ensure that project outputs and deliverables are completed in a satisfactory and timely manner
- Work with the Deputy Director of the PMO to develop an annual work plan;
- Conduct and participate in significant events of the project;
- Participate in the TPR meeting each year, and report the progress of the project to participants.

Post Title: Deputy Director

Duration: 36 months/3 years

Qualification:

- Having a Masters degree and/or high academic credentials
- Having a career in energy research for over ten years;
- Having capability and experience for several years of coordination among governmental agencies, research institutions and enterprises;
- Having experience of designing and implementing large scale energy efficiency projects supported by international financing agencies such as UNDP, World Bank, GEF, etc.;
- Ability to speak, read, and write English fluently

Language: Chinese and fluent English

Budget: 60,000 US\$

Duties:

- Under the guidance of the NPM be responsible for the daily operations of the project;
- Coordinate among project components A, B, C and D during implementation;
- Be responsible for reviewing and ensuring consistency across TORs of sub-contracts, international and national experts and main activities, and with the project design;
- Assist the NPM to coordinate with NPD, governmental agencies and other institutions involved in the project;
- Be in charge of the communication and coordination with all agencies working on the project;
- Under the direction of the NPM, prepare annual work plans;
- Assist the NPM to conduct and participate in significant activities of the project;

- Prepare materials for the annual TPR meeting and participate in the meeting.
- Monitor and manage budgeted project expenditures and level of effort
- Organize the mid-term review, and third-party project evaluation at the end of the project

Outputs:

- An annual report detailing project outputs, expenditures, and conformance with project monitoring plans;
- Materials prepared for TPR meetings
- Report on the mid-term review and final project evaluation

Post Title: Domestic Chief Technical Advisor (DCTA, Full time work for the PMO, but half supported by government in-kind funds)

Duration: 36 months/ 3 years

Qualification:

- Having a Masters or higher academic degree and a professional position, with more than 15 years working experience in energy efficiency fields;
- Having rich experience in the aspects of industrial energy efficiency, building energy efficiency, energy efficiency standards, energy auditing and energy efficiency policy and regulations, energy efficiency financing;
- Strong knowledge about the significance of energy saving to climate change and environmental protection;
- Having international cooperation experience in the aspects of energy efficiency.
- Having participated in international energy saving cooperation programs

Language: Chinese and fluent English

Budget: \$90,900

Duties:

- Help director and deputy director of PMO provide the detailed tasks for overall implementation of brief project frameworks, so as to ensure to reach the targets and meet the requirements of UNDP; to solve the problems and barriers emerging in the process of EUEEP implementation, especially to the external communications, and solving the issues happening when to meet the aspects of UNDP working processes and practice; to be responsible for the communications with external and internal experts;
- Constantly propose the suggestions for improving the EUEEP implementation to provide the international experts resources required by PMO and then give the recommendations of best using these resources;
- Assist Deputy Director of PMO to prepare materials for TPR meeting in each year;
- Conduct and coordinate domestic experts to carry out the activities in Part A, B, C and D;
- Prepare, review, revise and compile the reports and documents required by PMO;
- Assist PMO to organize and arrange international conference and surveys.

Outputs:

- Chinese and English draft reports required by UNDP and GEF;
- Regular Chinese and English draft reports of project implementation summary;
- Chinese and English draft records for project implementations and suggestions
- Annual Chinese and English draft implementation plans and provide suggestions for project implementation

Post Title: PMO Staff

Duration: 36 months/ 3 years

Qualifications:

- Having many years of practical experience and study on industry energy efficiency.

- Having completely known all respects of energy conservation work. Master the characteristics of the key energy-intensive industries (especially iron and steel, chemical, cement) and their production processes.
- Participated in design, study and implementation of energy conservation projects. Experience of having conducted international projects.
- Not only understand enterprises' management system and operating mechanism also well know the government's demand and expectation for energy conservation in currently macro-economy condition.

Language: Chinese and English

Budget: 49,500 US\$

Duties:

- Coordinate the PMO to convene domestic or international workshops and training in Part A and C;
- Help international experts learn the information of Chinese industries, including the production process and flow, the key energy-intensive process, as well as the data of energy consumption and energy conservation concerned.
- Review and modify significant international trainings, domestic workshops and other key activities about the progress of Part A and C;
- Responsibility for the contract issue on Part A and C;
- Make an analysis on the implementation of the industry subcontract, and report in time the problems arose during the implementation to PMO, so that PMO can supervise and adjust the industry subcontract.

Outputs:

- Summary reports on significant international, domestic workshops and training, and other key activities held by PMO (both in Chinese and English);
- Contract documents in Part A and C;
- Summary progress reports concerning the industry and cross-cutting parts.

Post Title: PMO Staff

Duration: 36 months/ 3 years

Language: Chinese and English

Qualification:

- Having many years of practical experience and study on building energy efficiency.
- Having completely known all respects of energy conservation work. Master the characteristics of the key energy-intensive in buildings;
- Participated in design, study and implementation of energy efficiency projects especially at least two projects in building area. Experience of having conducted international projects.
- Not only understand enterprises' management system and operating mechanism also well know the government's demand and expectation for energy conservation in currently macro-economy condition.

Budget: 49,500 US\$

Duties:

- Coordinate the PMO to convene domestic or international workshops and training in Part B and D;
- Help international experts learn the information of Chinese buildings including the current status of buildings, energy use of buildings, major barriers of energy efficiency in buildings, as well as the data of energy consumption and energy conservation concerned.
- Review and modify the reports of significant international trainings, domestic workshops and other key activities about the progress of Part B and D;

- Responsibility for the contract issue on Part B and D;
- Make an analysis on the implementation of the building and M&E subcontracts, and report in time the problems arose during the implementation to PMO, so that PMO can supervise and adjust the building and M&E subcontracts.

