PD-ABW-681

ECO

Energy Conservation and Commercialization Project

A Program of USAID, Ministry of Power & ICICI

ANNUAL WORK PLAN

YEAR 2

JUNE 1, 2001 – MAY 31, 2002

USAID Contract Number: LAG-I-809-98-00006-00

Implemented by: NEXANT INC

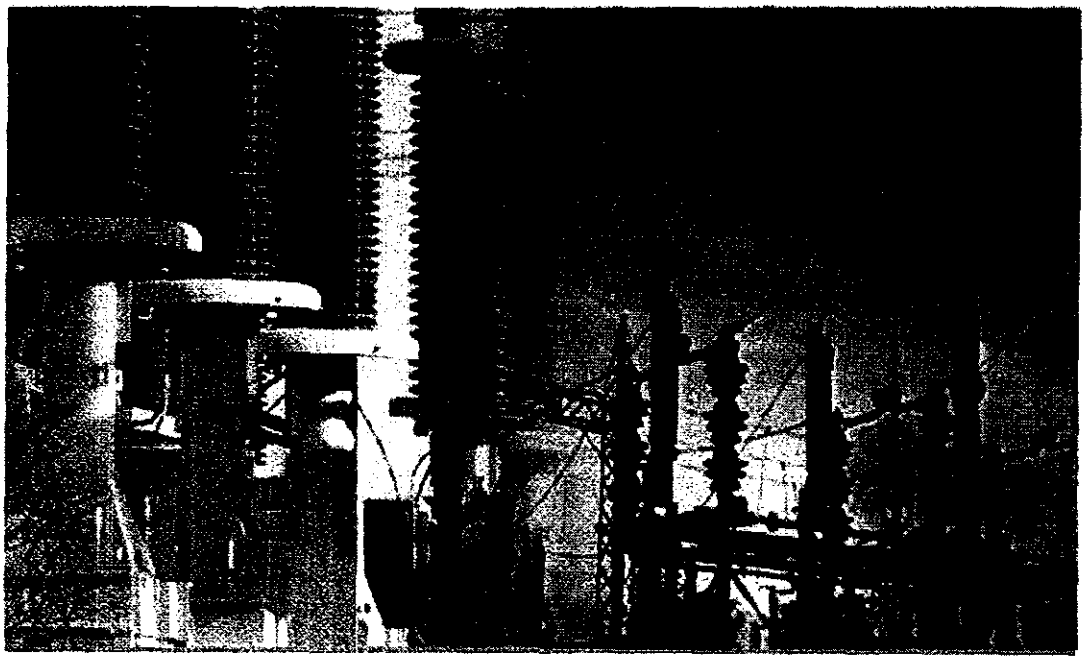
23865-809.0022

ECO

PD-ABW-681

Energy Conservation and Commercialization Project

A Program of USAID, Ministry of Power & ICICI



ANNUAL WORK PLAN

YEAR 2

JUNE 1, 2001 – MAY 31, 2002

Implemented by: NEXANT INC

B

ECO

Table of Contents

Appendices

C

Preface

This is the Annual report of the USAID ECO Project in New Delhi, India, for Project Year 2 (June 1, 2001 to May 31, 2002). The ECO Project is being implemented by Nexant Inc., under a USAID contract, LAG-I-00-98-00006. This contract has been issued by the USAID Mission in New Delhi, as a part of the IQC (indefinite Quantity Contract) currently in place through USAID's Global Bureau. The project contract was signed on February 29, 2000, with project mobilization occurring during March, April and May 2000. The technical assistance work began officially on June 1, 2000.

NEXANT INC

Implemented by:

New Delhi
1D-II, Parkwood Estate, Rao Tula Ram Marg
New Delhi 110 022
Tel: 91-11-618 8816, 618 1376
Fax: 91-11-619 0022
Email: Nexant@vsnl.com

Mumbai
408, Dalamal Tower, Nariman Point
Mumbai 400 021
Tel: 91-22-288 4554, 282 5869
Fax: 91-22-288 4555
Email: **Nexantm@vsnl.net**

Executive Summary

This report presents the second annual work plan for the ECO Project (June 1, 2001 to May 31, 2002). This work plan summarizes the activities of Year 1, and then addresses the tasks planned for Year 2. The work plan includes all of the Milestones that are scheduled for completion during this second year.

The Year 2 Work Plan is based on analyzing the progress made during the first Project Year, and using that data and information to plan for the next twelve months. The work plan includes a brief discussion of each Milestone scheduled for the coming project year.

The first project year was very successful, and the project achieved many goals. Major accomplishments are listed below:

- Established two offices, Delhi and Mumbai, and hired project staff
- Conducted 13 training programs (24 total sessions)
- Wrote draft M&V protocol for ESCOs
- Wrote 1st year agenda & business plan for ESCO Association
- Selected Rajasthan as Focus State, established a DSM Cell at JDISCOM
- Conducted report on market potential for energy efficiency products
- Conducted assessment on cogeneration
- Studied energy auditor certification needs
- Assessed training needs of regulators
- Conducted a Lender's Forum on financing mechanisms
- Initiated work with NDMC on a possible ESCO project at Palika Kendra
- Conducted a U.S. Study Tour on 'Access to the Regulatory Process

At the same time, some anticipated Project tasks were forced to be delayed, due to delays within the Government of India. Several ECO Project Milestones are dependent upon interaction with the Bureau of Energy Efficiency (BEE). However, the enabling legislation mandating the formation of the BEE has not yet been passed into law, and BEE has not come into being. These dependent tasks have been delayed for the short term, with the hope that the Energy Conservation Bill will soon pass the Indian Parliament, and that BEE will be formed.

Another major activity during the first year was an informal assessment of the status in India of the specific energy topics to be addressed by ECO. The ECO staff interacted with government officials, private enterprises, NGOs, financial institutions, SEBS, professional associations, industries, consultants,

ESCOs and all individuals on energy efficiency/conservation issues. In so doing, the ECO staff was able to make assessments relating to the tasks outlined in the ECO Project, as well as the planned schedule for implementing the ECO tasks. While the timing was appropriate for many tasks, it was also felt that many tasks needed to have the schedule adjusted. Therefore the Project staff met numerous times with USAID staff in discussing issues relating to the timing and scheduling of the Project Milestones. The list of Milestones was revised, mainly to adjust the schedule for individual Milestones, submitted to USAID for review and approval. The revised Milestones were accepted by USAID and the Project contract was modified accordingly. ***Appendix A*** contains the revised list of Milestones and the new completion dates for each.

The following deliverables were completed during this first year:

2A: Submit initial implementation plan
13A: Submit detailed work plan
11A: Establish selection criteria and identify the focus state
4A: Complete 2 courses on efficient technology and systems
1A: Select 10 EE projects (including 4 in commercial sector)
Conduct 2 workshops on ESCO/Financial Strategies
5A: Submit report on market potential for 2 EE products
4B: Submit final market assessment report
6A: Submit market assessment report on non-sugar cogen
7A: Identify institutions to certify energy auditors
Conduct workshop on voluntary auditor certification
Conduct 2 workshops on energy auditor instruction
10A: Conduct training needs assessment for regulators
3A: Develop business plan & 1st year agenda for ESCO Assn
Conduct 2 workshops on formation of ESCO Assn
Draft model M&V protocol
Conduct 2 workshops on int'l M&V protocol
Conduct 2 courses on M&V protocol
9A: Prepare a report (using life cycle costing) on at least 2 high volume and high energy use appliances/equipment procured by the gov't
11B: Establish a DSM Cell in at least 1 DISCO of the focus state and assess their staff needs
Conduct at least 2 workshops on Cell Organization and Management
5B: Conduct a marketing course on EE products
10B: Conduct an integrated training programs on access to the regulatory process for industrial and commercial customers
Conduct programs on awareness in regulation for residential/agricultural customers

Work on developing the ECO Project website began at the end of the first year. USAID's other energy and environmental projects have their websites located on FICCI's server.

Therefore, the ECO Project will also be using FICCI for this activity. A draft of the material for the website was forwarded to FICCI as well as to ECO Project counterparts for their comments. The website will be maintained by FICCI for the duration of the ECO Project.

Background

India has had an electric energy and demand shortage for several years. These numbers range between 10 to 20%. On top of this, India is experiencing tremendous economic growth, averaging over 5% since 1991. The middle class has grown to over 250 million, creating an increasing demand for consumer goods and energy. Much of the electrical energy currently being produced is lost, with nationally accepted figures for transmission and distribution losses between 21 and 24%. However, it is assumed that the real losses (electricity not paid for in addition to losses) are closer to 40 to 50% nationwide. This ever-increasing demand for electricity is putting an increased burden on a system that is already woefully short of capacity.

Using its indigenous coal supply, India has increasingly relied on coal-fired power plants to meet new demand. The Indian power sector is now the single largest source of greenhouse gas emissions in India, and India is currently the world's sixth largest and second fastest growing source of global greenhouse gas (GHG) emissions. New supply facilities are being planned and added at a phenomenal rate to meet the existing deficit and growing demand but shortages in power supply continue to exist and this sector continues to be a major bottleneck to more rapid industrial and economic growth.

The efficient use of electricity and a reduction of transmission and distribution (T&D) losses could minimize the requirements of additional power generation, which, in turn, could result in a considerable reduction in the rate of growth of GHG emissions. Estimates indicate an enormous scope for implementing end-use improvements in various electricity-consuming sectors in a cost-effective manner. End-use energy efficiency improvements are also sustainable, resulting in a reduction of nearly 4 mW for each 1 mW saved due to efficiency measures. This savings directly translates into equivalent greenhouse gas emission reductions.

The ECO Project commenced in the Year 2000, with the contract being signed on February 29, 2000. A three-month mobilization period preceded the commencement of the technical project work. During the mobilization period, project staffs were hired, and project offices were established in New Delhi and Mumbai.

USAID Assistance Programs

The importance of energy conservation has been recognized in India but market distortions and policy barriers continue to plague the widespread commercialization and large-scale implementation of end-use energy efficiency improvements. USAID and other donor agencies have provided substantial assistance in the past decade to help improve the management and efficiency of the power sector,

USAID has provided substantial assistance to India in the energy sector, on the supply side and the demand side. The EMCAT program (Energy Management, Consultation and Training) was a multi-year project, aimed at developing the infrastructure of the energy sector. Phase 1 of demand side project developed the first DSM program in India, working with the private Ahmedabad Electricity Company. This effort was continued in Phase 2, while expanding into building the DSM infrastructure as well as industrial energy efficiency investments, product standards and labeling. Phase 2 achievements include the development of a consumer product label for refrigerators, air conditioners, and water heaters. Another significant accomplishment has been the support provided for national energy legislation. Currently the energy legislation is pending approval, with expectations that it will pass during the summer session, 2000. EMCAT also includes a Regulatory Reform and Restructuring component, which is designed to help establish State Electricity Regulatory Commissions (SERCs).

The MMEE project (Moving Markets for Energy Efficiency), conducted out of USAID's Global Bureau, has worked in India on market assessments for energy efficiency potential as well as financial intermediation for energy efficiency. This project will also work on developing a strategy for the Energy Conservation Fund envisaged under the new Energy Conservation Bill that is pending in the Indian Government.

There is a strong motivation for continued USAID involvement toward supporting widespread commercialization of energy conservation in India based on the lessons learned from its past experience. A new USAID/India activity, Energy Conservation and Commercialization (ECO), was been designed to continue efforts to improve end-use efficiency of the Indian power sector in the context of emerging regulatory and institutional reforms. The ECO project is designed to build on the results of these previous projects, and to incorporate the lessons learned from each project.

A new joint project of the Government of India and the U.S. Agency for International Development (USAID) – the Energy Conservation and Commercialization (ECO) project -- was signed on January 28, 2000 at the Ministry of Finance by Department of Economic Affairs Joint Secretary R. S. Sharma and USAID/India Director Linda Morse. ECO -- a Rs. 145 crore ($33.4 million) five-year program -- will target the reduction of greenhouse gas emissions per unit of electricity generated in India.

ECO aims to promote widespread commercialization of energy efficiency technologies and services in India, thereby contributing to the reduction in growth of greenhouse gas emissions. Assistance will be provided for developing market-oriented policy environment for commercialization of energy conservation, and enhancing the capabilities of private and financial sector for deploying market-based mechanisms for energy efficiency investments. The ECO project supports USAID's Climate Change Strategy and will contribute to USAID/India's Strategic Objective for increased environmental protection in energy, industries and cities.

The ECO project addresses technical, economic, financial, regulatory and institutional barriers to implementation of end-use energy efficiency improvements in India. ECO will facilitate the commercialization of energy services and technologies through a two-pronged strategy: (1) Energy Efficiency Market Development and Financing (Markets Component), and (2) Energy Efficiency Policy and Institutional Reforms (Policy Component).

The Markets Component will include the following major activities:
- Technical and Project Structuring Services for Sponsors;
- Development of Financial Incentives for Credit Enhancement/Risk Mitigation;
- Support to Energy Efficiency Services Industry;
- Efficient Technology Promotion;
- Market Conditioning and Promotion; and
- Non-sugar Co-generation Market Development.

The Policy Component will cover policy, regulatory and institutional reform issues at the central and state levels, and will include the following major activities:
- Energy Efficiency Policy and Institutional Support;
- Energy Efficiency Standards and Labeling for Consumer Appliances;
- Energy Efficiency Improvement in Government Facilities and Private Buildings;
- Energy Efficiency through Regulatory Reform and Restructuring;
- Electric Utility DSM/ Energy Efficiency Capacity Building;
- Development of State Energy Efficiency Financing Schemes; and
- DSM / Energy Efficiency within Privatized Distribution Utilities.

The technical assistance (TA) and training will be provided to various government agencies to help them create a market-oriented policy environment conducive to investment in efficiency. For the private and financial sector, TA and training will be provided to design and implement energy conservation projects. The Ministry of Power (and the Bureau of Energy Efficiency that is expected to be established soon) will be the partner agency for the ECO project. State-level activities under the Policy Component will be coordinated with the State Regulatory Commission and State Electricity Board (or its functionally-unbundled entities) of the focus-state. An Advisory Committee to the ECO activity, comprising of a wide range of stakeholders shall, on a regular basis, provide advice to USAID/India towards progressively formulating effective strategies for various activities envisaged under ECO.

