



Regional Technical Assistance Report

Project Number: 41279
October 2008

Expanding the Implementation of the Energy Efficiency Initiative in Developing Member Countries (Financed by the Climate Change Fund)

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
DMC	–	developing member country
EI	–	Energy Efficiency Initiative
MW	–	megawatt
RETA	–	regional technical assistance
RSID	–	Energy, Transport, and Water Division
TA	–	technical assistance

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	–	General intervention
Sector	–	Energy
Subsector	–	Energy sector development
Themes	–	Sustainable economic growth, environmental sustainability, capacity development
Subthemes	–	Promoting economic efficiency and enabling markets, global and regional transboundary environmental concerns and issues, institutional development

NOTE

In this report, "\$" refers to US dollars.

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I. INTRODUCTION

1. The Asian Development Bank (ADB) launched the Energy Efficiency Initiative (EEI) in July 2005 to expand its operations in clean energy¹ to \$1 billion a year. The EEI is being implemented in three phases: (i) phase I (June 2005–June 2006) concluded with ADB Management endorsement of a draft EEI report that firmly established the rationale for expanded and sustained ADB action and clean energy investment, defined the general principles of the clean energy investment and action plan, and provided priorities and a framework for next steps; (ii) phase II (June 2006–April 2009) is currently being implemented to formulate country and regional strategies and action plans on reaching EEI targets; strengthen ADB's institutional capacity for scaling up, monitoring, and evaluating activities under the EEI; and establish the Clean Energy Financing Partnership Facility; and (iii) phase III (2008–2010) will implement the strategies and action plans, and include expanded efforts to widen the reach of EEI activities beyond the phase II scope.

2. Two regional technical assistance (RETA) projects totaling \$2.9 million in funding were approved to support phase II. The initial RETA² was approved on 2 October 2006 for \$600,000 to carry out inception work, such as the prioritization of developing member countries (DMCs) for inclusion in EEI phase II activities and the holding of consultative workshops to identify sectors with the highest clean energy investment potential in each DMC. A successor RETA³ was approved on 30 March 2007 for \$2.3 million to develop detailed country action plans, as well as to build ADB's internal capacity to implement clean energy projects and to support establishment of the Clean Energy Financing Partnership Facility. The proposed RETA⁴ will expand the operations of EEI through its phase III.

II. ISSUES

3. While climate change is a global challenge, the case for action is particularly strong in the Asia and Pacific region. The region is home to more than half of the world's poor, who will suffer the most from the adverse impacts of climate change. Moreover, as a consequence of rapid and carbon-intensive economic growth, the region is fast becoming a major source of greenhouse gas emissions. Today, developing Asia accounts for 29% of global energy-related carbon dioxide emissions, three times more than its share 30 years ago. This current share will grow to a hefty 42% by 2030. If deforestation and emissions from landfills and industrial sources are considered, the region will contribute even more. Unless current development patterns change, the region will find itself increasingly straining the environment, with negative consequences to the region's future well-being and that of the rest of the world. ADB's DMCs are becoming increasingly more concerned about the threats of climate change, and are responding with strategies and programs for climate change mitigation and adaptation. The requirements are clear: deployment of low-carbon and efficient technologies, pricing of carbon emissions, appropriate policy and regulatory frameworks, sustainable land use, climate-resilient

¹ Clean energy is taken to cover energy efficiency (supply-side and end-use), renewable energy, and clean fuel (clean coal and cleaner fossil fuels) technology applications.

² ADB. 2006. *Technical Assistance for Supporting the Inception of the Energy Efficiency Initiative in Developing Member Countries*. Manila (TA 6346-REG).

³ ADB. 2007. *Technical Assistance for Supporting the Implementation of the Energy Efficiency Initiative in Developing Member Countries*. Manila (TA 6392-REG).

⁴ The vice-president, knowledge management and sustainable development approved the concept paper for the RETA on 9 July 2007. The RETA first appeared in the business opportunities section of ADB's website on 14 January 2008.

infrastructure, disaster preparedness, and a range of additional adaptation measures. All of these will demand large financial resources, and a collective and concerted response from governments, international organizations, civil society, and the private sector.

4. Rising to the challenge, ADB established the Clean Energy and Environment Program to help fill financing and knowledge gaps, and foster partnerships. The program, which is being integrated into ADB's broader Climate Change Program, is aligned with the clean energy and investment framework for multilateral development banks and introduces innovative approaches through its clean energy subprograms, such as EEI, to expand ADB's energy efficiency and renewable energy portfolio to \$1 billion a year. ADB also promotes sustainable and energy-efficient modes of transportation.