Outputs:

- Contract documents in Part A and C;
- Summary progress reports concerning the building and M&E parts;

Post Title: PMO Staff 3 and Staff 4 (Full time work for PMO but supported by governmental in-kind)

Duration: 36 months/ 3 years/Staff

Qualifications:

- Having many years of practical experience and study on industry energy efficiency.
- Having completely known all respects of energy conservation work.
- Participated in design, study and implementation of energy conservation projects. Experience of having conducted international projects.
- Not only understand enterprises' management system and operating mechanism also well know the government's demand and expectation for energy conservation in currently macro-economy condition.

Language: Chinese and English

Budget: US\$ 40,000 each (Non-GEF fund)

Duties:

- Coordinate the PMO to convene domestic or international workshops and training;
- Help international experts learn the information of energy issues, as well as the data of energy consumption and energy conservation concerned.
- Review and modify significant international trainings, domestic workshops and other key activities about the progress of the project;
- Assist Staff 1 and 2 for the contract issue of the project;
- Make an analysis on the implementation of the project, so that PMO can supervise and adjust the subcontracts.

Outputs:

- Summary reports on significant international, domestic workshops and training, and other key activities held by PMO (both in Chinese and English);
- Contract documents;
- Summary progress reports of key activities of the project.

Post Title: PMO Secretary

Duration: 36 months/ 3 years

Language: Chinese and English

Qualification:

- Have academic credentials;
- Have employed career in forms or research institutions for more than 5 years;
- Have knowledge on energy efficiency and environmental protection;
- Capacity on computer and coordination.

Duties:

- Reception in PMO;
- Technical and administration supporting.

D.3: Terms of Reference of National Experts (Component D)

Post Title: Monitoring Experts for Part A

Duration: 45 months/3 years

Numbers of Experts: 10

Qualification:

- At least 10 years work experience in energy conservation field.
- With rich experience in energy efficiency in industrial sector especially on energy auditing, energy policy and regulations, energy efficiency financing, etc.
- Having experience of energy and environment comprehensive evaluation, and have practice in evaluation of industrial project on energy efficiency;
- Having international co-operation experience in energy efficiency;
- Understand the general method in evaluating the effect of energy conservation, the economic effect and the environmental effect of energy conservation project.

Language: Chinese and English

Budget: US\$ 135,000

Tasks:

- Prepare monitoring work plans for the activities in Part A;
- Periodical carry out monitoring activities;
- Monitor the macro-level outcome of project activities and outputs;
- Monitor how the planned co-financing is being realized through its results;
- Recommend/facilitate adaptive management.
- Prepare annual reports based on the results of monitoring;
- Attend monitoring training and workshops.

Outputs:

- Monitoring work plans of activities in Part A;
- Annual reports of monitoring.

Post Title: Monitoring Experts for Part B

Duration: 54 months/3 years

Numbers of Experts: 12

Qualification:

- At least 10 years work experience in energy conservation field.
- With rich experience in energy efficiency in building sector especially on energy auditing, energy policy and regulations, energy efficiency financing, energy efficiency standards in building, etc.
- Have experience of energy and environment comprehensive evaluation, and have practice in evaluation of industrial project on energy efficiency;
- Have international co-operation experience in energy efficiency;
- Understand the general method in evaluating the effect of energy conservation, the economic effect and the environmental effect of energy conservation project.

Language: Chinese and English

Budget: US\$ 162000

Tasks:

- Prepare monitoring work plans for the activities in Part B;
- Periodical carry out monitoring activities;
- Monitor the macro-level outcome of project activities and outputs;
- Monitor how the planned co-financing is being realized through its results;
- Recommend/facilitate adaptive management.

- Prepare annual reports based on the results of monitoring;
- Attend monitoring training and workshops.

Outputs:

- Monitoring work plans of activities in Part B;
- Annual reports of monitoring;

Post Title: Monitoring Experts for Part C

Duration: 45 months/3 years

Numbers of Experts: 10

Qualification:

- At least 10 years work experience in energy conservation field.
- With rich experience in energy efficiency in cross-cutting especially on energy auditing, energy policies and regulations, energy efficiency standards and labeling
- Having experience of energy and environment comprehensive evaluation, and have practice in evaluation of energy efficiency standards and labeling;
- Having international co-operation experience in energy efficiency;
- Understand the general method in evaluating the effect of energy conservation, the economic effect and the environmental effect of energy conservation project.

Language: Chinese and English

Budget: US\$ 135,000

Tasks:

- Prepare monitoring work plans for the activities in Part C;
- Periodical carry out monitoring activities;
- Monitor the macro-level outcome of project activities and outputs;
- Monitor how the planned co-financing is being realized through its results;
- Recommend/facilitate adaptive management.
- Prepare annual reports based on the results of monitoring;
- Attend monitoring training and workshops.

Outputs:

- Monitoring work plans of activities in Part C;
- Annual reports of monitoring.

Post Title: Evaluation Experts

Duration: 30 months/3 years

Numbers of Experts: 3

Qualification:

- At least 10 years work experience in energy conservation field.
- With broad knowledge, acknowledge the fields of industrial energy conservation, energy standard, building energy conservation, energy auditing, energy policy and regulations, energy conservation financing etc.
- With experience of “energy and environment comprehensive evaluation”, had participated in related comprehensive evaluations.
- With international co-operation experience in comprehensive energy conservation filed.
- Understand the general method in evaluating the effect of energy conservation, the economic effect of energy conservation project, and the environmental effect of energy conservation project.

Language: Chinese and English

Budget: US\$ 90000

Tasks:

- Periodically check whether the goal in the monitoring plan are reached in Part A, B and C;
- Develop training materials for domestic training on monitoring;
- Provide presentations in training course on monitoring;
- Conduct monitors in Part A, B and C to calculate the amounts of energy saving, CO2 reduction, etc. through the project implementation;
- Prepare technical reports for TPR meeting based on the evaluation on Part A, B and C in periodical implementation;
- Participate in the TPR meeting in each year;
- Prepare technical report for mid-term and final evaluation;
- Participate in relevant training, workshop and study tours.