USAID will provide US$25 million for five years for the ECO project. This includes US$12.5 million for technical assistance and US$5 million for training. US$5 million will be used for establishing a loan fund, managed in coordination with ICICI Limited, for providing financial incentives for supporting market development activities aimed at creating business demonstrations and at reducing perceived risks from energy efficiency projects.

The major TA and training objectives of ECO are being initially met through a primary four-year contract. Nexant Inc., a U.S.-based energy consulting company, was awarded a contract by USAID-New Delhi to implement the ECO Project on February 29, 2000. This project is being implemented as a fixed price, performance based contract. This is a new concept for contracting within the USAID/India office, and it is being promulgated in the belief that it will result in less administrative work and provide more flexibility to the contractor. This concept means that the contractor is not paid until the completion of each specified contract deliverable. There are no 'partial payments'. Therefore fixed costs and variable costs have been looked at closely, to try to ensure a reasonable balance of payments over the life of the contract. The results of this contract and the contract process itself will be closely reviewed to ascertain if the concept is beneficial.

There are thirteen separate Activities within the project, each of which has a specified price. Within each of the thirteen Activities, there are a maximum of six Milestones, with a total of seventy-six (76) Milestones in all (Activities 12 and 13 having only five Milestones each). Each Milestone has a specified completion date. The project technical officer has the authority to adjust the specified Milestone completion by a maximum of forty-five (45) days without a contract modification. The total of each of the separate thirteen Activity prices is the project total cost.

ECO Project Staff

Some changes were made to the project staff over the course of the first project year. The ECO project staff, and their areas of responsibility, includes the following individuals:

Delhi office:

Charles Fafard, Chief of Party
Dr. Kapil Thukral, Sr. Consultant – Central Government
Dr. Vijay Deshpande, Sr. Consultant, Policy Component
V.M. Thakor, Sr. Consultant – States Government
Rajiv Arora, Training Coordinator
Pritha Sanyal, Project Administrator
Sumit Sanyal, Financial Administrator
Mahalakshmi Babu, Technical Editor
Payal Barua, Receptionist

Mumbai office:

Sanjeev Tamhane, Sr. Consultant – Market Component
Sunil Kulkarni, Financial Consultant
June Pinto, Office Manager

The Delhi office will work mainly on Policy issues (both central government and state government), while the Mumbai office will focus on Market issues. The staff will report directly to the Chief of Party, Mr. Charles Fafard. Brian Wood will serve as Deputy Project Manager, and assist the project from the San Francisco office. Mr. Wood will coordinate the selection of U.S. sub-contractors and consultants.

Project Subcontractors/Consultants

During the first Project Year, numerous subcontractors and consultants were utilized on the ECO Project. Appendix F contains the list of who participated in the project during the first year.

Project Milestones

Throughout the implementation of the Project, the specific Project tasks are constantly being evaluated to determine if those tasks meet the current needs. To keep the Project from being static, changes to milestones and activities may occur, to keep the Project current and to best address the needs of India.

YEAR 2 (JUNE 1, 2001 – MAY 31, 2002)

The Markets component includes six Activities, while the Policy component includes seven Activities. The Work Plan represents a 'snapshot' or instantaneous view of the Milestones that come due during this second project year. To complete the Milestones, it is necessary to initiate work many months prior to the completion month. Therefore, work is already under way for many of the Year 2 Milestones. Similarly, advance plans for year 3 work will be developed and commenced during the later part of year 2 so that Milestones that occur shortly after the start of the third project year will be met.

The Annual Work Plan – Year 2 includes twelve Milestones in the Markets Component and ten Milestones in the Policy Component. A description of each of these Milestones, their objectives, approach, intended outcomes, resource requirements, and budget follows. Due to the ongoing nature of the project, the project staff will begin work on Year 3 Activities and Milestones approximately six months prior to the end of Year 2. This will allow them to plan for a smooth continuation of effort from one project year to the next.

MARKETS COMPONENT:

Activity 1: Technical and Project Structuring Services for Sponsors

Milestone:

1B: Complete 2 investment grade feasibility studies

ECO Project Leader: Sunil Kulkarni

Objectives:

The objective of this milestone is to take two initial energy efficiency/conservation proposed projects and conduct investment grade feasibility studies on them. The process of developing these feasibility studies will initiate the project development process, and it will also serve as a precursor to the additional investment grade feasibility studies that will follow. These initial two studies will allow the process to be reviewed and modified as appropriate, so that future studies can proceed smoothly and quickly.

Approach:

Seventeen projects were identified in Milestone 1A and three projects were short-listed. Those three include Parakh Foods Ltd and RMS Automation Systems Pvt. Ltd, and Sesa Goa. These have been identified for the initial investment grade feasibility studies in industry sector. These two projects are being screened to ensure that they meet the initial minimum banking requirements. This initial screening is typical for all financial lenders, in that they first ensure that the proposed clients do not represent an unreasonable credit risk. Then each project will be evaluated from the technical concept of the project and for economic parameters, in cooperation with ICICI staff. The two evaluations will be prepared as complete, investment-grade financial and technical feasibility studies. If, either of the two identified projects are rejected at the initial screening phase, then an alternative project will be selected from the existing project pipeline for the investment grade feasibility study.

Starting Date-April 2001
Expected Completion Date-September 15, 2001
Required Completion Date-September 30, 2001

Intended Outcomes:

Two industry-sector energy efficiency projects will be developed and presented to the financial institutions for subsequent financing. The process of developing the projects and working with the lending institutions is the main goal of this Milestone. While these projects may utilize the financial incentive mechanisms being developed under ECO, these tasks are not linked. However the process of developing these projects may be utilized as inputs in finalizing the financial mechanisms.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	40
US:	0

Milestone:

1C: Prepare and disseminate technical/financial analysis spreadsheet for sponsors/investors to appraise EE projects
Conduct three training programs on Project Screening

ECO Project Leader: Sanjeev Tamhane

Objectives:

The technical/financial analysis spreadsheet that will be developed will be an essential tool for lending institutions for appraising energy efficiency projects. Since the projects vary in many aspects, including technology, the spreadsheets will help in determining the value of each project, and give a procedure for comparing projects as to their risk and benefits, as well as assessing the impact of the projects on the end-user company's balance sheet.

The Project Screening training courses will be developed to instruct lending institutions in the special considerations for financial evaluation of EE projects, their impact on balance sheet appraisal, and the value in considering EE project lending from a project finance perspective. The technical/financial analysis spreadsheet will be used as a teaching tool in reviewing, analyzing and comparing several types of EE projects.

Approach:

The project analysis spreadsheet will be developed using both local and international consultants. The strategies of the commercial lenders will be considered in the development of the spreadsheet, so that most of the information that the lenders need will be considered in the analysis.[1] Pertinent financial information on the company and proposed project will also be included. The type of the project and its technical aspects will be included in the evaluation.

The spreadsheet will be developed using inputs from actual projects. Following the development of the spreadsheet training programs will be developed to demonstrate the use of the spreadsheet. While most of the banks and financial institutions have their own set of spreadsheets, the ECO spreadsheet tool will provide a focus on evaluation of EE projects, and

[1] Note that there are aspects of financial appraisal that are not assessed quantitatively or in a process that is amenable to a spreadsheet tool.

part of the learning process will be in encouraging the lenders to compare or critique the ECO tool viz a viz their own methods no requirements in project appraisal. In teaching and

disseminating the ECO spreadsheet tool, instructors will identify how it may be made more useful by incorporating other appraisal parameters or flexibility for banks and FIs themselves to incorporate additional measures in the tool on their own, as their practices may require.

Steps required to accomplish activities:

- Understand needs of the financing agencies.
- Draft the spreadsheet prototype from existing tools used (a) by project sponsors for EE project analysis in the US and (b) by lenders for project/balance sheet appraisal in India.
- Integrate financial and technical modules and review/test the spreadsheet with select financing agencies and project sponsors (including ESCOs).
- Modify the prototype spreadsheet based upon feedback from reviewers
- Conduct project-screening courses using the reviewed and modified spreadsheet, obtaining further feedback from this market test.
- Refine and complete the spreadsheet tool.
- Disseminate the spreadsheet tool to banks, financial institutions, and project sponsors (including past participants in project screening courses), and make it available on the ECO website.

The work is expected to commence in July 2001 after assigning responsibilities to the subcontractors. The first completed version of the spreadsheet is expected to be ready by December 2001 to be used for the training courses, which are scheduled tentatively for January 2002. The final spreadsheet will be available for dissemination by March 2002.

Intended Outcomes:

The outcome of this Milestone will be a spreadsheet that can be utilized to assess both the technical and financial attributes of potential energy efficiency projects and appraise them. Once the spreadsheet has been developed, it will be disseminated to the financial community through a series of training programs, so that the use of the spreadsheet will be widespread.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	50
US:	75

Milestone:

1D: Complete 6 additional investment grade feasibility studies

ECO Project Leader: Sunil Kulkarni

Objectives:

As for the objective of Milestone 1B, the objective of 1D is to take initial energy efficiency/conservation proposed projects (under 1A) and conduct investment grade feasibility studies on them. In this case, six investment grade feasibility studies will be prepared, including three in the commercial sector. These studies will benefit from the experiences gained in the development of the first two projects, which should facilitate in the development of these studies.

Approach:

At least six projects will be identified for initial screening prior to committing to the preparation of investment grade feasibility studies. The project pipeline report (MS 1A) provides some active leads for this, while new projects are being identified as well as the ECO project proceeds. The approach to the feasibility studies will be identical to that described under Milestone 1B. (However, lessons learned from Milestone 1B will be incorporated in refining this task). For each candidate project that passes initial screening, a complete investment-grade financial and technical feasibility study shall be prepared, taking into consideration ICICI requirements for financing and in cooperation with ICICI staff.

New project identification and development activities are already in progress, in parallel to the initiation of the feasibility studies under Milestone 1B. It is expected that such studies will be initiated and completed in coordination with ICICI as project opportunities develop over the course of the year (June 2001 to May 2002), and that this will not occur in a uniform manner but, as stated, as opportunities develop. The project development effort will take place continuously throughout the year. The six feasibility studies will be completed by July 2002. Each feasibility study is expected to take six months form initiation to completion stage.

Intended Outcomes:

Six energy efficiency projects, including three in the commercial sector, will be developed and presented to the financial institutions for subsequent financing. The process of developing the projects and working with the lending institutions is the main goal of this Milestone. While these projects may utilize the financial incentive mechanisms being developed under ECO, these tasks are not linked. However the process of developing these projects will be utilized as inputs in finalizing the financial mechanisms. Atleast four of these eight projects (in 1B&1D) will be financially closed by late 2002 and 2003.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	110
US:	20

Activity 2: Development of Financial Incentives for Credit Enhancement / Risk Mitigation

Milestone:

2B: Develop EE financial incentive mechanisms (at least 5 mechanisms)

ECO Project Leader: Sanjeev Tamhane

Objectives:

The objectives of this Milestone are to develop innovative financial incentive mechanisms that can be utilized in the financing of energy efficiency projects. The mechanisms are intended to be utilized by different categories of lending institutions, and they should therefore be designed knowing the clientele of the lending institutions and the type and size of projects that they are likely to be interested in. The mechanisms should as much as possible be new approaches to the financing of energy projects in India, with the intention of being able to finance a greater number of energy efficiency projects than has been done in the past. The structuring of these mechanisms to an operational form should address different risks (performance, transactional, financial etc.) of one or several stakeholders (banks, end users, ESCOs, Utilities, manufacturers) involved in end use EE projects.

Approach:

The approach is to work with the existing lending institutions to understand their current practices and their market. A core group of bankers and lenders was established as the Lenders' Forum, which is being expanded to include more lending institutions, to help develop these new financing mechanisms and options, and to explore their concerns about expanding the business to lending for additional energy efficiency projects. It is also important to learn from these individuals what they perceive as the barriers to the financing of energy efficiency projects, and any ideas that they may have to overcome those barriers. ECO is working with the individual stakeholders, both on a one-to-one basis and as a group, to discuss possible mechanisms that would promote the financing of energy efficiency projects. These ideas will be supplemented with ideas that have been utilized in other developing countries, so that the discussions can be as comprehensive as possible.

The initial ideas were developed during the first meeting of the Lenders' Forum, and additional mechanisms have since been drafted. Draft mechanisms have been reviewed with ICICI staff and with other financial institutions and commercial banks. This review process is continuing toward final specification of the financing incentive mechanisms.

Toward developing the financing incentive mechanisms, lending institutions were first contacted in the fourth quarter of 2000, and the first meeting of the Lenders' Forum was convened in January 2001. Nine potential financing mechanisms were subsequently described, and after defining these further with the assistance of international consultants, presented to the core ECO project group. Five mechanisms were selected for further development, and these have been presented and discussed with a broad spectrum of banks and financial institutions from April through June 2001.

The next steps toward finalizing the mechanisms include incorporating the feedback of the lenders into the existing mechanisms to refine them further, illustrating each mechanism using an example project to show relationships, cash flows, lender fees, and impacts on lender/project sponsor financial measures, identifying how the incentives may be implemented by participating lenders through the ECO project, and preparing a final report on the selected financial incentive mechanisms. This will be complete in August 2001.

Intended Outcomes:

While each bank and lending institution may have a special market segment, it is hoped that within the set of five innovative financial incentive mechanisms developed, each participant in the financial community will find one or more mechanisms that they can utilize in promoting and financing energy efficiency projects. ICICI will also use one or more of these mechanisms in disbursing monies from ECO Loan Fund and for Loan Fund operational guidelines.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian	30
US:	50

Milestone:

2C: Develop ECO Loan Fund Marketing Plan including operational and management guidelines

ECO Project Leader: Sanjeev Tamhane

Objectives:

The ECO Loan Fund requires a marketing plan, operational and management guidelines to direct how it may support EE project lending through the financing mechanisms by banks and lending institutions, as well as to define procedures for EE lending directly by the fund manager, ICICI. The marketing plan will describe strategies for the promotion of the financing mechanisms among banks, lending institutions, and end users, considering each of the five mechanisms separately.