5. Under the EEI, ADB identified the People's Republic of China, India, Indonesia, Pakistan, Philippines, and Viet Nam as priority DMCs with the highest potential for clean energy investments in the Asia and Pacific region. From December 2006 to October 2007, ADB conducted consultative meetings in these countries to learn firsthand from clean energy market stakeholders of the barriers, catalyzing conditions, and immediate investment opportunities prevailing in each DMC market as a prerequisite step to local clean energy project pipeline development. Work under the earlier EEI phase II RETAs confirmed that the energy efficiency markets in the priority DMCs are huge and remain largely untapped. The following are the energy efficiency investment scale-up opportunities in these country markets:

- (i) **People's Republic of China.** To meet its long-term national development targets, the country needs to raise about \$130 billion in energy efficiency project financing by 2010, and an estimated \$300 billion in renewable energy investments by 2020. The Government sees the need for innovative mechanisms and measures to effectively utilize external assistance (foreign capital) in scaling up energy efficiency and renewable energy project implementation.
- (ii) **India.** The country faced energy and peak shortages of 8.3% in 2005 and 12.3% in 2006. Energy demand is estimated to increase by 35.6% in 2011/12 from 2006/07. The Government's target of achieving 100% village electrification by providing power to all by 2012 will push this demand further. The potential for energy efficiency investments is huge in small- and medium-sized enterprises, municipal corporations, small commercial buildings, and the residential sector.
- (iii) **Indonesia.** A 2006 presidential instruction mandates energy conservation to reduce energy elasticity to <1 by 2025. Clearer estimates exist for new clean coal, micro-hydro, biomass, and biofuel generation capacity. End-use energy efficiency programs involving energy service companies, compact fluorescent lamps, and other demand-side management practices are being considered.
- (iv) **Pakistan.** The country experienced serious peak electricity supply shortfalls of 1,500–2,000 megawatts (MW) in the summer of 2007. Current projections of national economic growth in excess of 8% will accelerate growth in energy demand. An estimated \$150 billion will have to be raised to install an additional 143,310 MW of new generating capacity through 2030. Pakistan will require an estimated \$2.2 billion in renewable energy investments to meet its 2015 renewable energy development target.
- (v) **The Philippines.** The country will need to fill more than 6,700 MW of power supply deficits from 2008 to 2013. The Government created the Presidential Task Force on Climate Change in February 2007; the Department of Energy leads climate change mitigation

efforts. Some 1,000 MW of virtual generating capacities can be created through various demand-side and supply-side energy efficiency measures (including compact fluorescent lamp programs).

- (vi) **Viet Nam.** The country requires an estimated \$4 billion per year in new energy sector investments to sustain economic growth, which hovers at 7%–8% per year. The Government launched an 11-component, 10-year national targeted program on energy efficiency and conservation to reduce energy consumption by 2015. The energy market has potential capacity for 2,450 MW of compact fluorescent lamp virtual power, 500 MW of wind power, and 405 MW of biomass power plant .

6. Building on the success of the earlier EEI RETAs, the campaign to radically scale-up clean energy investments has to be sustained through phase III (2008–2010). The urgency for sustained RETA support is characterized by two fundamental needs: (i) ADB needs to assess the energy efficiency market potential in smaller DMCs, especially those eligible for Asian Development Fund assistance; and (ii) the operations departments⁵ will require technical support for preparing and tracking energy efficiency investments in the six next priority DMCs.

III. THE PROPOSED TECHNICAL ASSISTANCE

A. Impact and Outcome

7. This RETA will help decrease the rate of greenhouse gas emissions and improve energy security in selected DMCs in the Asia and Pacific region through greater use of clean energy. The outcome will be an expansion of ADB clean energy loan and technical assistance (TA) operations to cover DMCs that were not prioritized under the EEI phase II. The RETA design and monitoring framework is in Appendix 1.