Outputs:

- Periodical evaluation reports on monitoring of activities in Part A, B and C;
- Training materials for monitoring training;
- Technical reports for TPR meetings;
- Technical reports for mid-term and final evaluation.

Post Title: Planning Experts

Duration: 3 months/3 years

Numbers of Experts: 2

Qualification:

- At least 10 years work experience in energy efficiency field.
- Rich knowledge in sustainable development;
- Having experience of energy strategy, planning and policy study;
- Having international co-operation experience in energy planning;
- Understand the general method in energy planning and project development.

Language: Chinese and English

Budget: US\$ 9,000

Tasks:

- Analyze the experience and lessons of the project implementation; Prospect of the future of project and develop a draft proposal for next phase; Participate in relevant workshop.

Outputs:

- A summary report on the experiences and lessons of the project implementation;
- A draft proposal for next phase.

D2

INTERNATIONAL EXPERTS

Post Title: Monitoring Experts

Duration: 8 months/3 years

Numbers of Experts: 4

Qualification:

- At least 15 years work experience in energy conservation field.
- Rich knowledge and abundant experience in all fields, such as industrial energy conservation, building energy conservation, energy auditing, energy policy and regulations, energy conservation financing etc.
- Had experience of energy and environment comprehensive evaluation, and participated in relevant comprehensive evaluations.
- Had international co-operation experience in comprehensive energy efficiency filed in China;

- Understand the general method in evaluating the effect of energy conservation, the economic effect of energy conservation project, and the environmental effect of energy conservation project.

Language: English

Budget: US\$ 92000

Tasks:

- Develop and provide training materials for capacity building training in monitoring and evaluation;
- Conduct and attend trainings on monitoring and evaluation as trainers;
- Provide presentations on monitoring methodologies in the training courses;
- Conduct monitors to carry out on sites monitoring activities in Parts A, B and C;
- Monitor the macro-level outcome of project activities and outputs;
- Monitor how the planned co-financing is being realized through its results;
- Recommend/facilitate adaptive management.

Outputs:

- Training materials on monitoring and evaluation;
- Several monitoring work plans prepared by monitors in Part A, B and C;
- Annually executive summary reports.

Post Title: Evaluation Experts

Duration: 12.5 months/3 years

Numbers of Experts: 4

Qualification:

- At least 15 years work experience in energy conservation field.
- With rich knowledge and abundant experience in all fields, such as industrial energy conservation, building energy conservation, energy auditing, energy policy and regulations, energy conservation financing etc.
- With experience of “energy and environment comprehensive evaluation”, had participated in related comprehensive evaluations.
- With international co-operation experience in comprehensive energy conservation filed, and has broad international relationship in energy conservation field.
- Having experiences in energy conservation co-operation projects in China
- Understand the general method in evaluating the effect of energy conservation, the economic effect of energy conservation project, and the environmental effect of energy conservation project.

Language: English

Budget: US\$ 134,000

Tasks:

- Smoothly communicate with domestic evaluation experts;
- Conduct domestic evaluation experts to review and modify the implementation of monitoring plan;
- Provide assistance for arranging international evaluation training and monitoring study tours;
- Participate in the mid-term or final evaluation workshop;
- Prepare comprehensive evaluation report required by UNDP and GEF.

Outputs:

- Plans and schedule of international training and study tour;
- Comprehensive evaluation reports required by UNDP and GEF.

In addition, one of the evaluation experts will serve as a team leader for the evaluation expert team during the mid-term and final evaluation exercises. This team leader should be in charge of overseeing the overall project progress. The purpose of this task is to enable the project to maintain strategic direction during implementation, by ensuring that the project is an active

member of a learning network of GEF projects, to sharpen the project's focus on quality outputs, and to emphasize a learning and adaptive approach to project management and implementation.

1. Facilitate learning and adaptive approach to project management and implementation by asking questions of key project personnel, including: "What are we learning and how are we incorporating it into our project implementation process?" "Are we meeting our indicators of success and achieving the desired impact?"
2. Lead project evaluation exercise,
 - Design, approach, team discussion, focus of M&E efforts (state of the project, review of progress towards delivering the outcomes expected by the GEF, and recommendations for future direction and steps);
 - Realistic scoping, e.g., format, contents, and length of reports, level of details expected including the amount of quantitative data, roles and participation of key partners, within the available resources (time and financial budget etc.);
 - Clarification of specific responsibilities of the team members;
 - Final report writing and editing with inputs from the team members
3. Establish linkages and exchanges for best practices among various UNDP/GEF projects implemented in China, as well as contacts with other environmental and development projects in China and other parts of the world.
4. Develop lessons learned/best practices derived from the project

Title: Planning Experts

Duration: 2 months/3 years

Numbers of Experts: 2

Qualification:

- At least 15 years work experience in energy efficiency field.
- Rich knowledge in project sustainability;
- Having experiences of project development on energy efficiency, energy strategy, energy planning and policy study;
- Having international co-operation experience in energy planning and project development especially in China;
- Understand well the China's situation on energy efficiency.

Language: English

Tasks:

- Conduct local experts to analyze the experience and lessons of the project implementation;
- Provide assistance to local experts to prospect of the future of project and develop a draft proposal for next phase;
- Participate in relevant workshops.

Outputs:

- Summary report on experiences and lessons of the project implementation;
- An English draft proposal for next phase.

Budget: US\$ 20000

iii. Introduction

The Inception Phase of the EUEEP provides an opportunity for the Project Team to become acquainted with the Project – its agreed strategy, expected outputs and outcomes, the stakeholders, the risks etc. It also provides an opportunity to finalize any outstanding implementation details and present them to UNDP and DERC for clearance and then the Project Coordination Committee for approval. The Inception Phase also brings new momentum to the project after the relatively quiet period during the project approval process.