Approach:

The definition of operating and management guidelines for the ECO Loan Fund was initiated in April 2001, considering the criteria for selecting EE projects, broad categories of projects to be addressed by the Loan Fund, and leveraging of the ECO Loan Fund through structured co-finance with other lending institutions and use of some/all of the financial incentive mechanisms under development. Next steps include further consideration of guidelines that have been developed for similar EE funds such as IREDA, etc., and comparison with existing ICICI operating and management guidelines to address conformance issues. This work will proceed in June/July 2001, while further development will occur after finalization of the financial incentive mechanisms in August.

The project selection criteria discussed with ICICI in April 2001 provide the underpinning of the ECO Loan Fund marketing plan and its objectives. Further information gathering toward the marketing plan has occurred with the meetings with lending institutions since May 2001, obtaining their feedback on financial barriers and their interests in participating in the ECO-promoted financing mechanisms. The marketing plan will be further developed as the mechanisms are finalized, and will be completed by October 2001.

The scope of the marketing plan will include definition of the major consumer markets for which specific mechanisms are most appropriate, types of lending institutions to be involved, and approaches to promotion of the mechanisms and the ECO Loan Fund itself. It will consider lessons learned from the marketing of other EE funds that have been initiated in other countries. The marketing plan will describe how to distribute information and a strategy/action plan for doing so under the ECO project. A principal mode of marketing the financing mechanisms is anticipated to be the training programs relative to EE finance for lenders, project sponsors, and ESCOs. The marketing plan will describe how to distribute information on the plan to various consumer groups or sectors of the economy, including business associations such as CII.

Intended Outcomes:

The operational mechanisms will include some of the financial incentive mechanisms and co-financing/leveraging mechanisms. The marketing plan will develop the methods for dissemination of the financial incentive mechanisms, which should lead to wider use of the mechanisms. By reaching a wide cross section of the economy, more entities will learn about the various options available to them, and can determine which best suits them. An overall increase in the implementation of financing of energy efficiency projects should result.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	40
US:	40

Milestone:

2D: Conduct 3 courses on EE Financial Incentive Program

ECO Project Leader: Sanjeev Tamhane

Objectives:

The training programs will be developed for the staffs of the financial institutions and commercial banks, to demonstrate to them how to work with the financial mechanisms for energy efficiency projects, the differences between the mechanisms, which mechanism is most suitable for which type of project, etc. As the mechanisms will bring in new concepts or new ways of structuring projects, the training programs will be oriented to be 'hands-on' type of training. The objective is to thoroughly train the staff of the lending institutions on the mechanisms, so that they can apply the mechanisms and make the maximum possible use of them.

Approach:

This training program is planned as three regional courses, each of 5-day duration. Both Indian and international instructors are planned. The course participants will be invited from the lending institutions that have been involved in the development of the financial incentive mechanisms, as well as others, particularly the key regional lenders in the areas of the course sites. The course locations are tentatively selected as Chennai, Kolkata, and Pune. The training courses are tentatively scheduled to be held consecutively in November and December 2001. Planning and preparation of the courses would commence in September.

The training program will initially present each mechanism, describe the details, how they work, the type of projects that they are designed to address, any limitations that they might contain, etc. The spreadsheet tool developed under Milestone 1C is also expected to be used as a learning tool in presenting the impacts of the mechanisms and in making comparisons, using hypothetical case studies. The participants will also be requested to bring sample projects (names can be withheld, so as not to risk revealing who the clients are) to the program, so that they can work with the mechanisms on actual projects. Instructors will work with the participants in groups for this portion of the program, to help them in applying the proper mechanism to each project, and how to determine which is the preferred mechanism. The training program will also address opportunities to access other funding sources for energy efficiency projects, such as the CDM, emissions trading credits, and special funds that may be made available from the World Bank, ADB, bilateral donors, etc.

Intended Outcomes:

The training sessions should thoroughly train the staffs of the lending institutions on how to utilize the financial incentive mechanisms. The staffs should be fully versed in the mechanisms, what type of projects that they are best suited for, and how best to select between the mechanisms in considering each project.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	50
US:	70

Activity 3: Support to Energy Efficiency Services Industry

Milestone:

3B Create a business exchange program
Conduct 2 workshops on energy efficiency business partnerships

ECO Project Leader: Sanjeev Tamhane

Objectives:

The two deliverables in this Milestone are aimed at developing a relationship between industry and the Indian ESCOs, and to provide the resources so that industry can be informed on ESCOs and their services.

Approach:

The workshop element of this milestone was completed in March 2001, as the workshops were held in Kolkata and Chennai. At that time, the objectives and approach for the business exchange program were outlined with the assistance of the Indian and international consultants involved in the workshops. The principal feature of the approach, considering the functions and activities expected of the program, was to select an existing institution to be the host organization to implement it. Meetings with the candidate institutions commenced in May 2001. The candidate institutions include CEECI (Council of Energy Efficient Companies of India), FICCI (Federation of Indian Chambers of Commerce and Industry), CII (Confederation of Indian Industry), ICC (Indian Chambers of Commerce), ASSOCHAM, and electronic media type organizations that feature websites oriented towards energy efficiency in India. These institutions were selected on the basis of their existing commitment and links to relevant end users and suppliers of energy efficient products and services.

After comparative analysis of the candidate host institutions, one is expected to be selected in June 2001. At that point, the ECO project will support the institution in designing its activities for ESCO business exchange. For example, ECO plans to provide an international or local consultant to assist the institution in the preparation of a business plan for this program, describing activities, time-bound objectives, and resource requirements. A database of firms involved in EE and ESCO activities must be prepared, and ECO may assist this during the business plan preparation by directing the adaptation of the institution's existing company contacts, providing contacts that ECO has accumulated through training programs and ESCO activities, etc. ECO may further support the development of the business exchange program through participation or hosting of training programs, assisting in the development of a business exchange web site through linkages to the ECO web site, and provision of ECO results including reports and project assessments, M&V protocols, model performance contracts, etc.

The work under Milestone 3B was initiated in January/February 2001, and the workshops completed in March. The business exchange host institution is expected to be selected in June 2001. The following activities, to assist the host institution in business plan preparation and to launch the program, will be completed in August 2001. ECO will continue to support the business exchange program after this time, such as through participation in programmed ECO activities.

Intended Outcomes:

This Milestone will launch the business exchange program, which the ESCOs, end-users, financial institutions, manufacturers etc. can use to promote their services to industry. The business exchange service that is developed under this task would serve all industry by identifying energy efficiency opportunities, case studies, and ESCOs that can assist them in implementing energy efficiency projects. The website eventually could also contain information on typical energy savings and financing programs, including M&V protocol (developed under 3A) and model performance contracts (to be developed). The website can also be utilized to inform individuals of upcoming training programs and events of interest regarding energy conservation and efficiency.

Resource Requirements:

The workshops were designed to utilize Indian and US subcontractors and consultants, while the business exchange was designed using only the Indian subcontractors/consultants. The number of subcontractor/consultant days anticipated, including the completed workshop and other activities:

Indian:	40
US:	30

Milestone:

3C: Conduct 1 U.S. study tour for Indian ESCOs and end-users

ECO Project Leader: Sanjeev Tamhane

Objectives:

U.S. study tours present a unique opportunity for individuals to observe and experience first hand the operation of business and energy efficiency within the U.S. The value of actually observing the operations of U.S. companies in their normal work can be much greater than standard training programs. In study tours the participants have the opportunity to ask questions not just of the instructor, but also of all involved parties. The depth of understanding can be much greater than that available from classroom experiences, as the participants can get many different perspectives. In addition, study tours provide the opportunities for the Indian participants to build relationships with the study tour group, through their extended time interacting together. This is expected to be extremely valuable in

the development of a networked group of ESCO proponents in India from different types of organizations, who can support one another in ESCO development through support of future business exchange activities.

For this ESCO study tour, the participants will be from several different sectors (ESCOs, financial sector, end-users, government and industrial associations), and they will have the opportunity to work together and to be together for a two-week period as they observe operations within the U.S. This also will help in providing good contacts and understanding of everyone's interests during the study tour.

Approach:

The US study tour will be developed to include site visits to ESCO companies, but also to lending institutions that work with ESCOs to finance energy efficiency projects and to IPMVP. The emphasis will be on building a relationship between ESCOs, the financial community, and end-users. Time will be spent to gain the perspective from the US financial community as to how they evaluate both projects and ESCO companies to work with. Other visits to professional associations and end-users will look to understand their view of ESCOs and the service that they can provide to the end-users.

The criteria for selection of study tour participants were prepared in May 2001, and distributed within the ECO project for nomination of candidates. The list of candidates is expected to be completed by the end of June, and selection of the 10 participants to be complete in July. The list will be finalized in consultation with ICICI, MOP and USAID. During this time, a draft program for the tour will also be prepared, and then study tour arrangements and activities confirmed through the summer. The ESCO study tour was originally planned to be held during August 2001, although the schedule has been changed to early September to avoid the August holiday season in the US. This is expected to ensure the coordination and participation of more US firms and organizations in hosting the study tour delegation.

Intended Outcomes:

The intended outcome from this study tour is a stronger and closer relationship between the ESCO companies, the financial lending community, and the end-users. Each of the individuals from the three separate sectors needs to understand the interests of the other two sectors, and to be able to work together on projects to their mutual benefit. This bond and trust between companies and individuals, if it develops, will be the foundation for future business transactions in India, and financing of energy efficiency projects using ESCOs.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	0
US:	45

Milestone:

3D: Develop 3 model ESCO / EE performance contracts (applicable to commercial, residential, and industrial sectors)
Conduct 4 courses on ESCO development

ECO Project Leader: Sanjeev Tamhane

Objectives:

The model performance contracts are necessary so that all three main entities (ESCO, lender, and client) understand the relationships between them and the legal responsibilities that they each have. This model document needs to be vetted by all the stakeholders and be compliant to the legal system in India, so that each party fully understands what the implications are, and what their responsibilities are to ensure a successful project. Currently many ESCOs are afraid of signing a long-term contract with an end-user, which is based on estimated energy savings. There are many stories of clients simply refusing to pay, and the ESCO or consultants have not been successful through the legal system in obtaining a just settlement. Therefore, if ESCOs are going to fully functional in India, there has to be a contract that is legally binding, and where settlements can proceed in a timely fashion. It would be unreasonable to expect that the ECO model contracts would overcome barriers that may be inherent in the legal system or legal process. However, the model performance contracts are expected to facilitate ESCO contracting by offering a suitably structured contract form, created by a party (ECO) neutral to the transaction, that addresses the interests of all participants in the transaction: ESCO, lender, and client and sometimes, the electric utilities and equipment manufacturers. As risks (transactional, financial, performance) and stakeholders (and their credibility, size etc.) are different for the three sectors – commercial, industrial and residential, the approaches to address each of them are going to be significantly different.

The ESCO development course will be structured to present the model performance contracts that have been developed to the financial community, to ESCO managers, and to end-users and industrial associations. The model performance contracts will be fully explained, and gone through in a step-by-step process, so that all parties understand the ramifications of the contracts, how they work as well as the strengths and weaknesses (if any). International case studies from developing countries will be presented where appropriate.

Approach:

Nexant consultants will work with EMC/BEE staff in developing the performance contracts, so as to co-ordinate work between these organizations. We will work with existing model performance contracts in India and other countries (like China) to develop them for the Indian market. The Nexant performance contracting expert will assemble sample contracts that incorporate lessons learned in ESCO operations in the US and other countries (France, UK, Australia, China, Thailand etc). They will include contracts that are typical of industrial and commercial applications, as well as the type of ESCO agreement that has been developed for residential applications (such as in utility-sponsored ESCO operations in residential blocks).

The expert will travel to India to meet with ESCOs, end users, and lenders to discuss barriers that have been encountered in performance contracting to date, the extent that the US performance contract provisions may mediate the barriers, as well as creative approaches to address the barriers in the contract form. The consultant will then revise the model contracts on the basis of this feedback, and in consultation with an Indian lawyer under contract to ECO. The revised model contracts will be reviewed and tested among a select group of stakeholders including ICICI and legal experts, as the final step before disseminating them to the ESCO community and others. The M&V Protocol work done in 3A will also be integrated with the model Performance Contract work. These contracts are expected to be available on the ECO web site.

After this testing and finalization step, training courses based on the contracts will be developed. Four regional, five-day courses will be conducted. They are tentatively scheduled in two batches: two courses to be held in October 2001, and two in February 2002. The sites for the first set of courses have been proposed as Pune and Bangalore. Each course is proposed to be divided into a 3-day period focusing on the perspective of ESCOs and financing agencies, and a 2-day period focusing on the perspective of end users.

Intended Outcomes:

This Milestone will produce model performance contracts suitable for use in India. All involved parties will be trained in the use of the contracts, so that they understand where and how they can be successfully applied. The model performance contracts are an important tool for ESCOs and other stakeholders (FI's, utilities, end users, etc.); without the performance contracts the Indian ESCO companies will continue to function as technical consultants and not true ESCOs.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	90
US:	90

Milestone:

3E: Facilitate 8 ESCO investment grade feasibility studies (including commercial and residential sectors)

ECO Project Leader: Sanjeev Tamhane

Objectives:

This task is to identify projects that can be developed and promoted by ESCOs. ESCOs can plan a significant role in the promotion of energy efficiency projects, although to date in India the ESCOs do not have a strong footing or base from which to build. Working with ESCOs to promote several projects should reinforce their activities, and help to build up their activities and to get them established.