B. Methodology and Key Activities

8. Activities will focus on investigating energy efficiency market opportunities in six new DMCs that the operations departments believe possess a significant potential for clean energy investments but were not included among the six initial priority DMCs during the EEI phase II. The RETA resources will be utilized to develop clean energy markets in Afghanistan, Bangladesh, Cambodia, Lao People's Democratic Republic, Mongolia, and Uzbekistan,⁶ including the identification of a pipeline of projects for possible ADB financing. The RETA activities will be implemented in three components. Component 1 activities will include any or all of the following:

- (i) Identify a RETA implementing agency in each new DMC.
- (ii) Recruit and manage consultants to support enabling policy and market interventions, and develop country action plans and a pipeline of projects for ADB consideration in close coordination with the DMC implementing agencies concerned.

⁵ In the context of the RETA, ADB's operations departments refer to the Private Sector Operations Department and the energy and infrastructure, transport, and urban development divisions of ADB's regional departments.

⁶ ADB's operations departments identified the six next priority DMCs, which were approved by the Clean Energy Working Group on 30 June 2008. Should budgetary resources allow, additional DMCs (such as Sri Lanka and Tajikistan) may be covered under this RETA.

- (iii) Conduct national consultative workshops to identify barriers and opportunities in the local energy efficiency markets, and introduce country action plans and the initial pipeline of projects and/or outputs of applicable interventions.
- (iv) Support enabling policy and financial interventions, where applicable.
- (v) Gather updated information on new and innovative clean energy technologies, investment models, and international best practices.
- (vi) Assist in developing new clean energy investments in the DMCs, and especially aggregating end-use energy efficiency improvement projects.
- (vii) Assist in identifying clean energy development potential in nonenergy sectors in the DMCs (e.g., water and sanitation sector).

9. Component 2 will use knowledge products and knowledge-sharing platforms as a regional strategy to catalyze DMC action toward clean energy investment-building. It will support regional knowledge-sharing activities such as (i) international and regional fora, seminars, workshops, conferences, study tours, and similar events intended to share knowledge and experience on energy efficiency and other clean energy scale-up solutions among DMCs; and, (ii) internal meetings, seminars, workshops, and newsletters to share innovative approaches in developing energy efficiency projects among ADB's operations departments.

10. Component 3 will continue to support ADB operations by maintaining in-house expertise in the planning, design, monitoring, and tracking of clean energy projects. It will include the following activities:

- (i) Maintain a full-time EEI team of experts to (a) assist the Energy Community of Practice by facilitating the internal exchange of lessons, experience, and knowledge products among the operations departments; (b) coordinate all activities, funded under the RETA, of the operations departments, consultants, implementing agencies, and other DMC stakeholders; (c) coordinate with ADB's clean energy working group and other teams implementing other clean energy initiatives under the Climate Change Program; (d) provide follow-through TA to the operations departments for sustaining activities (e.g., capacity building, policy and regulatory reforms, project pipeline development) in the initial priority DMCs; (e) gather updated information on new and innovative clean energy technologies, investment models, and international best practices; and (f) support secretariat operations of the Clean Energy Financing Partnership Facility and the Climate Change Fund.
- (ii) Implement project development, and a monitoring and evaluation system for clean energy projects, including (a) update a clean energy investment baseline to include clean energy components of approved 2008 projects, (b) identify opportunities to improve the monitoring and tracking framework to accurately predict pipeline projects, and (c) develop a simplified methodology for estimating the carbon footprint of ADB loan and TA operations.
- (iii) Support development of clean energy projects in energy and nonenergy divisions through participation of staff from ADB's Energy, Transport, and Water Division (RSID) of the Regional and Sustainable Development Department and EEI secretariat consultants in project design, consultation missions, and recruitment

of consultants with specific knowledge and experience of the technologies, methodologies, and approaches being developed.

C. Cost and Financing

11. The total cost of the RETA is estimated at \$3,000,000. It will be financed on a grant basis by the Climate Change Fund. The cost estimates and financing plan are in Appendix 2.

D. Implementation Arrangements

12. ADB will be the Executing Agency for and RSID will oversee the overall administration of the RETA. All activities related to country-specific TA, including the identification of a pipeline of projects for possible ADB financing, will be led by the operations departments. For example, the operations departments and RSID will collaborate in drawing up a work plan for each new DMC, and estimating the resources and consulting services needed to undertake the planned activities. The operations departments will then oversee consultants' performance and technical outputs. RSID will play a supportive administrative role, including administering the contracts of the consultants and compiling the outputs of the various contracts into a cohesive set of country-specific strategies and action plans. This is a continuation of the arrangements under the first two EEI RETAs. Local counterparts will vary according to the country, sector, and whether the projects are public or private. Activities funded by this RETA will only begin in a particular DMC after ADB has received written confirmation from the DMC government that it has no objection to its inclusion in the RETA. RSID will take the lead in (i) supporting energy and nonenergy divisions to implement and track clean energy projects and manage knowledge-sharing activities across the selected DMCs, (ii) updating the project development system, (iii) developing a monitoring and evaluation system to track clean energy investments, (iv) providing EEI secretariat operations, and (v) coordinating all regional and internal knowledge-sharing activities. RSID will work closely with the Energy Community of Practice and operations departments in carrying out these activities.