In the project budget, there is a total of US\$43,000 for the inception meeting from GEF and governmental financing. UNDP will provide an initial cash advance for the GEF grant part for the Inception Phase upon receipt of the standard Cash Advance Request form from DERC, for the costs of the deliverables listed below. No additional work plan will be required.

iv. *Inception Deliverables*

The expected output of the Inception Phase is an Inception Report. The Report should address the following issues:

1. Finalize project institutional arrangements, including to:
 - Finalize level of representation and individual membership of the Project Coordination Committee and receive confirmation of willingness to participate.
 - Develop rules of procedure for the Coordination Committees
 - Clarify relationship between the Coordination Committee and the Tripartite Review
 - Revise existing TORs in the Project Document if necessary
2. Clarify the role and responsibility of various participants for achieving the project outcomes.
 - Identify links and coordination between participants and activities
 - Link each participant to the work plan and delivery of project outcomes
 - Strengthen links to project stakeholders
3. Provide an organizational chart of the project (donors, government, NDRC, PMO, project staff, contractors), including reporting lines. This should include:
 - Location of all staff and PMO
 - Relationship of key project stakeholders (including name, title and contact details of all government counterparts)
4. Develop an M & E framework for the implementation of the project, including:
 - Annual work planning process, linked to the rolling work plans. This will include the setting of yearly targets/milestones that are understood and agreed/endorsed by all stakeholders
 - Ongoing work plan of monitoring programs
 - Links to project outcome indicators (impact indicators), progress indicators and the Logical Framework
 - Practical, activity-level links to the national energy efficiency plan

- Clarification of roles and responsibilities of all participants (NPD, NPM, CTA, NDRC, PMO, execution service provider, UNDP, and other involved government agencies and donors.)
 - Monitoring of progress of parallel activities of co-financing institutions (and the delivery of their committed co-financing)
 - Evaluation of the achievement of the target milestones/benchmarks (as per Logical Framework), which will be used as bases for the succeeding phase of the EUEEP.
5. Detail and finalize the TORs for all project sub-contracts, with more details and focus for those to be started in the first year, in-line with the information provided in the Project Document.
 6. Coordinate all co-financing sources with the project work plan. This should include arrangements of government and private co-financing, and ways of monitoring, evaluation, and reporting for the co-financing.
 7. With assistance from UNDP (including UNDP-China and UNDP/GEF's Regional Office in Kuala Lumpur), review the capacity of DERC and the PMO in providing and/or obtaining project execution services and day-to-day project management. Provide training on required UNDP reporting and project management requirements, as well as general GEF expectations.
 8. Prepare a Project Operations Manual (POM) as supplement to the China NEX Manual. Share with all participants and provide necessary training on the POM.
 9. Review the project's Monitoring and Evaluation Plan and expand if necessary. Ensure there are measurable indicators and milestones of impact at the Output, Purpose and Goal levels of the LogFrame. Ensure baseline data are in place for all indicators. Review the progress indicators set out in the LogFrame and improve as necessary.
 10. Identify significant Project Risks (possible barriers to successful project implementation and identified externalities that may reduce project effectiveness). Prepare a detailed risk management strategy for project implementation.
 11. Prepare a detailed work plan for the first quarter of implementation. Prepare a project budget revision if necessary.

Inception Process

The NPM is expected to meet with all stakeholders during the Inception Phase. This may be a mix of individual appointments and group meetings and/or workshops.

In the spirit of cooperation underpinning this project, all parties shall be invited to participate in and contribute to the Inception Phase.

The Inception Phase shall include formal and informal training for the participants by DERC. This will cover an induction into the organization, its procedures and arrangements, as well as a sharing of project-specific knowledge from existing DERC initiatives. The NPM and PMO will also receive training from UNDP. This will include an overview of UNDP rules and procedures from UNDP-China, introduction to the office, as well as a briefing on GEF matters from the UNDP-GEF Regional Coordinator.

The NPM leads the Inception Phase (with assistance from CTA) and shall refer to all previous project comments, including those of the STAP Roster Expert, GEF Secretariat, UNDP-GEF, and GEF Council members. DERC and UNDP will provide copies of all relevant correspondence.

The Inception Phase is expected to take approx. 2-3 months. However flexibility exists to take account of the local situation and seasonal conditions. Monthly updates of the progress shall be provided to the UNDP Resident Representative, through meetings at the UNDP office. More regular and informal contact should be maintained with responsible UNDP Program Officers.

The draft Inception Report will be shared with UNDP and DERC as soon as available and before being circulated to other stakeholders. Preparatory meetings between DERC and UNDP-Beijing and UNDP-GEF will be held well in advance of the Coordination Committee in order to reach agreement on key issues before seeking the Coordination Committee's approval. This will also be an opportunity to clarify UNDP's role in annual work plan reviews, measurement of progress indicators and impact indicators, TPRs and annual work planning exercises.

The agreed draft Inception Report shall then be circulated for comments to all stakeholders before a revised final draft Inception Report is sent to Coordination Committee members. The final draft will be sent to Coordination Committee members no later than 2 weeks in advance of the Inception Meeting.

**TERMS OF REFERENCE (TOR)
FOR THE REQUEST FOR PROPOSALS (RFP)**

A. BACKGROUND

The End-Use Energy Efficiency Project (EUEEP) is designed to support a 12-year strategic plan developed by the Chinese government to dramatically improve the efficiency of its major energy end-use sectors, (e.g., buildings and industry). The 4phase project fosters a strategic approach to developing and implementing a comprehensive and effective energy conservation policy and regulatory system consistent with the objectives of the Energy Conservation Law. The project's purpose is the removal of barriers to the widespread application and practice of energy conservation and energy efficiency in the major energy consuming sectors (buildings and industry) in China.