Approach:

Several approaches will be considered in assisting the ESCOs. One type of approach would be to assist the ESCOs in funding the initial technical analysis work that they must do in developing potential energy efficiency projects. Since they must go to the prospective clients to ensure them of the benefits of implementing energy efficiency projects, they many times must fund the initial work on their own to demonstrate the value to the client. The ESCOs have limited funds, and it is this initial hurdle that must be overcome to allow more projects to be moved forward. Another approach could be to have a pool of projects, and then screen the projects to ensure that the prospective clients meet minimum banking requirements. This pool of projects could then be made available to the ESCOs, and they could contact the companies that they would be interested in working with.

Intended Outcomes:

The intended outcome of this task is to complete eight feasibility studies, which can then be promoted by the ESCOs to various lending institutions.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	30
US:	40

Milestone:

3F: Facilitate financial closure of project agreements for four ESCO projects (including commercial and residential sectors) using ECO loan funds

ECO Project Leader: Sanjeev Tamhane

Objectives:

This task is work with several ESCO projects and to facilitate their financial closure using ECO funds. This task will work to bring the ESCOs and the lending institutions together so that they can find ways to encourage the development and financing of ESCO projects.

Approach:

Potential ESCO projects will be identified, and these projects will be promoted to ESCOs using ESCO concepts such as performance contracting and shared savings. The ESCO will have the opportunity to bid on the projects, bringing in financing to work with the client in implementing the project. One such project is already underway. Work has progressed with New Delhi Municipal Council (NDMC) on an air conditioning up-grade project for their high rise office building at Palika Kendra in New Delhi. US based ESCO consultants reviewed the project concept with NDMC staff, and made numerous suggestions as to how to structure a tender document for bidding. NDMC staff then developed a draft document, which was again reviewed and comments made. NDMC staff has incorporated the suggested changes, and are in the process of bidding the work.

Intended Outcomes:

This task will facilitate financial closure of four ESCO projects using the ECO loan fund. The process of developing and promoting these projects should also demonstrate to the ESCOs how this can be done, thereby allowing other projects to follow.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	60
US:	65

Activity 4: Efficient Technology Promotion

Milestone:

4C: Submit detailed assessment on the entire market chain for at least 2 selected technologies

ECO Project Leader: Dr. Kapil Thukral

Objectives:

The market chain for two selected, energy intensive technologies will be analyzed to determine what barriers exist, and then to suggest possible remedies and strategies for alleviating the barriers.

Approach:

The study will build on the findings of work done under ECO milestone 4B, in which the markets were assessed for a relatively wide variety of EE consumer products. The 4C study will focus on two technologies, CFL's and EE motors. In each case, the participants in the market chain—manufacturers, vendors, consumers, and government agencies—will be interviewed with the objective of understanding the entire market chain in detail. The consultant team will identify and assess choke points in the market chain that impede the penetration of the EE products in the market. The choke point analysis will focus on issues including cost, quality, product performance, product positioning, distribution approach, product availability, promotion and marketing, consumer perceptions, after-sales service, warranties, etc. This analysis will assist in the definition of a suitable set of policies / strategies to overcome the choke points and other identified market barriers.

The work is expected to require the following steps:

- Prepare checklist of issues to be raised during interviews
- Select representative sample of key players to be interviewed
- Conduct interviews
- Compile and analyze findings
- Draft report

The work is expected to begin in June 2001, with interviews concentrated during July and August. A preliminary draft report, summarizing findings and recommendations, is scheduled for the end of September. This will permit the consultants to present the findings to market chain participants in the workshops on innovative marketing channels under Milestone 5C. Feedback from the workshop participants, and from subsequent interviews as required, will be incorporated into the final report which is due in December.

Intended Outcomes:

Once the entire market chain is understood, weak points or barriers can be identified, and remedies proposed to remove those barriers. The proposed market development strategies will be discussed with the selected key players (manufacturers through to end-users) and suitably revised taking in to account their inputs, insights and opinions.

Resource Requirements:

The number of subcontractor/consultant days is estimated at:

Indian:	90
US:	30

Milestone:

4D: Submit white paper identifying options and recommendations for efficient technology promotion program
Host 4 workshops on efficient technology promotion

ECO Project Leader: Dr. Kapil Thukral

Objectives:

The objective of the white paper is to support the Government, primarily the BEE, for the development of an efficient technology promotion program that could be implemented by an institution such as the BEE, or perhaps by a utility under a DSM program. Working with governmental agencies and other shareholders, the consultants will review the market barriers and opportunities described in the previous related milestones (e.g., milestone 4C), and develop a workable promotion approach considering institutional constraints and potential other programs that may operate in parallel. The report will be as detailed as possible in designing the promotion program including Govt. or utility sponsored incentive mechanisms for EE technology promotion, lessons learned from the 7B (Accelerated Depreciation) Workshops will also be integrated into this activity, identifying resource requirements, recommending pilot programs, approaches, partners, etc.

Four workshops will be held to disseminate information on the economic and financial benefits of using high-efficiency technologies. Life cycle costing will be presented as a tool to examine the real costs of equipment. Alternative strategies will also be examined which promote the adoption of EE technologies.

Approach:

The work will build on ECO milestones 4C and 5C, and provide a comprehensive framework for BEE (or another suitable agency that may be identified if necessary), for putting together an implementation program for EE product promotion. Inputs and data as may be necessary beyond that presented in the reports for 4C and 5C would first be defined in conjunction with the identified agency, which will be used as a basis for defining the scope of work under milestone 4D. Input shall also be obtained from manufacturers, vendors, end-users, etc. Discussions and interviews with selected players and opinion leaders is expected to be the principal method of obtaining the required information. The interviews will be supported by preparation of a standard list of questions, or interview form, to be followed by the interviewers.

The four workshops will be organized with the objective to consider ways to promote efficient technologies. Government policy makers, utilities, end users and equipment repair/replacement specialists will be among the principal groups to attend the workshops, and instruction will include life cycle costing principles to use in equipment procurement. The discussions would specifically be in the context of the selected technologies (CFL's and EE motors), but also refer to other EE technologies. In the particular case of motors, the program will address rewinding, efficiency loss upon rewinding, efficiency loss in EE motors vs. standard motors, etc.

It is expected that the four regional workshops will be used as a vehicle to discuss EE marketing issues with the key players (government policy makers, manufacturers etc) and stakeholders (industry managers, operators, those engaged in refurbishment of motors etc.). Their input will be valuable toward preparation of a framework for promoting the two EE technologies, and hence toward preparation of the white paper. Experience of technology promotion programs worldwide, like the Green Lights program in the US and China, the Motor Challenge Program, and the Green Building Program (Philippines) will be discussed at these workshops.

The training program is planned as four 2-day workshops in regional locations. The locations have been tentatively proposed as Bhopal, Chennai, Kolkata, and Pune. Each workshop will have a target audience of minimum 20 participants representing industry managers, Govt. policy makers, manufacturers, distributors, operators, those engaged in refurbishment/repair of motors, and others who have an interest in the EE product promotion. The workshops are scheduled for January 2002.

The overall schedule for Milestone 4D is integrated among the two task areas. Nexant plans to initiate discussions with BEE by September 2001 to define the objectives and requirements of a promotion program, and options that may be under consideration. Because BEE has not yet been authorized or formed as an organization at this writing, there is a possibility that an alternative organization will need to be selected as a partner in this activity, to allow the subsequent steps to proceed for timely completion of the milestone. Nexant will confer with USAID on this subject and obtain approval before proceeding.

The discussions and planning with BEE, or other organization, are expected to take place during the September and October time frame. This will allow completion of a responsive scope of work by late October and the start of work by consultants in December. This also coincides with the completion of the final report of the Market Chain Assessment under Milestone 4C, which is an important input to this activity. After completion of the workshops in January 2002, the consultants will prepare the white paper on recommendations and options for the promotion program, presenting a draft to USAID and the partner organization (BEE or other) by 28 February. A final report, incorporating review comments, is scheduled for completion by 31 March 2002.

Intended Outcomes:

A targeted promotion program will allow government agencies and officials to focus their attention on the most serious issues and barriers facing the marketing and sales of energy efficiency products and equipment. This will allow these agencies to work to remove the barriers, and to encourage or promote the use of energy efficiency products.

It is also recognized that the White Paper so developed should be sufficiently robust so as to be a guideline for further work under ECO milestone 4E.

Resource Requirements:

The number of subcontractor/consultant days is estimated at:

Indian:	75
US:	35

Milestone:

4E: Facilitate development and implementation of EE technology promotion program workplan (for at least 1 selected technology)

ECO Project Leader: Dr. Kapil Thukral

Objectives:

The objective is take the recommendations developed under Milestone 4D and develop a complete work plan for an EE technology promotion program, in cooperation with the implementing GOI organization, and then facilitate its implementation.

Approach:

Milestone 4E is not scheduled for completion until January 2003, but work shall begin before the end of the current planning year, as the related work under Milestone 4D is nearing completion or shortly thereafter. The approach to this task will be to work closely with the organization involved in 4D, providing technical assistance in the selection process for a technology (ies) to be promoted, definition of the program and resource requirements, buy-in of upper management as required, and development of the work plan itself.

The readiness of the organization to take on these activities will affect Nexant's timing in initiating the 4E activity. For example, if the organization (BEE or other) has a mandate established for technology promotion and is eager to start work even before the 4D white paper is complete, then Nexant's work under 4E will start early in 2002, potentially before the finalization of the 4D white paper which is scheduled for March. However, if the organization does not have such a mandate, and requires time to consider the recommendations of the 4D white paper, then Nexant's initial efforts will be to assist the organization to obtain management buy-in for the technology promotion concept, selection of a technology, and potentially to locate sources to assist in the resource requirements of a promotion program. In this case, ECO project staff will work with the organization beginning in April 2002, holding meetings aimed at developing support for the promotion program and defining the technical assistance that may be required to advance the program toward implementation.

Intended Outcomes:

During the planning year ending in May 2002, the expected outcome of this activity shall be at least to have worked with the selected organization to take ownership of the recommendations provided in the Milestone 4D white paper, and made a commitment to launch an EE technology promotion program with assistance from the ECO project. Then Nexant technical assistance can begin in earnest early in the planning year that begins in June 2002. If the organization shows initiative and has this commitment sooner, then the technical assistance could begin directly after completion of milestone 4D, in April or May 2002.

Resource Requirements:

All or the majority of the subcontractor/consultant days are expected to be expended after May 2002, unless the Indian organization decides to develop the technology promotion work plan sooner. ECO project staff will work with the organization toward preparing their readiness and toward initiating 4E, and this effort is not included in the manpower estimate below. The total number of subcontractor/consultant days for this milestone is estimated at:

Indian:	40
US:	20

Milestone:

4F: Assist in establishing Energy Information Clearinghouse (EIC) for end-use equipment

ECO Project Leader: Dr. Kapil Thukral

Milestone 4F is scheduled for completion in October 2003, nineteen months beyond the current planning year that ends in May 2002. However, the work required to develop the EIC is extensive and discussions will be initiated with potential host organizations, more than a year in advance of its scheduled completion. ECO project staff expects to begin the planning and scheduling of resources for this activity with the host institution, or to begin the selection process for an institution if it is not to be BEE, in April or May 2003.

Activity 5: Market Conditioning and Promotion

Milestone:

5C: Submit report on innovative marketing channels for distributing EE equipment

Conduct 2 workshops on innovative marketing

ECO Project Leader: Dr Kapil Thukral

Objectives:

The objective of this Milestone is to produce a report on the potential for distributing EE equipment in India through innovative marketing channels. Examples of innovative marketing channels include direct marketing programs, vendor leasing programs, bill discounting, combination leasing with higher value equipment, "green" marketing, and others.

The Milestone also includes two workshops in which ESCO's, vendors, advertisers, and manufacturers will be assembled for a cooperative roundtable session to determine strategies to increase customer awareness and to promote market-based energy conservation.

Approach:

There are synergies in the objectives of Milestones 4C and 5C, and an integrated approach has been planned for their completion, using the same consultant team. The work program for 5C is planned to begin by considering the draft findings of the 4C choke point analysis, then conduct the two workshops as round-tables that consider the 4C conclusions in a group context, then follow-up with one-on-one meetings with key players in further preparation for the report on innovative marketing channels.

At the round-table sessions/workshops, the findings of choke point analysis will be presented. This presentation will include an assessment of current EE product marketing programs as one choke point assessment area. Separately, the sessions will present examples of EE marketing initiatives used in other countries, as well as preliminary suggestions for options that may be effective in India to stimulate growth in EE product market share. The round-table settings will be designed to facilitate discussion on innovative EE marketing, gauging interest in specific marketing approaches and obtaining feedback from market stakeholders toward the design of innovative marketing innovations that may work in India.

The consultants will consolidate the feedback obtained in the roundtable sessions and prepare an initial framework for marketing innovations to be proposed for use and development in India. The consultants will then meet with key market stakeholders identified during the sessions, for further discussion of this framework. Thus, the work product for Milestone 5C will reflect the findings of Milestone 4C and a two-stage vetting, first of initial ideas and then a more refined framework for development of EE marketing channels. The resulting report

will provide important inputs building toward further market developments, particularly for Milestones 5E, 4D, and 4E.

A summary of the steps required is as follows:

- Conduct the workshops
- Compile issues discussed at the workshops
- Prepare broad framework using innovative marketing channels
- Conduct interviews
- Draft report

The timing of activities is planned to follow the schedule for Milestone 4C, to take best advantage of program synergies. The workshops will take place in September 2001, following the submission of the 4C draft report on the choke point analysis. The location for the two 1-day programs is expected to be Mumbai and Bangalore, and they will include a minimum of 20 participants representing vendors, end-users, manufacturers, advertisers, and distributors. Each workshop will focus on a specific technology (CFLs and EE Motors). After completing the workshops, the consultants will compile a summary of the discussions and prepare the draft framework for innovative marketing channels before the end of October. Interviews with the key market stakeholders will then be completed by mid-November, and a draft report submitted by the end of November.