13. The RETA will be conducted from November 2008 to November 2010 (24 months). It will require an estimated 54 person-months of international consulting services and 156 person-months of national consulting services. The engagement of consultants will be phased according to the sequence of activities. The international consultants will be expected to spend most of their time in the field. RSID will draft detailed terms of reference in consultation with the operations departments for each work component. Most international consultants are expected to be recruited as individuals because of the need to source specialized, including country-specific, expertise. Individual consultants will be engaged through either time-based or lump-sum contracts. If a firm must be recruited for complex jobs involving multiple types of expertise, the firms will be recruited using the quality- and cost-based selection, quality-based selection, consultants' qualifications selection, or single-source selection methods, depending on the value of the contract and the complexity of the assignment. Also, firms will submit either full or biodata technical proposals, and be awarded either time-based or lump-sum contracts. The recruitment of consultants will be carried out in accordance with ADB's *Guidelines on the Use of Consultants* (2007, as amended from time to time). The outline terms of reference are in Appendix 3. All procurement of goods and other services under the RETA will be done in accordance with ADB's *Guidelines for Procurement* (2007, as amended from time to time). Upon completion of the RETA, all equipment procured by the consultants under the RETA will be turned over or disposed of in accordance with ADB's Project Administration Instructions, No. 5.11 (January 2008, as amended from time to time).

IV. THE PRESIDENT'S RECOMMENDATION

14. The President recommends that the Board approve the provision of technical assistance not exceeding the equivalent of \$3,000,000 on a grant basis for Expanding the Implementation of the Energy Efficiency Initiative in Developing Member Countries.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Impact Decreased rate of greenhouse gas emissions and improved energy security in selected DMCs through increased use of sustainable energy forms</p>	<p>Number of clean energy projects</p>	<p>UNFCCC reports DMC energy data and national reports</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Continued international collaboration to address climate change • International resources for clean energy are available • DMCs have the political will to adopt clean energy alternatives
<p>Outcome ADB's program on clean energy expanded</p> <p>Improved capability of the operations departments and DMCs to develop clean energy projects</p>	<p>ADB's lending for clean energy increased to exceed \$1 billion a year during 2008–2010</p> <p>Country market interventions in six new DMCs not prioritized in phase II (Afghanistan, Bangladesh, Cambodia, Lao People's Democratic Republic, Mongolia, and Uzbekistan) including a pipeline of projects for potential investment</p> <p>Nonenergy divisions are able to include clean energy components in their projects</p> <p>Updated ADB baseline of clean energy investments to include 2008 projects and operating carbon footprint</p> <p>Tracking of ADB's 2009–2011 pipeline of clean energy investments</p>	<p>EI phase III reports EEI news publications EEI progress meetings</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Energy security and climate change issues continue to be a priority for most DMCs • Most DMCs prioritize clean energy as a way to address energy security and climate change • Most DMCs reinforce their commitment to addressing climate change • More financial institutions in larger DMCs see clean energy as a potential untapped business opportunity <p>Risks</p> <ul style="list-style-type: none"> • Governments of smaller DMCs do not prioritize climate change mitigation projects • Interest is not sustained and is overwhelmed by the investment momentum of conventional energy systems • Clean energy investments are regarded as marginal solutions to energy needs

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Outputs Country-specific market interventions for six new DMCs not prioritized in phase II</p> <p>Implementation of a project development, and monitoring system for clean energy projects</p> <p>Provision of support for developing clean energy projects in nonenergy divisions</p> <p>Knowledge-sharing platforms</p>	<p>Precise outputs of country-specific market interventions to catalyze clean energy investments in priority DMCs, including a pipeline of potential investments</p> <p>Revised baseline of ADB's clean energy investments based on 2003–2007 investments in the new DMCs</p> <p>A system for identifying and developing projects with clean energy potential in nonenergy divisions</p> <p>Clean energy projects designed and implemented in nonenergy divisions</p> <p>Other fora, seminars, workshops, conferences involving DMC counterparts</p>	<p>RETA reports</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • DMC counterparts maintain their willingness to work with ADB on the RETA • DMC governments will adopt strong supportive policies and targets for clean energy investments