The Department of Environment and Resources Conservation (DERC) of the National Development and Reform Commission (NDRC) will nationally execute the project. NDRC will appoint a senior member of DERC as National Project Director (NPD). DERC will be responsible to the Government of China and to UNDP for the achievement of the project objectives, for all project reporting, including the submission of work plans and financial reports. The project will be executed fully in line with UNDP national execution (NEX) procedures, as detailed in the China NEX Manual. DERC will take overall responsibility for tracking and dispensing UNDP/GEF funds. It will establish a Project Management Office (PMO), which will be in charge of project implementation mainly in technical and substantive aspects.

In carrying out its execution functions through the PMO, DERC will also supervise and be assisted by an execution service provider through a contract, especially in financial and administrative aspects of project execution and implementation. The service provider will be compensated for services rendered.

DERC will select the service provider through a competitive bidding process following the China NEX Manual. The service provider will provide implementation services and will be responsible and accountable mainly to DERC. The compensation shall not exceed one and one half per cent (1.5%) of actual project delivery (disbursement). This compensation is valid for the project duration (i.e., first phase, for three years).

B. OBJECTIVE

The objective of the RFP is to select a service provider that will assist DERC, which is the NEX Agency, i.e., the Designated Executing Agency, in the implementation of the EUEEP.

b. INFORMATION, AND GUIDELINES AVAILABLE TO THE SERVICE PROVIDER TO CARRY OUT ITS RESPONSIBILITIES

1. UNDP China NEX Manual
2. EUEEP Project document signed by UNDP, MOF and NDRC;
3. Necessary information and mechanism for funds disbursement and accounting provided by MOF and DERC;
4. Policy guidance from DERC regarding energy efficiency and conservation,
5. Equipment specifications and/or Terms of Reference (TOR for services) from the Project Management Office (PMO) and technical experts; and,
6. PMO/DERC's review and approval of (a) project work plans; (b) final specifications

and/or TORs for equipment and/or services; (c) the procedures and actual practice for bid solicitation, bid evaluation, and award as well as administration of contracts to consultants, contractors, and suppliers.

Scope of Work (outputs expected from the service provider)

The service provider assumes the responsibility, and is accountable mainly to DERC, for the day-to-day project operations, mobilization and delivery of project inputs (recruitment of project personnel, procurement of project equipment/services, administrative and logistics support to workshops and other training activities, and financial/accounting management) in accordance with the project document, as well as work plans approved by DERC.

For the operational aspects of Monitoring and Evaluation activities (M&E), the service provider shall coordinate its support services with the UNDP and DERC. According to the China NEX Manual, although the resources for evaluation may be provided from the project budget, the management and control of external evaluation exercises, including the corresponding budget line, is the responsibility of the UNDP Country Office, in close consultation with the National Executing Agency. Therefore, unlike other types of project activities, the service provider should report to both UNDP and DERC when providing assistance in managing the M&E process.

This is an indicative TOR, and the specific items of the assignment will be further discussed and confirmed by PMO when the EUEEP is formally initiated. The service provider would normally be expected to perform the following specific functions and responsibilities:

1. Assist PMO in drafting, and securing approval from DERC, of annual work plans for timely recruitment, procurement, training, and financial management, based on the overall implementation schedules/work plans contained in the project document and on technical advice from the PMO.
2. Undertake timely recruitment, procurement, training, and delivery of project inputs (goods and services) and their conversion into outputs under the technical and policy guidance of the PMO and DERC.
3. Provide assistance in: (1) identifying and preparing the list of potential candidates, suppliers or contractors; (2) reviewing CVs, qualifications, specifications and TORs; (3) undertaking bid solicitation and evaluation; (4) issuing contracts following approval by DERC; and (5) contracts administration (securing deliverables and payments etc.).
4. Prepare and submit payment requests together with supporting documents to DERC for approval and disbursement.
5. Maintain financial transaction records and supporting documents and prepare quarterly financial reports to UNDP to meet UNDP's requirements for Quarterly Advance;
6. Assist DERC in preparing annual and quarterly financial forecasts, budget revisions, financial reports and ledgers, requests for quarterly advances, expenditure reports on recruitment, procurement, training, and financial management.
7. Assist in the preparation of quarterly and annual progress reports for DERC review, and participates in the Annual Tripartite Project Review meetings.
8. Arrange missions and visits to project sites for project inception, implementation

activities, and monitoring.

9. Assist in customs clearance for internationally procured goods.
10. Assist in the logistics of workshops and other training activities like study tours if necessary.
11. Prepare and update equipment inventory list for project.
12. In consultation with DERC, establish and maintain computerized project management system to provide updated information about recruitment, procurement, training, and finance needed by DERC and UNDP.
13. Report on technical, financial, procurement, and management problems occurring during project implementation in a timely manner, and submits reports to DERC with recommendations to solve such problems;
14. Maintain records of project activities and provide all necessary information and assistance for annual project audit, as well as any evaluation missions from GEF or UNDP.

c. QUALIFICATIONS

The following are the minimum qualifications of the institution that will serve as the service provider:

- Strong experience in project implementation and management,
- Excellent past performance record in project implementation and management
- Legal authority to conduct business activities in China
- Possess authorization on import and export business issued by the Government of China and authorization to undertake international tendering
- Several years of experience of international procurement
- Strong financial management track record
- Competent personnel with credible project management skills and experience from working on international funded projects or similar projects
- Majority of personnel fluent in the Chinese and English and computer operation

Checklist of Requirements for the Service Provider (For Use in the Evaluation of Response to RFPs)

1. PROJECT MANAGEMENT CAPACITY

ABILITY TO MONITOR THE OPERATION OF THE EUEEP

- Must undertake regular project visits and monitor project progress and benchmarks.
- Must be able to communicate and exchange information with relevant counterparts.
- Must ensure that periodic progress and/or technical reports are received and interpreted.
- Must ensure regular consultations with project beneficiaries, experts and contractors.