Intended Outcomes:

The two deliverables are directly related. The workshops will enable a better appreciation of the type of marketing innovations (policy or market based interventions) that may be expected to be effective in India. The report will provide a framework for such innovations, incorporating the specific concerns of selected players who are expected to represent suppliers and their experience with consumers.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	60
US:	10

Milestone:

5D: Submit report assessing the market potential of control systems, IT and advanced energy audits in commercial and industrial facilities

Objectives:

The objective is to develop an understanding of the market potential for some specialized products that would have multiple benefits for value-oriented segments of the commercial and industrial sector. The products include control systems, IT solutions (e.g., process automation, supervisory control and distribution automation (SCADA) systems), and advanced energy audits. The products offer multiple benefits that encompass energy efficiency, productivity, and materials management. The market potential assessment may be used to develop subsequent programs aimed at promoting these products.

Approach:

The market potential study will assess the potential application of control systems, IT and advanced energy audits in commercial and industrial facilities, focusing on a number of such technologies to be selected early in the study. The study will estimate the number of such products that are currently in use against the number of facilities (i.e., existing market share), and project potential applications. Energy efficiency impacts will also be assessed on a very approximate basis. These technologies have application and economic considerations that are extremely site specific. Hence, the estimate of potential market penetration will be based upon anecdotal information or available survey data about existing applications of the technologies in India and their market share in other countries.

The consultants will consider the range of control systems and IT technologies, and propose at least 4 specific technologies to be assessed for market potential in addition to advanced energy audits. The selected technologies shall be selected for their range of application in industrial and commercial facilities, and expectation of high potential for growth and impact on energy efficiency. At least one of the technologies shall have potential in the commercial sector. Nexant and USAID shall approve the proposed technologies before the study proceeds.

The consultants will assess the market potential on the basis of secondary and limited primary research. For each selected technology, they will search for sources of existing data relevant to the market assessment, and identify industrial and commercial sectors that are considered to have market potential. They will focus on the industries that are expected to have the most potential, and perform a limited number of interviews among the high potential industries to assess awareness of the selected technologies, experience with their own applications, and consumer perceptions about benefits, relative costs, and market barriers to expanded market penetration. The consultant will prepare an interview guide, including questions and issues to be addressed, that will be included in the market assessment report.

In parallel, the consultants will interview selected vendors, manufacturers, or service professionals engaged in the technology applications to assess similar issues that affect market potential and experience in India.

The consultant will compile the results of interviews, secondary research of Indian sources, and data on international market penetration to assess market potential of the four technologies and advanced energy audits in India. The technology-specific assessments will include descriptions of the existing status of technology penetration, summarize experiences to date, provide approximate distributions of the potential by major industrial and commercial sector, and indicate the method of calculating the estimates and major assumptions. This will provide an implicit ranking of the target industries that will be useful for potential future activities of technology promotion. The potential will also be assessed for using software or related toolkits for performing advanced energy audits.

Milestone 5D must be completed by 30 June, 2002. Work is scheduled to begin in December 2001, and the proposed technologies shall be submitted for approval by 31 December. Approval shall be made by 15 January. The consultants will require one month to conduct secondary research and prepare a work plan for the ECO project staff, identifying the target industrial and commercial sectors and vendor companies for primary research. Interviews will begin at the end of February, and should be complete by the end of March. The consultants shall submit a draft report by 1 May, 2002. After a two-week period for comment by the ECO project staff and USAID, the final report shall be prepared and submitted by 15 June.

Intended outcomes:

A report that provides necessary information on the scope and potential for process automation, SCADA systems, advanced energy audits etc. in industrial and commercial enterprises in India.

Resource requirements:

Number of subcontractor/consultant days anticipated:

Indian:	60
US:	25

Activity 6: Non-sugar Cogeneration Market Promotion

Milestone:

6B: Conduct 2 regional workshops on cogeneration systems, including technical and financial topics

ECO Project Leader: Dr. Kapil Thukral

Objectives:

The objective of the workshops is to promote further adoption of cogeneration systems in non-sugar industries, covering technical, financial and interconnection issues. In particular, the workshops will address current Indian experience with non-sugar cogeneration and international experience, and will stress the benefits of using an integrated systems approach to project design to achieve enhanced energy benefits and project performance. The workshops will also present the results of the Milestone 6A report on cogeneration systems potential, disseminating these results to a variety of industrial sectors, associations and firms and to obtain their feedback.

Approach:

The two workshops will cover the essential issues of where cogeneration systems make economic sense (key technical and operational parameters to a positive assessment), an overview matching suitable system designs to application considerations, economic analysis and financial considerations considering equipment and fuel costs and financing sources. Furthermore, the workshops are intended to provide a forum for discussion and idea generation, so as to provide insights and direction for further work under Activity 6. This may include identification of candidate industry segments and specific industrial establishments, technical and financial criteria for selection of cogeneration projects to pursue further, whether or not cogeneration projects with grid-exportable surpluses make economic sense in the present Indian context, role for system integrators, etc.

The two 2-day workshops are scheduled for September 2001. Pune or Udaipur and Chennai, the latter is ECO's focus state of Rajasthan, have been nominated as workshop locations. Each workshop's minimum participation of 15 persons will be sought from among leading industries with cogeneration potential, industry associations, equipment suppliers, design engineers and consultants, ESCO's, lenders and financing companies, as well as utility representatives and policy makers at Central level. Two more workshops will be repeated in the 3rd year of the Project.

The consultants for the two workshops are in the process of being selected as of June 2001. The session structure is expected to be finalized by the end of July. After conducting the workshops in September, the draft report summarizing the activity is scheduled for 30 September and final report by 31 October.

Intended Outcomes:

Further dissemination of information and knowledge related to cogeneration systems is expected, and improved recognition of the role of system integrators in accelerating cogeneration investment.

Resource Requirements:

Indian subcontractors/consultants will be retained to perform these tasks. The number of subcontractor/consultant days anticipated is:

Indian:	15
US:	10

Milestone:

6C: Submit the draft technical and financial conditions for selecting a pilot cogeneration project
Facilitate preparation of 3 pre-feasibility cogeneration studies (including one in the ECO focus state)

Objectives:

Under the broad objective to develop a pilot cogeneration project, Milestone 6C includes tasks that bring three potential projects to the point that they may be evaluated as candidates for implementation as the pilot. The tasks build upon one another: first to establish project selection criteria, then to select three projects to undergo pre-feasibility studies, and then to facilitate (or perform) the completion of the pre-feasibility studies.

Approach:

As noted in the objective, the approach will proceed in three steps, beginning with the definition of selection criteria for the pilot cogeneration project. Technical and financial selection criteria will be developed in consultation with industry managers who have developed or considered development of cogeneration projects, lenders, consultants, and others. The criteria are expected to address the following broad issues:

- Bankability of the project, considering both project cash flows and financial strength of the developer or end user
- Use of technologies or processes that have not been used widely in India
- Replicability of the project

Second, Nexant will identify prospective cogeneration projects to consider as candidates for the pilot. The Milestone 1A report was the first ECO project effort to prepare a project pipeline, including cogeneration projects. This, the cogeneration workshops completed under Milestone 6B, and the Milestone 6A report on cogeneration potential, are sources for identifying prospective projects and companies or sectors where projects may be viable. The ECO project also makes an ongoing effort to track and develop cogeneration projects with its other EE project development efforts under activities 1, 2, and 3.

From the pool of prospective projects that are identified, three will be selected using the criteria established in the first step. Project selection will require visits and discussions with the candidate industrial enterprises to gather data against the selection criteria.

Third, Nexant will facilitate the completion of pre-feasibility studies at the three selected sites. Nexant will provide assistance as necessary if the facility manager plans to conduct or contract the study, or Nexant will perform the pre-feasibility study entirely under the ECO project. Sufficient resources have been budgeted for all three studies to be conducted by the ECO project.

The work on selection criteria is expected to begin in September 2001, initiated by meetings with industrial end users, equipment suppliers, and engineering consultants. This timing coincides with the cogeneration workshops under Milestone 6B, and the subcontractors are planned to be the same. The draft report on selection criteria is due in October.

The three pre-feasibility studies are not due to USAID until August 2002. However, work is ongoing to identify prospective cogeneration projects, and project identification is not expected to be a critical difficulty. Once the selection criteria are finalized, expected in November 2001, then project selection can begin. Pre-feasibility studies may begin as early as January 2002. The pre-feasibility studies will examine the technical nature of the projects to ensure that the projects are technically sound. The pre-feasibility studies will also examine on a cursory level the project economics, so that a decision can be made whether to proceed with the full feasibility study.

Intended outcome:

The two salient outcomes of this milestone are:

- Criteria are established to facilitate selection of a cogeneration pilot project selection, and which may also be disseminated to industry associations, financiers, ESCOs, etc. as a tool for preliminary project screening
- Three pre-feasibility reports on prospective cogeneration projects are completed, from which at least one project may be selected for further project development under Milestones 6E and 6F.

Resource Requirements:

The number of subcontractor/consultant days anticipated is:

Indian:	90
US:	10

POLICY COMPONENT:

Activity 7: Energy Efficiency Policy and Institutional Support

Milestone:

7B: Complete a strategy paper on the charter, compliance requirements and outreach needed to create a viable certification program
Conduct 2 workshops on financial training for accelerated depreciation
Submit draft training curriculum for certifying energy auditors

ECO Project Leader: Dr. Vijay Deshpande

Objectives:

The objectives of the work on the certification program and financial training are as follows:

- Strategy Paper and Curriculum: Milestone 7A took the initial steps in defining the broad contours of the energy auditor and energy manager certification program for India. The objective of this Milestone is to continue that effort by drafting a report on the compliance requirement to establish an implementation framework for maintaining a viable certification program. As part of this effort, a draft-training curriculum will be developed for certifying energy auditors.

- Workshops on 100 % Depreciation provision: For certain energy conservation devices, Indian tax regulations allow 100% depreciation of capital asset investments in the first year following installation. Devices eligible for 100% depreciation, however, have remained more or less the same since this incentive was started in 1983-84. Workshops will be held to review the equipment list specifying items that qualify for the accelerated depreciation, and to discuss the impact of this incentive and possible ways in which the potential for utilizing the accelerated depreciation benefit can be increased. Also discussed will be alternative policy-based incentives, which could be more effective than this mechanism.

Approach:

Strategy Paper and Curriculum. The previous work under Milestone 7A—the workshops on energy auditor certification and needs assessment for the creation and sustainability of a certification program—provide the insights leading directly to the tasks to prepare a strategy paper and develop a preliminary curriculum. The work will be accomplished mainly with the assistance of the same US sub-contractor who participated in 7A. He will visit India at least twice during the implementation phase of Milestone 7B. The consultant will follow the approach given below:

- Based on the discussions with Nexant staff and outcome of Milestone 7A, prepare outline (in the nature of semi-structured questionnaire) of the strategy paper and curriculum
- Visit India and discuss the outline with key stakeholders, such as Energy Management Center, industry associations and chambers of commerce, lead energy audit and
- Energy conservation service providers, institutions engaged in providing formal training in energy efficiency area, and ESCOs
- Canvass the outline (the semi-structured questionnaire) among other (non-key) stakeholders
- Consolidate responses from various stakeholders and prepare draft strategy paper and curriculum
- Visit India for the second time and discuss the draft with key stake-holders in an informal workshop setting
- Incorporate stakeholder comments and finalize the strategy paper and curriculum

The work on the certification program strategy paper will begin in June with the first visit to India of the US consultant, with the semi-structured questionnaire / outline in hand. After conducting the interviews with stakeholders, the responses will be consolidated and the draft strategy paper and curriculum will be prepared in the US. Some further inputs are expected from ECO project staff during this period, including follow-ups on the initial interviews with stakeholders. The second trip is scheduled for the first half of September. During this time, the consultant will review the draft products with key stakeholders. The final product will be submitted to the ECO project and USAID by the end of October 2001.

Workshops on 100% Accelerated Depreciation. The format for the workshops on accelerated depreciation has been modified to effect a wider dissemination of the material, and recognizing that the concept of the accelerated depreciation is well understood and does not require instruction, but requires policy-related thinking to expand its application in the EE product context. Instead of two workshops of two days duration each, four one-day workshops will be held at different locations throughout the country. This will provide for a more uniform level of input, as well as allow for a greater number of individuals to provide input. The workshops will be highly interactive events and will be conducted in the nature of brainstorming and discussion sessions. A Lead paper on the status and use of this income tax/fiscal incentive and a set of issues listed below will form the basis of workshops discussions. The issues are:

- Should the accelerated depreciation incentive for energy efficient products be continued?
- Is this incentive the primary driving factor for undertaking energy efficiency (EE) projects? Or is it true that the basic decision to undertake EE projects is based on other considerations and the fact that this incentive is available further helps in deciding in favor of EE projects, i.e. this incentive figures at the secondary or tertiary level in the decision making process
- What should be the rationale for including or excluding devices from the list that is eligible for getting 100% depreciation?

- Given the rationale, what modifications (additions – especially devices used in other than the industrial sector, deletions, changes in specifications, etc.), if any, are required in the current list? Why are these modifications required?
- Is a similar incentive required for projects? If yes, what mechanisms can be used for extending the 100% depreciation facility to projects? Procedures for claiming, procedures for verification, limitations, exemptions, etc.

The workshops will be held in September 2001, at locations that have been identified tentatively as Delhi, Chennai, Mumbai and Kolkata. The work is being initiated by an Indian subcontractor in June. Target participants are end-users who use the accelerated depreciation provision regularly, policy makers (e.g., Ministry of Power, Energy Management Center), members of the financial community, energy efficiency contractors, and energy service companies. A report on the outcome of the workshops will be prepared and submitted as draft in September.

Intended Outcomes:

A draft training curriculum and certification program will be developed in this Milestone. Issues such as testing, and annual renewal of the certification will be determined.

The outcome of workshops on 100% accelerated depreciation will be a report providing recommendations on how the existing provision of accelerated depreciation can be better and more efficiently integrated with other market-based energy efficiency improvement strategies, to enhance its overall impact.