Activities with Milestones	Inputs
<ol style="list-style-type: none"> 1. Identification of implementing agencies in six DMCs (Afghanistan, Bangladesh, Cambodia, Lao People's Democratic Republic, Mongolia, and Uzbekistan; Nov 2008–Apr 2009) 2. Country-specific outputs <ol style="list-style-type: none"> 2.1. Recruit and manage consultants (Nov 2008–Apr 2010) 2.2. Develop country action plans (May 2009–Apr 2010) 2.3. Develop a pipeline of projects for ADB consideration (Dec 2009–Nov 2010) 2.4. Develop other country-specific outputs, as needed in selected DMCs (Nov 2008–Aug 2010) <ol style="list-style-type: none"> 2.4.1. Conduct national consultative workshops (Jan 2009–Apr 2010) <ol style="list-style-type: none"> 2.4.1.1. Identify barriers and opportunities in local energy efficiency markets (Nov 2008–Nov 2009) 2.4.1.2. Introduce country action plans, the initial pipeline of projects, and/or outputs of applicable interventions (May 2009–Aug 2010) 2.4.2. Assist in formulating enabling policy and financial interventions, where applicable (Jan 2009–Aug 2010) 2.4.3. Market potential research and investment tracking (Nov 2008–Nov 2010) <ol style="list-style-type: none"> 2.4.3.1. Conduct research on new and innovative clean energy technologies, investment models, and international best practices (Nov 2008–Nov 2010) 2.4.3.2. Track clean energy investments and estimate carbon footprint of ADB loan and TA operations in the DMCs (Nov 2008–Nov 2010) 2.4.3.3. Identify clean energy development potential in nonenergy sectors in the DMCs (Nov 2008–Nov 2010) 2.4.4. Develop new clean energy investments in the DMCs (May 2009–Nov 2010) 3. Organize fora, seminars, workshops, conferences, and similar events to share knowledge and experience on energy efficiency and other clean energy scale-up solutions among the DMCs (Apr 2009–Nov 2010) 4. Coordinate and report on all EEI activities in the next priority DMCs (Nov 2008–Nov 2010) 	<ul style="list-style-type: none"> • Quarterly review by the Energy Community of Practice • \$3.0 million for 54 person-months of international consulting, 156 person-months of national consulting, and planning workshops in the DMCs

ADB = Asian Development Bank; DMC = developing member country; EEI = Energy Efficiency Initiative; RETA = regional technical assistance; TA = technical assistance; UNFCCC = United Nations Framework Convention on Climate Change.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Total Cost
Asian Development Bank Financing^a	
A. Consultants	
a. Remuneration and Per Diem	
i. International Consultants	1,188
ii National Consultants	936
b. International and Local Travel	
i. International Travel	216
ii Local Travel	70
B. Surveys, and Stakeholder and Public Consultations ^b	300
C. Equipment ^c	20
D. Contingencies	270
Total	3,000

^a Financed by the Asian Development Bank's Climate Change Fund.

^b Includes preparation of tools and materials for local consultation on project impacts and mitigation and staff participation in stakeholder consultations, workshops, preparation of information dissemination materials.

^c Proposed equipment and software to be procured and disposed of in accordance with current Asian Development Bank guidelines.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. The phase III regional technical assistance (RETA) activities of the Energy Efficiency Initiative (EEI) will take place over 24 months commencing in November 2008. The RETA will require 54 person-months of international consulting and about 156 person-months of national consulting.

A. International Consultants

1. **Clean Energy Experts** (various international consultants, up to 6 person-months total)

2. The experts will provide technical support to all EEI phase III activities covered under this RETA. They will provide technical expertise on the application of energy efficiency and other clean energy technologies and practices on the (i) supply side of the power subsector, (ii) end-use sectors, and (iii) transport sector. Supporting the operations departments, they will provide strategic guidance for national consultants working in the developing member countries (DMCs), and review and analyze the output of the country action plans. They will participate in developing planning guidelines, market research, technology reviews, and framework design activities of this RETA.