Ability to plan, monitor and co-ordinate activities

- Must be able to exercise strategic management skills and be result oriented.
- Must have an excellent ability to understand the latest policies and procedures of UNDP and GEF.
- Must be able to organize meetings of different nature.
- Must be able to improve annual and quarterly work plans.
- Must have collaborative working relationship with DERC, other relevant ministries, donors, industrial associations, NGOs, and enterprises
- Must be able to maintain, update automated database and monitoring tools.
- Must have the ability to understand, analyse problems and provide timely solutions.
- Must be able to coordinate and handle large number, complex and simultaneous activities
- Must possess necessary adequate logistics: office facilities and space, basic equipment, utilities, communications.

2. ADMINISTRATIVE MANAGEMENT CAPACITY

Ability to manage and carry out the procurement of goods and services on a transparent and competitive basis

- Must be fully conversant with and able to apply procurement rules and procedures, which reflect the following principles:
 - ◆ Best value for money, defined as the responsive offer that is the best combination of technical quality and price, considering all relevant factors, including costs and benefits to UNDP and DERC
 - ◆ Fairness, integrity and transparency
 - ◆ Open and effective international competition; and
 - ◆ The overall interest of UNDP and DERC (overall mandates, programme objectives, and plans)
- Must be able to establish and maintain an information system for experts' roster and vendor/supplier sourcing, and to assess the financial status and ability of suppliers/vendors to provide the required quality, quantity and competitiveness of goods and services.
- Must have the authority to undertake international tendering and enter into contracts, which is especially necessary for importing equipment for the project.
- Must have available standard contract formats or access to legal counsel to ensure that the contracts establish performance standards, protect UNDP and DERC's interests and are enforceable.

Ability to prepare, authorize and adjust commitments and expenditures

- Must have established (documented) and workable procedures for sourcing and short listing appropriate vendors/suppliers, obtaining the best price, and issuing commitments, under the guidance of DERC.
- Must have or propose a relevant system for tracking commitments against budget to prevent overspending and for follow-up on outstanding commitments.

Ability to manage and maintain equipment inventory

- Must have a property ledger (inventory) to track all important details about property, location and its cost, annually.
- Must maintain adequate record of ownership transfer.

Ability to exercise proper personnel management

- Ability to recruit and manage the best-qualified personnel on a transparent and competitive basis.
- Must have the ability to staff the project and enter into contract with personnel.
- Must have written job descriptions for its personnel and for project consultants or experts.
- Must have available standard contracts or access to legal counsel to ensure contracts establish performance standards, protect UNDP, DERC and the entity's interests.

3. FINANCIAL MANAGEMENT CAPACITY

Ability to produce project budgets

- Must be able to manage tracking of commitments, expenditures and planned expenditures against budget on a consolidated basis and in co-operation with DERC.
- Must maintain a project budget showing the timing of planned expenditures, for each year, by quarter.

Ability to ensure physical security of advances, cash and records

- Must assist DERC in maintaining a checking account in a reputable bank or a secure safe for any cash on hand.
- Must have clear procedures on authority, responsibility, monitoring and accountability for funds entrusted.
- Must have a clear division of responsibilities with DERC and MOF for financial and accounting management.

Ability to disburse funds through DERC and MOF in a timely and effective manner

- Must have written procedures for processing payment requests to control the risks through segregation of duties, and transaction recording and reporting.
- Must have monitoring controls, such as independent bank reconciliation.
- Must have a means of verifying receipt of goods or performance of services and proper authorization.
- Must be able to manage the status of expenditures against budget, and the remaining available budget.
- Must have a policy of facilitating payments by their due dates as stated in the invoice or in the contracts and be able to demonstrate performance against this standard.

d. Ability to ensure timely financial recording and reporting

- Must have a reporting system that tracks all commitments and expenditures against budgets by budget lines.
- Must have a reporting system that allows project expenditures to be reported to DERC to facilitate its reporting to UNDP on a quarterly basis, and which accumulates project-to-date expenditures against budget for management purposes.

e. Knowledgeable of the latest UNDP and GEF policies and procedures

- Must have the ability to understand latest policies and procedures of the UNDP and GEF.

PROPOSAL SUBMISSION FORM
Project No. CPR/02/G32 – EUEEP

TO: DERC/NDRC
People's Republic of China

Dear Sir/Madam:

Having examined the Solicitation Documents, the receipt of which is hereby duly acknowledged, we the undersigned, offer to supply the required services for the sum as may be ascertained in accordance with the Price Component attached herewith and made part of this proposal.

We undertake, if our proposal is accepted, to commence and complete delivery of all items in the contract within the time frame stipulated.

We understand that you are not bound to accept any proposal you may receive and that a binding contract would result only after final negotiations are concluded on the basis of the Technical and Price Components proposed.

Dated this _____ day of _____ 2004.

Signature

(in the Capacity of)

Duly authorized to sign proposal for and on behalf of:

Annex 2 – Estimated Project Co-financing Plan

GEF will contribute US\$17,000,000 to the project. Apart from the GEF grant, the Government of China will provide US\$31,350,000 as co-financing in which US\$13,094,000 will be in cash and US\$18,256,000 in kind. The government co-financing would be consolidated and secured when the following situations and assumptions happen.

1. National debt (i.e., treasury bond) is annually distributed and not evenly arranged in each year. The key component of the government co-financing in cash can only be ensured when the EUEEP could be launched in time as planned and implemented smoothly.
2. Whether the local energy conservation fund as the part of government co-financing will be confirmed depends on the match between the implementation results of the project and the objectives designed in the Project Document, as well as on the successful implementation.