Resource Requirements:

The number of subcontractor/consultant days anticipated is:

Indian:	60
US:	50

Milestone:

7C: Conduct 2 training courses on industry-specific EE guidelines to industry owners and managers
Present 2 courses on rational tariff design
Conduct a workshop on international case studies on restructuring an EE agency

ECO Project Leader: Dr. Vijay Deshpande

Objectives:

The objectives of this Milestone are three-fold:

- Present energy efficiency methods and solutions to industry associations

- Review existing electrical tariffs and propose a rational tariff design for both consumers and utilities
- Review international case studies and present in a workshop examples of how governmental agencies in other countries have restructured.

Approach:

Workshops on EE Methods for Industry Association:. The two courses on energy efficiency methods and solutions will be addressed to industrial associations, owners and managers. The idea will be to provide to them packaged ideas for implementing energy efficiency in specific industrial sectors, in terms of a 'game plan' for specific industries.

The two training programs will be targeted at two different industries. These training events will be three-day events. The first two days will focus on the technical aspects of energy efficiency. Day one will be devoted to process related energy efficiency measures, and day two will be devoted to utility-related energy efficiency measures (boilers, HVAC, lighting, compressed air, power generation, pumps, fans blowers, electrical motors/systems, etc.). Day three will be devoted to implementation of energy efficiency, with the focus on financing and performance contracting methods of delivering energy efficiency.

The target industry groups will be small- and medium-scale industries located in clusters. Clusters that are being considered include solvent extraction units situated near Indore, textile units situated in and around Tiruppur, chemical and paper units situated in and around the Vapi-Ankaleshwar industrial belt, foundry units around Agra, and textile units near Ludhiana. The seasonality of production and the schedule requirements of this milestone present some constraints for cluster selection. Generally, these smaller-sized industry groups are unable to make available the most suitable participants for training during their high production period. The ECO staff will take this into account in planning the training programs, which are tentatively scheduled for December 2001.

Rational Tariff Design. Personnel from many of the newly formed SERCs have been, and are being, provided training in rational tariff design. Coverage of such training has ranged from exposing the SERC/CERC personnel to the role of electricity pricing in general (including criteria for energy pricing—equity, efficiency, producer viability, environment sustainability, statutory requirements), to training that has concentrated on cost of service method of setting retail tariffs (including the theoretical economic optimization of tariffs, utility financial and accounting considerations, and the process of rate making in a regulatory setting).

Given this status, and considering that the training course on rational tariff design under the ECO project is to be a two-day event, the course is planned as an exposure/awareness event. Participants will learn how rates and prices are being used and have been used to foster energy efficiency at end-use points, with the emphasis on case study discussions. The course will cover the following topic areas:

- Price-elasticity of electricity demand in India for various rate categories or sectors
- Overview of Indian experience in TOU and slab system of tariffs. Case studies will include the experience of state utilities from Maharashtra, Tamil Nadu, Gujarat, and

West Bengal. The case studies will address the rationale, if any, used to fix rates and slabs, and other elements of tariff design, and discuss the rationales that need to be used.

- Overview of examples/case studies of actual innovative rates and pricing options offered by US utilities. This overview will include tariffs (in residential, commercial, industrial and agricultural sectors) designed to modify load curves (peak clipping, load shifting, valley filling), encourage energy saving/conservation, and foster efficient end-use technologies. The overview will include description of tariffs, objectives, sector application issues, experience in terms of effectiveness and impacts, and requirements for implementation (research, data, instrumentation, etc.)

Identical courses on rational tariff design will be offered at two different locations. The likely locations are Bangalore and Jaipur. The courses are tentatively scheduled for January 2002. A draft report on the outcomes of the workshop is scheduled for submission in February. This activity will be closely coordinated with Activities 10 and 11.

Workshop On International Case Studies Of Restructuring An EE Agency. The workshop, extending over two days, is planned to be conducted in New Delhi in the month of February 2002. Instructors will include both Indian and US consultants. Organizations such as NPC, PCRA, State energy development agencies, EMC-Kerala, will be targeted as prospective participants. Several countries have gone through privatization or restructuring, where governmental agencies must privatize in order to exist. International case studies will be examined and presented, so that the audience can understand the issues involved and how to potentially deal with them.

Intended Outcomes:

The intended outcome for the industry-specific guidelines training course is to develop and present focused ideas on implementing energy efficiency projects within specific industrial sectors. Industrial sectors vary as to how much energy they use, how and when they use it. This program will provide targeted priority lists for industrial sectors, to allow them to focus their efforts in the proper areas.

The rational tariff design will provide general information to, utilities and regulatory commissions as to how electrical tariffs can be structured to foster its efficient utilization. It will also expose the utility and regulatory commission personnel to innovative tariff designs used US utilities to provide incentive to the consumers for adopting energy efficiency measures.

Existing quasi-governmental bodies such as NPC will eventually face decreasing government support, as these agencies are forced into the private sector. Case studies of how this has been done in other countries should be beneficial for these agencies in making their long-range plans. The workshop on EE agency restructuring is expected to give them perspective on how to improve their organization and performance toward objectives, considering what types of functions may be more effectively out-sourced to the private sector, linkages with

NGOs, what functions are most appropriate to remain within the public sector and how they may be organized to better advantage.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	70
US:	45

Milestone:

7D: Complete an impact assessment on the use of multiple electric meters in commercial establishments and their impact on the utility's rate base

ECO Project Leader: Dr. Vijay Deshpande

Objectives:

A study will be undertaken to determine what impact, if any, multiple electric meters can have on commercial establishments in conserving energy. Currently few establishments are sub-metered, so that most users do not know how much energy they are really consuming, nor the specific costs of the energy. If sub-meters were more available and utilized, the consumers could directly see the correlation between the consumption and the cost of using energy. The costs of the sub-metering will also be examined, so that the utilities can see if sub-metering would be beneficial to them.

Approach:

A few sub-metering projects have been undertaken, and the results of those projects will be reviewed to determine what the impact has been due to the sub-metering. Differences between these projects will also be reviewed, to determine what types of programs have been the most successful. Examples in other developing countries will be researched, and these may also be useful in illustrating benefits that can be achieved through the use of meters.

Intended Outcomes:

A basic premise in the US is to measure what you consume, and to pay for the product accordingly. In many developing countries, electricity has not been sold in that manner. Or the use of meters has been minimal, and so many consumers do not see the relationship between consumption and cost. When the consumer does see this relationship, they are more apt to take steps to conserve. This can have a tremendous impact on the consumption of electricity, simply by making the consumer more aware of their usage and therefore the cost of the consumption.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	45
US:	0

Activity 8: Energy Efficiency Standards and Labeling for Consumer Appliances

Milestone:

8A: Working with BEE, develop a comprehensive EE standards improvement plan for at least 2 appliances
Conduct 2 workshops on consumer appliance efficiency standards

ECO Project Leader: Dr. Vijay Deshpande

Objectives:

The objective of this Milestone is to work with both BIS and BEE (once it's formed) or the latter's alternative (approved by MOP & USAID) to establish a market-based approach toward developing an energy efficiency standards improvement strategy. The standards workshops will provide an overview of how market, economic and technical aspects can be integrated to establish optimal energy standards for appliances.

Approach:

Workshops on Consumer Appliance Efficiency Standards. Two identical workshops are tentatively scheduled to be held in Delhi and Mumbai in November/December 2001. The one-day workshops are planned as awareness creation events. The target participants include representatives of BEE, EMC, BIS, and specifically the members of sectional, technical and national standard-setting committees of the BIS for geysers, air-conditioners and refrigerators. The instructor team, including both Indian and US consultants, will present the principal methods of setting EE standards: statistical, engineering-economic analysis, and other methods that have less resource-intensive data and analytical requirements.

EE Standards Improvement Plan. ECO project staff and consultants will work jointly with BIS and BEE (or other agency designated by Ministry of Power) to win their support and acceptance of their roles in an EE Standards Improvement Plan. The plan itself will build upon the related work in standards development under previous USAID projects such as EMCAT. Once the two governmental bodies have signed on to the task, a road map, including strategy and timetable, for establishing energy performance standards based on engineering–economic, statistical or other appropriate methods will be prepared and presented to BEE.

The initial work to obtain cooperation from BIS and BEE will begin in the October-November time frame, partly in anticipation of the workshops described above. Discussions related to planning the workshops are expected to provide a basis for developing the relationships with BIS and BEE required to move forward with the more difficult tasks of making commitments on establishing the standards improvement plan. During this time, the project team of US and Indian consultants will compile background materials on existing Indian standards, prior work on EE standards/labeling development in India, and materials on the experience in selected other countries. The team will review this material for applications to the Indian situation and discussion with the BIS and BEE.

The US consultant is expected to make two trips to India for this milestone: one associated with the workshops and then a second trip to develop the standards improvement plan. The Indian subcontractor will do much of the groundwork with the BIS and BEE to allow the strategic use of the US consultant's more limited time. During the timing of the workshops (November/December), Indian consultants and US will also conduct meetings with the BIS and BEE to develop the initial framework for the EE standards improvement plan. Subsequently, the US consultant will prepare a preliminary draft of the EE standards improvement plan. The preliminary draft plan will be submitted to USAID, MOP, BIS, and BEE for review in February 2002. The US consultant will schedule the second trip for late February or March to work with BIS and BEE to develop the plan further to a final version that delineates organizational roles to which BIS and BEE agree to commit their support. The final plan is scheduled for submission to USAID in April 2002.

Intended Outcomes:

The workshops will raise awareness about the established methods and experience with EE standards setting among key groups within the BIS and BEE as well as among outsiders who may be trade allies in standards development.

The EE Standards Improvement Plan will establish a road map with the specific steps required to develop EE standards and agreed upon Protocol among the key GOI organizations (such as BEE and BIS) for their respective roles in implementation. The Plan will include recommendations for institutional set-up and processes for collaboration with specific industries and industrial associations toward the development of EE standards that are both realistic and achievable, for at least two consumer appliances.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	70
US:	50

Milestone:

8B: Conduct two training courses on energy efficiency labeling and standards
Assist BIS in drafting the implementing regulations for appliance labeling for at least 2 appliances

ECO Project Leader: Dr. Vijay Deshpande

Objectives:

The objective of this Milestone is to work with both BIS and BEE (once it's formed) or the latter's alternative (approved by MOP & USAID) to develop the expertise necessary for those agencies to implement a labeling and standards program.

Approach:

Courses on Energy Efficiency Labeling and Standards. Two identical courses are tentatively scheduled to be held in April 2002. The two-day courses are planned to inform government agency officials of how similar programs have operated in other countries. Regulations, enforcement needs, and awareness programs will be presented to allow complete exposure to these types of programs. The second of the two programs will focus more on state and local officials, as they will be involved with the implementation of these programs.

Draft the implementing regulations for appliance labeling. This work will focus on working with BIS officials in selecting two appliances to work with. Once the appliances are selected, separate committees of manufacturers will be formed, so that the manufacturers and BIS officials can work together to formulate realistic goals for the program. Data from all domestic manufacturers, as well as from all imported appliances within the selected equipment, will be gathered. The data will be analyzed and reviewed, so that energy comparisons can be made. This data will be used to determine the existing conditions, what level of energy intensity and energy efficiency, the current equipment has achieved. International data will also be sought, to help establish or determine what level of energy efficiency can be achieved.

Work on this milestone is expected to begin soon, so that the target completion date of August 31, 2002 can be achieved.

Intended Outcomes:

There are two main goals for this Milestone. The first is to develop expertise with BIS to allow their staff to undertake and implement a standards and labeling program. The second goal is to select two appliances, and then initiate work with manufacturers to plan and develop a course of action to implement a standards and labeling program.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	80
US:	0

Activity 9: Energy Efficiency Improvement in Government Facilities and Private Buildings

Milestone:

9B: Conduct 2 training courses for government staff on procurement using life cycle costs
Develop a procedure for government agencies to authorize performance contracts with ESCOS on EE projects
Train government officials on EE performance contracting

ECO Project Leader: Dr. Vijay Deshpande

Objectives:

This Milestone is intended to focus on Central government and its agencies. It is intended to help reform government procurement practices, so that energy efficiency is considered in the procurement process. The main goal is to introduce life cycle costing into the procurement practices of Central government and its agencies, establishing overall net present value as the appropriate cost-based standard for selection of the equipment that they procure. Secondarily, the local government officials will be exposed to performance contracting and how it can benefit their organizations.

Approach:

The three components of Milestone 9B are mutually supportive and continue to lay the foundation for improving energy efficiency in government buildings, with the emphasis on procurement of energy-using products during this phase of the project. The two training programs are designed to develop awareness of EE benefits and understanding of proven approaches to government procurement that deliver superior benefits to current practices. Both training programs are scheduled to occur in October/November 2001. During this period, the consultants will also meet with government agencies and procurement-related authorities (such as DGS&D) to gain feedback on approaches to authorize performance contracting within existing procurement guidelines or strategies to modify guidelines to allow performance contracting.

Training Course on Lifecycle Costing. Two identical courses of one-day duration are tentatively scheduled for late October/early November 2001, in New Delhi and Kolkata. The training courses will present the concept and application of lifecycle costing to government procurement, using case studies and classroom problems to be worked by participants.

This course builds upon Milestone 9A, in which products currently procured by government, were examined for application of lifecycle costing. This work also led to consideration of alternative approaches to delivery of the lifecycle costing courses. Two possible approaches are being explored and examined. One approach would target a single organization and orient the program to address its specific requirements, providing tailored assistance toward changing procurement policy in that organization. Potential targets include a key government agency /Ministry or a body like CPWD, Railways, or DGS&D. The alternative approach would design the course for broader organizational application and invite participants from a variety of central government agencies, undertakings, and ministries. The practicality of both approaches is under examination. The selected approach may alter the selection of course locations, for example if specific organizations are targeted.

Course on Performance Contracting: The approach to this course is directly parallel that described above. Two identical courses of one-day duration are tentatively scheduled for late October/early November 2001, also in New Delhi and Kolkata. The training courses will present the concept and application of performance contracting to government procurement, using case studies drawn from US (e.g., FEMP program) and other international experience, with hypothetical applications to the Indian context and examples from Indian ESCO projects in industry.