3. The clean energy experts will undertake the following:

- (i) Help the operations departments identify energy and nonenergy sectors with good potential for clean energy investments, and review findings of DMC consultations performed under previous RETA projects.
- (ii) Assist the operations departments in reviewing immediate clean energy investment opportunities in selected country markets, and prepare estimates of the clean energy investment requirements in ADB's DMCs.
- (iii) Help the operations departments develop strategies involving the roles of implementing agencies and other clean energy market stakeholders (government agencies, regulators, certification bodies, generators, transmission and distribution utilities, financial institutions, consultants, designers, specifications writers, contractors, suppliers, energy service companies) in the planning and implementation of clean energy projects.
- (iv) Formulate strategies vis-à-vis existing clean energy technologies and policy frameworks in selected DMCs (clean energy, energy efficiency, and energy conservation laws, decrees, ordinances, regulations, standards, specifications, and utility demand-side management practices) and, where applicable, subnational or provincial policy and regulatory frameworks; and assess the potential to involve precommercial clean energy technologies.
- (v) Develop guidelines and data requirements for the national consultants to support preparation of country action plans and a project pipeline for clean energy investments.
- (vi) Review country action plans prepared by the national consultants.
- (vii) Participate in official missions to the DMCs related to specific EEI activities such as workshops, data gathering, and consultations.
- (viii) Prepare a report summarizing the respective outputs of each consultant under this RETA.

4. The experts should have at least 7 years experience in energy sector projects, at least 5 years of which were dedicated to energy efficiency or clean energy. They should have previous

working experience in the Asia and Pacific region, particularly in ADB's DMCs. They must have demonstrated experience in clean energy issues, whether in policy intervention or market transformation, and in the design and monitoring of clean energy projects. A master's degree in engineering, economics, management, or a related field is preferred.

2. EEI Coordinator and Energy Efficiency Expert (international consultant, 24 person-months, full-time)

5. The expert will help with overall coordination of phase III activities of EEI during the RETA. The EEI coordinator and energy efficiency expert will undertake the following:

- (i) Help with all Energy, Transport, and Water Division (RSID) activities relating to the selection, engagement, and supervision of international and national consultants recruited under the RETA; oversee and coordinate technical support provided by the international and national consultants; and provide oversight and guidance to the national consultants for planning workshops, consultations, and other tasks in the DMCs.
- (ii) Participate, on an as-needed basis, in missions to the next priority DMCs.
- (iii) With the support of other international consultants, coordinate the development of country-specific market interventions and pipeline of clean energy projects by national consultants with the operations departments.
- (iv) Assist the operations departments in reviewing the outputs of national consultants in the design of country-specific market interventions and the development of a pipeline of clean energy projects.
- (v) Consult with the operations departments on their need for assistance in identifying and implementing immediate opportunities for energy efficiency investments; and assist the operations departments in developing end-use energy efficiency investment opportunities.
- (vi) Integrate the findings of the international consultants into a review of existing clean energy technologies and policy frameworks in selected DMCs.
- (vii) Coordinate and report on the EEI phase III activities in the DMCs.

6. The expert should have at least 10 years of experience in energy sector projects, at least 5 years of which were dedicated to energy efficiency; and previous working experience in the Asia and Pacific region, particularly within ADB's DMCs. The expert must have demonstrated experience in energy efficiency and demand-side issues and in the management of energy efficiency projects and consulting resources. A master's degree in engineering, economics, management, or a related field is preferred.

3. Clean Energy Engineer and Monitoring and Evaluation Specialist (international consultant, 24 person-months)

7. The specialist will provide appropriate technical support to RSID and the operations departments for implementation of the RETA, monitor clean energy investments periodically using the current framework, generate needed reports, manage information and data related to clean energy, and support EEI activities and work with other initiatives under ADB's clean energy and environment program in areas related to clean energy technologies and investments. The clean energy engineer and monitoring and evaluation specialist will undertake the following:

- (i) Update ADB's baseline of clean energy operations to include clean energy components of approved 2006 and 2007 loan projects and technical assistance in the DMCs.
- (ii) Investigate opportunities to improve the monitoring and tracking framework to accurately predict pipeline projects.
- (iii) Prepare estimates of carbon dioxide emissions attributable to ADB-funded clean energy projects in priority DMCs.
- (iv) Search and compile updated information on clean energy including investment models, and best practices to support project development in the DMCs.
- (v) Help the operations departments with project development by participating in missions, and providing information or reviewing project documents including consultant reports and outputs.
- (vi) Prepare an estimate of the carbon footprint of ADB operations (loan and technical assistance projects and own operations) in selected DMCs.
- (vii) Provide technical advice specific to clean energy technologies and projects to mission leaders and project officers who are not energy specialists.
- (viii) Prepare a report summarizing the outputs of each task.