The breakdown of the government co-financing by activities is shown in the following table.

| | Gov. Co-financing (US\$) | | | Private Sector |
|--|--------------------------|------------|------------|----------------|
| | Total | In Kind | In Cash | (US\$) |
| <i>Subtotal A: Industry</i> | 14,500,000 | 6,366,000 | 8,134,000 | 20,500,000 |
| <i>Subtotal B: Building</i> | 10,100,000 | 5,511,000 | 4,589,000 | 11,500,000 |
| <i>Subtotal C: Cross-cutting</i> | 5,250,000 | 4,879,000 | 371,000 | 0 |
| <i>Subtotal D: Management, Monitoring and Evaluation</i> | 1,500,000 | 1,500,000 | 0 | 0 |
| Total | 31,350,000 | 18,256,000 | 13,094,000 | 32,000,000 |
| | | 58.2% | 41.8% | |

The breakdown of the government co-financing by year is shown in the following table, and the fund is basically averaged out in three years, as there is not sufficient information at this early stage to have accurate allocation for each year.

| COMPONENTS | Total | In Kind | In Cash | YEAR 1 | YEAR 2 | YEAR 3 |
|---------------------|--------|---------|---------|--------|--------|--------|
| 1. INDUSTRY | 14.500 | 6.366 | 8.134 | 4.833 | 4.833 | 4.834 |
| Gov. Staff | 3.621 | 3.621 | | 1.207 | 1.207 | 1.207 |
| Gov. Facilities | 2.745 | 2.745 | | 0.915 | 0.915 | 0.915 |
| Gov. Grant for ESCs | 0 | | 0 | 0.000 | 0.000 | 0.000 |
| Local EE Fund | 0.334 | | 0.334 | 0.111 | 0.111 | 0.112 |
| Interest Subsidy | 7.800 | | 7.800 | 2.600 | 2.600 | 2.600 |

| | | | | | | | |
|-------------------------------------|----------------------------|---------------|---------------|---------------|--------------|--------------|--------------|
| | | | | | 0.000 | 0.000 | 0.000 |
| 2. BUILDING | | 10.100 | 5.511 | 4.589 | 3.366 | 3.367 | 3.367 |
| | <i>Gov. Staff</i> | 2.055 | 2.055 | | 0.685 | 0.685 | 0.685 |
| | <i>Gov. Facilities</i> | 3.456 | 3.456 | | 1.152 | 1.152 | 1.152 |
| | <i>Gov. Grant for ESCs</i> | 0.316 | | 0.316 | 0.105 | 0.105 | 0.106 |
| | <i>Local EE Fund</i> | 1.177 | | 1.177 | 0.392 | 0.392 | 0.393 |
| | <i>Interest Subsidy</i> | 3.096 | | 3.096 | 1.032 | 1.032 | 1.032 |
| | | | | | 0.000 | 0.000 | 0.000 |
| 3. CROSS-CUTTING | | 5.250 | 4.879 | 0.371 | 1.750 | 1.750 | 1.750 |
| | <i>Gov. Staff</i> | 1.755 | 1.755 | | 0.585 | 0.585 | 0.585 |
| | <i>Gov. Facilities</i> | 3.124 | 3.124 | | 1.041 | 1.041 | 1.042 |
| | <i>Gov. Grant for ESCs</i> | 0.229 | | 0.229 | 0.076 | 0.076 | 0.077 |
| | <i>Local EE Fund</i> | 0.142 | | 0.142 | 0.047 | 0.047 | 0.048 |
| | <i>Interest Subsidy</i> | 0 | | 0 | 0.000 | 0.000 | 0.000 |
| | | | | | 0.000 | 0.000 | 0.000 |
| 4. MONITORING AND EVALUATION | | 1.500 | 1.500 | 0 | 0.500 | 0.500 | 0.500 |
| | <i>Gov. Staff</i> | 0.800 | 0.800 | | 0.266 | 0.267 | 0.267 |
| | <i>Gov. Facilities</i> | 0.700 | 0.700 | | 0.233 | 0.233 | 0.234 |
| | <i>Gov. Grant for ESCs</i> | 0 | | 0 | 0.000 | 0.000 | 0.000 |
| | <i>Local EE Fund</i> | 0 | | 0 | 0.000 | 0.000 | 0.000 |
| | <i>Interest Subsidy</i> | 0 | | 0 | 0.000 | 0.000 | 0.000 |
| Total in US\$ Millions | | 31.350 | 18.256 | 13.094 | 10.45 | 10.45 | 10.45 |

The government in cash co-financing will come from three different sources: 1) government grants for ESCs: US\$545,000; 2) energy efficiency funds from local governments: US\$1,653,000; and 3) subsidy for interest of national debts (Treasury bond) for energy efficiency scheme: US\$10,896,000.

The co-financing breakdown by year and by output/activity may be revised as the project implementation goes on and as major assumptions and factors change. The annual tripartite review meetings will confirm the revision.

As for ways to facilitate the monitoring and reporting about the government co-financing in cash, the results of relevant government audits will be used, since the government has its usual and annual audits for the use of government fund. In addition to the project's audit of GEF funds and the relevant national audits of government co-financing, the competent project experts should carry out result-oriented monitoring and evaluation for both the GEF funded outputs and the co-financed outputs.

This project is co-financed by inputs of approximately US\$ 32,000,000 from the private sector. This is in the form of investments that the partner private industries will spend for the implementation of specific EC&EE projects (e.g., as part of the Voluntary Agreements), which are considered as part of the EUEEP. The level of leverage co-financing from the private enterprises is more driven by the dynamic market forces and various incentives. It will also depend on which enterprise will win a bid to carry out certain project activities.

It should be noted that in the Chinese context, the two terms “private sector” and “business enterprises” are often synonymous and therefore used interchangeably. In China, there are many state-owned (public-owned) business enterprises. There are also many privately owned enterprises and enterprises with mixed share-holding/ownership structure (both state shareholders and private shareholders). In a broad sense, the term “private sector” can refer to all the above business enterprises.