Similar alternative approaches are being considered as for the course on lifecycle costing. In the first approach, there are several agencies that appear promising as single organization targets. They include CPWD, Railways, CSIR (having more than 100 research institutions under its administrative control), and Ministry of Power with the organizations under its control (CEA, NTPC, NHPC, CPRI, etc.). The second approach would be designed for a broad governmental audience.

Procedure for Government Agencies to Authorize Performance Contracts with ESCOs for EE Projects: Working with Ministry of Power and/or BEE, the consulting team will conduct an assessment that explores barriers and mechanisms for government procurement using performance contracts, ultimately recommending a procedure or mechanism for such procurement. The principal sources of information and feedback for the Indian/US consulting team will be government procurement officials, Nexant experience with government use of performance contracting in the US and developing countries, and other sources of international experience. Experience of DOE's FEMP Program and the Federal Procurement Program in United Kingdom will be incorporated. The consulting team will prepare a report that identifies the nature and causes of barriers (procedural, legal, etc.) to the introduction of performance contracting in central government agencies, bodies (registered Societies, under Societies Registration Act of 1861), departments, and ministries. The report will also explore mechanisms and lay out a strategy designed to overcome the identified barriers within existing governmental rules and procedures, and will offer potential alternative approaches on the basis of international experience. The report will provide a programmatic framework for performance contracting those government agencies may follow. An attempt will be made, with the help of Ministry of Power and BEE, to introduce the report within the governmental review system (Committee of Secretaries).

The background research for this work will take place during the preparation for the training programs described previously. The consulting team will prepare draft mechanisms (designed to address identified barriers) to prompt discussion with government procurement officers and others such as legal or contracting advisors, ESCOs, and consultants. These discussions will occur during the same time period as the courses, in October and November 2001. In the following months, the report will be prepared, with additional inputs obtained as required from the Indian subcontractor. The draft report will be submitted by the end of February 2002. An extensive review is anticipated, including further comment from government procurement experts. The final report will be submitted to USAID in early April 2002.

Intended Outcomes:

Local governments will be influenced by the results of this task, and they will be able to utilize the life cycle cost methodology in evaluating equipment prior to purchase. If the life cycle costing methodology reveals a significant cost impact and benefit would occur if high efficiency equipment were purchased, the local government agency will be encouraged to modify their procedures to incorporate this practice. Integrating this policy into the local government procurement practice can easily be replicated in other states, and can therefore have a significant impact on energy usage.

Performance contracting can also become a standard practice within governmental bodies, if their rules allow this. The procedure development task is intended to provide an avenue for the use of performance contracting even where where current procurement rules appear to prohibit this innovation, through legal, innovative interpretation of rules or by changing the rules.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	65
US:	35

Milestone:

9C: Develop a national EE program for hospitals, municipalities and local governments in coordination with BEE
Provide two workshops on performance contracting
Conduct 3 courses on incorporating energy efficiency procurement

ECO Project Leader: Dr. Vijay Deshpande

Objectives:

This Milestone is intended to focus on local governments and their agencies. It is intended to help institute performance contracts and ESCOs into the bidding and competitive process, so that these governments can avail themselves of the services by the ESCOs. Standard performance contracts that could be utilized by the government agencies will be developed.

Approach:

The three tasks in this Milestone will build upon the work undertaken in Milestone 9B. This will continue the work on performance contracts, and help to disseminate this information to numerous government officials throughout the country. A national program to utilize performance contracts will be developed through interaction with BEE staff. We will work closely with BEE to determine how local government agencies can best utilize performance contracting procedures to implement energy efficiency projects.

Intended Outcomes:

Procedures that will allow performance contracting to become a standard practice within governmental bodies is the main objective. At the same time, the courses and workshops that will be held will focus on presenting these procedures to the various government bodies and staff. The national program will work to allow performance contracting to take place within these organizations, and the training will give the staffs of these organizations the insight and knowledge to be able to effectively utilize the strategies.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	100
US:	80

Activity 10: Energy Efficiency Through Regulatory Reform and Restructuring

Milestone:

10C: Conduct a U.S. study tour for utility staff on the access to the regulatory process

ECO Project Leader: Anita Kochhar

This study tour was completed in May 2001 and the draft report is in the process of being finalized.

Milestone:

10D: Conduct training on international experience in power sector regulation and restructuring
Conduct training on IRP and DSM through regulation

ECO Project Leader: Anita Kochhar

Objectives:

The objective is to provide international experience and insight into power sector restructuring for senior officials of utilities and regulatory agencies. This will be an executive seminar for senior officials to learn how other countries have dealt with restructuring issues. International speakers having specific experience in restructuring of the power sectors in developing countries will be sought. This insight should be beneficial as India's power sector goes through the restructuring process. It was agreed that the program title would be revised to "International Experience in Performance Based Restructuring and Regulation to Enhance Energy Efficiency".

The IRP/DSM training program will improve decision making both from a utility perspective and from a regulatory commission perspective. This information will allow the utilities and regulatory commissions to more fully understand all of the resources available, how they interrelate, and their respective priorities.

Approach:

Both of these training programs will include international consultants who will present case studies from other developing countries. It is hoped that these case studies will demonstrate how other utilities have restructured, and what the challenges and difficulties were. These examples should benefit India's utilities so that they can avoid similar problems.

Course on Regulation and Restructuring. The training program in regulation and restructuring builds upon the earlier US study tour about the regulatory process conducted under Milestone 10C, and upon programs conducted in India on the subject of consumer access to the regulatory process under Milestone 10B. The two-day course is scheduled for September 2001 in Delhi, and will focus on policy aspects. Examples of restructuring and regulation within India will be presented.

Courses on IRP/DSM. The training program on integrated resource planning (IRP) and demand side management (DSM) includes two identical courses, each of one-week duration. The focus will be on utility strategic investment planning. The course instructors will be US experts with extensive international experience. Each course will include instruction in IRP/ DSM methods as they relate to planning and management of energy efficiency programs, loss reduction, RFP preparation, power purchase contract negotiations, overall cost reduction, system reliability, transparency and support of filings to a regulatory commission. The courses will include case study examples from international experience as well as experience from Indian programs, such as the ECO-sponsored DSM activities underway in Jaipur and other non-ECO activities. The two courses are scheduled for Jaipur (in Nov) and Bangalore (in Dec) 2001.

Intended Outcomes:

Each training program is aimed to inform utility management of the changes that lie before them, and how they can best handle and prepare for these changes. The restructuring task is very costly, and can be overwhelming. Hearing from other examples, both foreign and Indian, will help others who have yet to follow.

Resource Requirements:

The following numbers of subcontractor/consultant days are anticipated:

Indian:	8
US:	47

Milestone:

10E: Study tour to visit utilities and regulatory commissions on IRP and DSM topics

ECO Project Leader: Anita Kochhar

Objectives:

To provide additional, extensive training to members of Indian utilities and regulatory commissions who have already been trained in IRP/DSM, that they may be in a better position to direct the development of IRP/DSM practices in their own organizations.

Approach:

The study tour is organized for eight graduates of the IRP/DSM courses given under Milestone 10D. The participants will visit US utilities and regulatory commissions, to develop their understanding of IRP in practice and to the public planning process. Participants will be exposed to a variety of approaches to DSM planning and implementation, through meetings and presentations on utility-sponsored programs, collaborative process arrangements that involve utility planners directly with consumer groups and regulators, programs that involve outsourcing to the private sector (such as ESCOs), and the recent experience with state-level programs funded through tariff surcharges.

The study tour is being planned for April 2002, although it is not due until August, to enhance continuity with the 10D course on IRP/DSM, which is scheduled for November 2001. The selection criteria will be developed several months prior to the study tour, and the participants will be selected largely based on their participant in other ECO training events and activities.

Intended Outcomes:

Participants will have the opportunity to observe and discuss the pros and cons of IRP and DSM concepts as they have evolved and are practiced in the US, toward evaluating their relevance for implementation in India.

Resource Requirements:

The following numbers of subcontractor/consultant days are anticipated:

Indian: 10
US: 56

Activity 11: Electric Utility DSM/Energy Efficiency Capacity Building

Milestone:

11 C: Conduct 2 regional training programs on the role of EE
Assist in the design and implementation of a Load Research Program
Provide the necessary training and conduct 2 workshops on application of Load Research to other utility functions

ECO Project leader: V.M. Thakor

Objectives:

The load research tasks are aimed at developing the knowledge of the utility DSM Cell, so that they can begin DSM tasks and assignments. Load research is the process of analyzing who is using electricity, and when they use it. This process is critical in being able to plan improvements in the consumption patterns.

The role of energy efficiency is intended to demonstrate the function of energy efficiency in the IRP process. As the utilities resources are analyzed, energy efficiency is one of the most economical choices that can be made. Thoroughly understanding this allows the utility to properly plan their programs and to budget their resources.

Approach:

Having selected Rajasthan as the ECO focus state under Milestone 11A, a DSM Cell was established in JDISCOM in January 2001 under Milestone 11B. The management of JDISCOM inducted officials and staff in the DSM Cell and basic infrastructure facilities were gradually provided. Initial training to the officials of the Cell was provided by US and Indian consultants on DSM activities as well as Cell Organization and Management. Training was provided to other SEBs/Utilities in northern and southern states in workshops held in Jaipur and Bangalore in January 2001. These activities established the basis for the subsequent work under Milestone 11C.

Load Research Activities. A US consultant, in partnership with an Indian counterpart, initiated the load research activities by meeting with the DSM cell at Jaipur DISCOM in March 2001 and developing a pilot load research project and program of activities. One of the objectives of the first tasks of this program was to develop the experience of the DSM cell and to have initial load research results to report in the load research workshops. The two 2-day workshops were held at the end of May and early June in Bangalore and Jaipur, respectively. The reports on the training programs and status of load research program in Jaipur DISCOM are scheduled for submission by the end of June 2001.

Courses on the Role of EE. The training programs on the role of energy efficiency in IRP will use case histories to demonstrate the value of conservation/efficiency programs. Two identical courses of one-week duration are scheduled for July 2001 in Hyderabad and Mumbai. Both locations have relevant host institutions: ASCI in Hyderabad and BSES in Mumbai.

The courses will be conducted by US and Indian consultants, and will cover the following topics: relationship between electricity generation and economic growth, institutional perspectives on implementation of EE policies, strategies and options for EE implementation in public and private sectors, institutional requirements to support and promote ESCO operations, electricity pricing, regulatory roles in EE, DSM program planning and IRP, DSM program evaluation and process analysis. Program participants are expected to include senior-level executives from the distribution side of unbundled SEBs, DISCOMs, regulatory commissions, ESCOs, and others.

Intended outcome:

Load Research will provide the DSM cell for the Jaipur DISCOM to obtain reliable knowledge of load profiles and behavior of its system as well as consumers' end-use, which can be utilized in planning, designing and implementing EE improvement programs for the benefit of both the system and the consumers. The training programs will also raise awareness of other utilities and regulatory commissions in the value of conducting load research programs, and develop their abilities to do so.

The awareness and the knowledge of EE and DSM will enable the SEBs/Utilities in planning, designing and implementing EE measures in bringing about the intended improvements, to which the other stakeholders will provide necessary assistance/support.

Resource requirements:

The following numbers of US and Indian Consultant/sub-contractor days are anticipated (including expenditures during the 2000/2001 plan year):

Indian:	70
US:	100

Milestone:

11 D: Study tour to introduce participants to successful utility-driven energy efficiency programs.

ECO Project leader: V.M. Thakor

Objectives:

The objectives of the study tour are to continue to expose utility and regulatory staff to understand how energy efficiency programs help the utility. Energy efficiency and DSM programs have been implemented by many years within the US, and these programs have helped US utilities in delaying the construction of generations plants by making the consumers more efficient, and therefore the existing capacity is able to reach more consumers.

Approach:

Utility and regulatory commission staff will be selected to participate in the study tour based on selection criteria that will be established. One of the main criterions will be to identify those individuals who are most apt to be able to apply what they have learned and observed, so that the training is not wasted. Participants in related ECO training programs will be observed to identify those individuals who participate the most, and demonstrate the greatest interest in the topics.

Utilities and regulatory commissions within the US that have the most effective energy efficiency programs will be identified and scheduled to participate in the study tour. These organizations will be asked to discuss how they identify and implement energy efficiency / DSM programs. They will also be asked how they evaluate these programs, and what types of success they have had in implementing these programs. The evaluation results of their programs will be a very important aspect of the study tour, and the Indian participants will be able to learn a lot from these interactions with US organizations.

Intended outcome:

Ten Indian utility and regulatory staff members will participate in the study tour. They will have an opportunity to discuss utility energy efficiency concepts and ideas with organizations that have already undertaken many of the same programs. This will allow the participants to get an uniformed idea of the types of programs that might be effective within their organizations. Therefore the main outcome of the study tour will be information transfer to the Indian participants of successful energy efficiency programs.

Resource requirements:

The following numbers of US and Indian Consultant/sub-contractor days are anticipated (including expenditures during the 2000/2001 plan year):

Indian:	10
US:	42

Activity 12: Development of State Energy Efficiency Financing Schemes

Milestone:

12A Selection of the financial institution in the focus state

ECO Project Leader: Sanjeev Tamhane

Objectives:

The ECO focus state, Rajasthan, will be the center of much of the technical assistance provided by the ECO project. Projects that are identified may require financing, making it imperative that a local lending institution be identified. This Milestone will work with local lending institutions to identify an institution that will promote energy efficiency programs.

Approach:

Local and regional lending institutions with operations in Rajasthan will be contacted to learn their interests in financing of energy efficiency/DSM projects. Selection criteria and a list of candidate lending institutions were developed with ECO partner ICICI in April and May 2001. The selection criteria include the following:

- Interest level
- Financial and operating record
- ECO compatibility (willingness to be innovative and cooperative with ECO project objectives)
- Reasonable compensation requirements for EE financing sustainability

Selection criteria will be discussed with USAID and meetings with the candidate lending institutions will take place in June and July. The institutions will be evaluated against the selection criteria, and a recommendation will be made in August 2001, including a report on the selection process. The selection is expected to be finalized with approval from USAID by September.