8. The specialist should have at least 7 years experience in energy projects, at least 5 years of which were dedicated to energy efficiency or clean energy. The specialist should have previous working experience in the Asia and Pacific region, particularly in ADB's DMCs, and must have demonstrated experience in clean energy issues and in the design and monitoring of clean energy projects.

B. National Consultants

1. Clean Energy Project Specialists (up to 108 person-months)

9. The specialists will provide technical support to the operations departments and RSID in all country EEI phase III activities covered under this RETA, provide technical expertise to identify potential clean energy investments in their countries, lead all market research and technology reviews in their countries, and participate in all local EEI coordination meetings and reviews of progress of work. They will be engaged intermittently during RETA implementation.

10. The clean energy project specialists will undertake the following:

- (i) Prepare specified outputs corresponding to country-specific interventions agreed upon between ADB and the implementing agency.
- (ii) Prepare a project pipeline for clean energy investments based on templates provided by RSID.
- (iii) Assist the operations departments in identifying energy and nonenergy sectors with good potential for clean energy investments.
- (iv) Meet with sponsors of immediate clean energy projects and gather information on clean energy projects that need financing for implementation.
- (v) Meet with government agencies, financial institutions, energy service companies, and other clean energy market stakeholders to identify and address the barriers to immediate clean investment opportunities.
- (vi) Recommend strategies to develop immediate clean energy opportunities taking into account local conditions (e.g., policy and regulatory frameworks, limited availability of clean energy finance, roles of clean energy market stakeholders, and reach of

- existing and precommercial clean energy technologies) and subnational or provincial EEI strategies.
- (vii) Organize and participate in local EEI-related meetings, teleconferences, round table discussions, and/or planning workshops.
- (viii) Prepare a country report summarizing the outputs of each consultant under the RETA.

11. The specialists should have at least 5 years of experience in energy projects, at least 3 years of which were dedicated to the field of energy efficiency or clean energy. They must have demonstrated experience in energy efficiency or clean energy issues in their own DMC and in the design and monitoring of clean energy projects.

2. Climate Change Program Analysts (two national consultants full-time, 48 person-months)

12. The climate change program analyst will support EEI secretariat operations within RSID (based at ADB headquarters, including (i) assist RSID and the operations departments in implementing activities of the EEI and other subprograms of the Climate Change Program, (ii) help RSID and the operations departments prepare communications and outreach materials, (iii) maintain a depository of all EEI-related documents and reference materials, and (iv) provide administrative and logistical support to all internal and country-based EEI activities. The climate change program analysts will be responsible for the following:

- (i) Help with the fund management and day-to-day operations of the Clean Energy Financing Partnership Facility and the Climate Change Fund;
- (ii) Prepare periodic program reports for submission to donor countries through ADB's Office of Cofinancing Operations.
- (iii) Assist RSID in collating all outputs of EEI international and national consultants.
- (iv) Support the operations departments, RSID, Energy Community of Practice, and EEI secretariat with the preparation of communications and outreach materials (e.g., presentations, newsletters, brochures, leaflets) on EEI and clean energy for internal and external audiences.
- (v) Regularly update the ADB website for EEI and other clean energy activities.
- (vi) Maintain project files of EEI and all related reference documents.
- (vii) Coordinate logistics for headquarters- and DMC-based workshops, round-table discussions, consultative meetings, and other EEI events.
- (viii) Conduct research related to the latest developments and events related to clean energy and climate change.
- (ix) Liaise with ADB's Department of External Relations for the preparation of press releases and events.
- (x) Monitor the financial status of EEI and make regular updates.
- (xi) Assist RSID in providing logistics and administrative support to the tasks of EEI international and national consultants.
- (xii) Provide technical and administrative support to Renewable Energy, Energy Efficiency, and Climate Change (REACH); Energy for All; and other clean energy subprograms of ADB's Climate Change Program.
- (xiii) Perform other related technical and support tasks assigned by the RSID director, and project officer.

13. The climate change program analyst should have a bachelor's degree, at least 5 years experience in project implementation, logistical planning, and outreach communications, and at least 2 years involvement in clean energy and/or climate change projects (desirable).