Annual Work Plan

China - Beijing

Award Id: 00033990

Report Date: 15/11/2004

Award Title: China End Use Energy Efficiency Project

Year: 2004

| Project ID | Expected Outputs | Key Activities | Timeframe | | Responsible Party | Planned Budget | | | | |
|--------------------|------------------|-----------------------------|-----------|-----|------------------------|----------------|------------|--------------|-----------------------------|------|
| | | | Start | End | | Fund | Donor | Budget Descr | Amount US\$ | |
| 00035738 | China EUERP | A. Industrial Energy Eff. P | 13/5/04 | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72200 | Equipment and Furniture | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 0.00 |
| | | B. Buildings Energy Effic. | 13/5/04 | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72200 | Equipment and Furniture | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 0.00 |
| | | C. Cross-cutting Act.on E | | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 0.00 |
| | | D. Manag. Monitor. & Eva | | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71400 | Contractual Services - Indi | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72200 | Equipment and Furniture | 0.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 0.00 |
| TOTAL | | | | | | | | | 0.00 | |
| GRAND TOTAL | | | | | | | | | 0.00 | |



Annual Work Plan

China - Beijing

Award Id: 00033990

Report Date: 15/11/2004

Award Title: China End Use Energy Efficiency Project

Year: 2005

| Project ID Expected Outputs | Key Activities | Timeframe | | Responsible Party | Planned Budget | | | | |
|-----------------------------|-----------------------------|-----------|-----|------------------------|----------------|------------|-----------------------------|-----------------------------|--------------|
| | | Start | End | | Fund | Donor | Budget Descr | Amount US\$ | |
| 00035738 China EUERP | A. Industrial Energy Eff. P | 13/5/04 | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 178,050.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 113,100.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 57,400.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 1,781,840.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 72200 | Equipment and Furniture | 150,000.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 235,000.00 |
| | B. Buildings Energy Effic. | 13/5/04 | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 133,500.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 132,000.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 181,490.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 1,613,330.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 72200 | Equipment and Furniture | 12,000.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 69,000.00 |
| | C. Cross-cutting Act.on E | | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 66,000.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 81,500.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 17,000.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 534,500.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 168,700.00 |
| | D. Manag. Monitor. & Eva | | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 141,600.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 210,500.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71400 | Contractual Services - Indi | 2,200.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 53,320.00 |
| CPR-National Execution | | | | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 49,080.00 | |
| CPR-National Execution | | | | 62000 | GEFTrustee | 72200 | Equipment and Furniture | 22,000.00 | |
| CPR-National Execution | | | | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 179,000.00 | |
| TOTAL | | | | | | | | 6,182,110.00 | |
| GRAND TOTAL | | | | | | | | 6,182,110.00 | |



Annual Work Plan

China - Beijing

Award Id: 00033990

Report Date: 15/11/2004

Award Title: China End Use Energy Efficiency Project

Year: 2006

| Project ID Expected Outputs | Key Activities | Timeframe | | Responsible Party | Planned Budget | | | | |
|-----------------------------|-----------------------------|-----------|-----|------------------------|----------------|------------|-------------------------|-----------------------------|--------------|
| | | Start | End | | Fund | Donor | Budget Descr | Amount US\$ | |
| 00035738 China EUERP | A. Industrial Energy Eff. P | 13/5/04 | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 221,450.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 137,400.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 78,200.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 1,633,478.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 343,130.00 |
| | B. Buildings Energy Effic. | 13/5/04 | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 98,000.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 90,000.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 107,230.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 1,314,975.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 72200 | Equipment and Furniture | 26,000.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 90,000.00 |
| | C. Cross-cutting Act.on E | | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 63,000.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 67,200.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 15,000.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 365,500.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 159,500.00 |
| | D. Manag. Monitor. & Eva | | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 99,600.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 227,600.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71400 | Contractual Services - Indi | 2,200.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 56,320.00 |
| | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 69,080.00 |
| CPR-National Execution | | | | 62000 | GEFTrustee | 72200 | Equipment and Furniture | 8,500.00 | |
| CPR-National Execution | | | | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 105,400.00 | |
| TOTAL | | | | | | | | 5,378,763.00 | |
| GRAND TOTAL | | | | | | | | 5,378,763.00 | |



Annual Work Plan

China - Beijing

Award Id: 00033990

Report Date: 15/11/2004

Award Title: China End Use Energy Efficiency Project

Year: 2007

| Project ID | Expected Outputs | Key Activities | Timeframe | | Responsible Party | Planned Budget | | | | |
|------------------------|------------------|-----------------------------|-----------|-----|------------------------|----------------|-------------------------|--------------|-----------------------------|--------------|
| | | | Start | End | | Fund | Donor | Budget Descr | Amount US\$ | |
| 00035738 | China EUERP | A. Industrial Energy Eff. P | 13/5/04 | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 119,900.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 90,900.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 40,900.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 1,307,502.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 211,750.00 |
| | | B. Buildings Energy Effic. | 13/5/04 | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 34,000.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 66,000.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 42,000.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 1,324,475.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 16,000.00 |
| | | C. Cross-cutting Act.on E | | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 184,000.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 68,000.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 48,000.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 1,067,600.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 74500 | Miscellaneous Expenses | 244,500.00 |
| | | D. Manag. Monitor. & Eva | | | CPR-National Execution | 62000 | GEFTrustee | 71200 | International Consultants | 141,600.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71300 | Local Consultants | 235,600.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71400 | Contractual Services - Indi | 2,200.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 71600 | Travel | 61,320.00 |
| | | | | | CPR-National Execution | 62000 | GEFTrustee | 72100 | Contractual Services-Compan | 9,080.00 |
| CPR-National Execution | 62000 | | | | GEFTrustee | 72200 | Equipment and Furniture | 8,500.00 | | |
| CPR-National Execution | 62000 | | | | GEFTrustee | 74500 | Miscellaneous Expenses | 115,300.00 | | |
| TOTAL | | | | | | | | | 5,439,127.00 | |
| GRAND TOTAL | | | | | | | | | 5,439,127.00 | |