Intended Outcomes:

This Milestone will result in the selection of a lending institution in Rajasthan as the primary facility for energy efficiency financing and cooperation in the subsequent tasks under Activity 12.

Resource Requirements:

The estimated number of subcontractor/consultant days anticipated:

Indian:	20
US:	20

Milestone:

12B: Develop screening and assessment procedures for the selected financial institutions

ECO Project Leader: Sanjeev Tamhane

Objectives:

The selected financial institution will be expected to promote energy efficiency programs, and to especially consider funding for DSM projects developed by the JDISCOM DSM Cell. Therefore the procedures to screen potential energy efficiency projects, and to assess the financial and technical risk of each will be developed for the selected financial institution.

Approach:

Results of similar tasks developed in other Activities will be utilized to evolve the procedures. This will include using the spreadsheet developed in Milestone 1C to analyze the potential projects, and the project screening procedures developed and presented in the Milestone 1C training courses. Modifications to procedures will be prepared as necessary due to differences in the risk patterns of industrial EE projects compared to the expected non-industrial focus of EE projects in Rajasthan and under the Jaipur DISCOM program.

The work on project screening procedures is expected to be initiated in November and completed in December. A draft report is scheduled for submission by the end of December 2001.

Intended Outcomes:

This Milestone will result in procedures to screen and assess the projects for the selected financial institution in the focus state.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	20
US:	10

Milestone:

12C: Prepare draft eligibility criteria for different types of SEEF projects

ECO Project Leader: Sanjeev Tamhane

Objectives:

Each financial institution has its own objectives and goals. ECO staff and consultants will work with the selected financial institution in Rajasthan to develop eligibility criteria for EE projects that are consistent with its goals and objectives. This will assist the staff of the financial institution in marketing the program to their customers.

Approach:

The eligibility criteria will be developed based on the types of projects that are expected in Rajasthan, on the basis of both the programs being developed by the DSM cell at Jaipur DISCOM and the customers and objectives of the selected financial institution. The utility staff and lending institution staff will work as a team in drafting the eligibility criteria, so that the interests of both entities are considered. Criteria that have already been developed for ICICI to govern the application of the ECO Loan Fund, and these will provide an initial basis for developing those appropriate in Rajasthan.

This activity is expected to be conducted following completion and acceptance of the results of Milestone 12B by the financial institution. Initial inputs from the financial institution and Jaipur DISCOM will be obtained during visits scheduled for November/December. Draft criteria will be developed and presented to the financial institution and DSM cell of Jaipur DISCOM in February 2002. The report presenting the criteria is expected to be submitted in March.

Intended Outcomes:

The outcome of this Milestone will be a set of eligibility criteria that the lending institution and the utility can utilize in promoting their energy efficiency/conservation programs.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	10
US:	10

Milestone:

12D: Design an EE financing scheme with the financial institution for statewide purposes

ECO Project Leader: Sanjeev Tamhane

Objectives:

A workable financing approach is necessary to support the statewide EE and DSM development efforts. The objective is to develop a financing scheme that is consistent with the objectives of the financial institution and the financing requirements of project implementation activities of the DSM cell of the Jaipur DISCOM, viable for expansion to statewide programs.

Approach:

The development of the financing scheme for Rajasthan EE activities follows from the preceding tasks under Milestones 12B and 12C to develop project screening and eligibility requirements, and builds upon the development of EE financial incentive mechanisms developed under Milestone 2B. The consulting team will be selected to provide continuity with the performance of these preceding activities.

The financial incentive mechanisms developed under Milestone 2B will provide a basis for definition of the Rajasthan financing scheme, although the specific scheme for Rajasthan will be tailored to anticipated needs and may be different from those developed earlier. One of the programs that the financing scheme is expected to support is the pilot DSM program of the Jaipur DISCOM. This will not have been planned by the first half of 2002, when Milestone 12D will be underway. But load research results will be available from the Jaipur DISCOM DSM cell, and the cell is expected to have a preliminary idea of target areas and consumer groups for DSM activities, and hence for EE projects.

The US consultant will work with the financial institution toward developing concepts for the financing scheme in February 2002. The draft financing schemes will be analyzed and developed in cooperation with ECO partner ICICI as well, in addition to the Rajasthan financial institution and in consultation with the Jaipur DISCOM, and other potential EE project developers consistent with the objective market for the financing scheme. The US consultant will determine a recommended financing approach, described in detail using a project example in a draft report, to be circulated among the participants in the process in April 2002. The financing scheme is scheduled to be finalized in May.

Intended Outcomes:

The outcome of Milestone 12D will be an EE financing scheme that is appropriate to the needs of anticipated Rajasthan EE programs and that has been approved by major stakeholders. This will support the next step toward developing statewide EE programs under Milestone 12E, in which financial and operating conditions are defined for projects under these programs.

Resource Requirements:

Number of subcontractor/consultant days anticipated:

Indian:	10
US:	15

Activity-13: DSM/Energy Efficiency Within Privatized Distribution Utilities

Milestone-13 B: Analyze at least 2 distribution zones/systems (1 Urban, 1 Rural) and make recommendations on reducing commercial losses.

Host 2 workshops with case studies to assist utilities in reducing commercial losses.

ECO Project leader: V.M. Thakor

Objectives:

T&D losses are a fundamental problem for all the SEBs/utilities of India. They are of high order and cause tremendous drain on the revenue, needing utmost attention. T&D losses consist of technical and commercial (non-technical) losses. Before any solutions are developed, it is essential to know the current level of technical and commercial losses. The factors responsible for commercial losses are defective metering, billing and collection systems as well as pilferage/theft. These factors are common to both urban and rural areas. However, agricultural load being predominant in rural area, absence of meters on such connections add another dimension leading to abuse and theft, which calls for solutions in terms of technical improvement as well as social/political support.

Workshops will be held in the city locations of the utilities selected for the technical analysis work. The workshops will be scheduled for September 2001 to discuss topics pertaining to defective metering, billing and collection systems as well as pilferage/theft leading to commercial losses. Case studies will highlight how some utilities have developed systems to assess the commercial losses by correctly assessing technical losses. It will also highlight the steps they have taken to reduce/curb the commercial losses.

Approach:

Numerous meetings have been held with private distribution utilities since March 2001 to discuss existing activities to reduce losses and toward making a selection of two utilities for the ECO activities. Utilities had been tentatively selected, subject to final approvals by both USAID and the utilities themselves. The final selection is expected by the end of June. The selection criteria, apart from the requirements for one predominantly urban and the other predominantly rural, stress commitment to participation in a loss reduction program (based upon demonstrated management interest through prior activities), availability of data for assessment of technical and commercial losses, and to a lesser extent geographical considerations.

The work toward providing specific recommendations to the selected utilities on commercial loss reduction will be inaugurated with the two workshops. The workshops, each of three-day duration, are scheduled for September 2001 and will be held in the same general locations where the two utilities are located. The workshops will emphasize case studies featuring experiences in other Indian utilities.

The workshops are expected to stimulate discussion of approaches to loss reduction among the selected utilities, particularly in evaluating the suitability of the case study approaches presented and assessment of alternatives that may be more appropriate in their specific contexts. Following these discussions, the consulting team will focus on obtaining data to support the arguments, opinions, and ideas put forward during these discussions and toward developing the recommendations for action.

The selected utilities will provide data on losses, metering, billing and collection systems, and technical and cultural background of the system and the consumers. The US and Indian consultant team will analyze the data, working closely with the host utilities to facilitate transfer of analytical methods and support future sustainability of the activity by utility staff. Strategies to reduce commercial losses through technical and non-technical measures, social structuring (e.g., rural co-ops, ESCO's NGO's etc). will be developed along with the utility for their implementation. It is expected that the utilities will have prepared much of their available data in anticipation of this discussion, to minimize delays in developing the analysis.

The consulting team will prepare the analysis and develop draft recommendations during the following two months. It is likely that additional data will be required from the utility, and the Indian subcontractor will coordinate this. A draft report for each utility will be prepared in November 2001, and circulated to the utilities for review as well as among ECO project staff and USAID. The report will be finalized in December.

Intended out come:

The outcome will provide assessment of technical and commercial losses, status of existing metering, billing and collection systems, both for rural and urban utilities. The study and analysis of information will generate recommendations and develop workable loss reduction strategies for each utility, which would enable them to design and implement loss reduction programs.

Resource requirements:

The following numbers of US and Indian Consultant/sub-contractors days are anticipated:

Indian:	50
US:	60

Milestone:

13 C: Prepare a policy framework document for promoting DSM through bulk and retail tariff design and recovery of lost revenues
Host 2 workshops on energy efficiency/DSM in distribution privatization.

ECO Project leader: V.M. Thakor

Objectives:

As the Indian utilities privatize, it will be important for DSM and energy efficiency to be included in their future plans. Therefore a document will be developed that will outline the basic DSM components and requirements for integrating these functions into the privatized distribution companies. This document will include the necessary resources and management structure for a DSM Cell within the distribution company. Two workshops will also be conducted to illustrate international examples of incorporating energy efficiency programs into the unbundling of utilities. The workshops will indicate how DSM and energy efficiency assist the distribution company with their objectives, and how they contribution to the successful operation of the utility.

Approach:

Examples of utilities that have unbundled will be presented, and these case histories will show how they have incorporated DSM and energy efficiency into their corporate plans. Case histories are often the best method for demonstration, since many of the problems facing the participants may have already been faced and dealt with in the case studies. This information will be integrated with DSM programs that have already been successful in India, so that the document that is prepared can build upon those lessons learned. Information will be gathered from existing Indian private distribution companies, including JDISCOM, so that their experiences can be incorporated into the framework document as well as in the workshops.

Intended out come:

The outcome of these two tasks will be to build upon the work already being implemented by private distribution companies such as JDISCOM, and to make this information available to other utilities as they go through unbundling and privatization. In this manner, DSM and energy efficiency will become an integral of all of these private distribution companies. The workshops will build on this, by discussing why certain things were included, and how successful they have been. This will allow future private distribution companies to benefit from their experiences.

Resource requirements:

The following numbers of US and Indian Consultant/sub-contractors days are anticipated:

Indian:	60
US:	50

ECO Project Website

ECO Project leader: Kapil Thukral

Objectives:

To facilitate the dissemination of the findings of the ECO project, and supplement the information dissemination and outreach achieved through the various training and TA activities.

As the ECO project advances, the website will also become a repository of all training and TA documentation, that can be accessed by any interested party free of cost.

Approach:

An experienced web designer (FICCI's Biznet Division) has been appointed for the purposes of creating the website. The work began in March 2001 and is being conducted in two phases:

- The creation phase, to be completed by July 2001
- The maintenance and update phase, which would go on until the ECO project closes in December 2003.

The ECO project will have its own unique website. The domain name of www.energyefficiencyindia.com has already been registered. However, until the end of the creation phase, the site development work is being carried out off-line, and may be viewed through the URL http://www.bisnetindia.com/eco.

The creation phase entails the following activities:

- Developing a "shell" that provides information on the ECO activities, including the following:
  - task description,
  - actual or planned date of completion,
  - consultants on the job (if already known)
  - key contact person in ECO project office

- Developing a "shell" for another section that includes other special aspects like the ECO Fund, ECO Lenders Forum, ECO Advisory Committee, etc.
- Ensuring that the style (in terms of colors, fonts, logos, etc.) is in line with the suggestions / comments provided by reviewers

At the end of the creation, the website will be populated with:

- Task reports / documentation as they are completed and finalized
- Updates on training schedules, locations, etc., consultants appointed for specific training and TA activities, and other relevant information

The next scheduled review of the website-in-progress is planned for June. The ECO project offices will then establish an internal system to provide the information required by FICCI to populate the site with download-able reports, training program details, and other information. Promotion of the website will commence once it is launched, at the end of the creation phase in July. It is expected that the maintenance and update activities will be done quarterly, although the frequency may be increased if required.

Intended Outcome:

The website is expected to be the most comprehensive promotion and outreach tool of ECO activities, and a significant element of the project's product dissemination efforts, as all reports are expected to be made available as downloadable files.

APPENDIX A: REVISED MILESTONES

The ECO Milestones were revised in April, 20001, to better align some of the Milestones as well as to structure the tasks and completion dates to be more in line with other activities within India. In addition, the re-alignment of the Milestones was done so that similar Milestones between Activities were given the same completion date. The revisions took place over several months, and were a joint effort between staff and USAID staff. The result is that the Milestones for the coming year are better aligned and structured, and should provide the best technical product possible.

MARKET COMPONENT

ACTIVITY #1: TECHNICAL AND PROJECT STRUCTURING SERVICES FOR SPONSORS		DUE DATE
A	Select 10 EE projects (including four in commercial sector)	COMPLETED
	Conduct 2 workshops on ESCO/financial strategies	
B	Complete 2 investment grade feasibility studies	Sep-01
C	Prepare and disseminate technical/financial analysis spreadsheet for sponsors/investors to appraise EE projects (developed and market tested)	Mar-02
	Conduct three training courses on Project Screening	
D	Complete 6 additional investment grade feasibility studies (including 3 in the commercial sector)	Jul-02
E	Facilitate signing. Financial closure of project agreements for 2 projects (1 in commercial sector).	Sep-02
	Conduct 3 workshops on financial model.	
F	Repeat 2 workshops on ESCO/financial strategies.	Jul-03
	Facilitate signing. Financial closure of project agreements for 2 additional projects (1 in commercial sector).	

ACTIVITY #2: DEVELOPMENT OF FINANCIAL INCENTIVES FOR CREDIT ENHANCEMENT/RISK MITIGATION		DUE DATE
A	Submit initial implementation plan	COMPLETED
B	Develop EE financial incentive mechanisms (at least 5 mechanisms)	Aug-01
C	Develop ECO Loan Fund Marketing Plan including operational and management guidelines	Oct-01
D	Conduct 3 courses on EE Financial Incentive Program	Mar-02
E	Facilitate signing/financial closure of 2 EC projects using funds leveraged through ECO loan fund	Dec-02
F	Facilitate signing/financial closure of 2 additional EC projects using funds leveraged through ECO loan fund	Aug-03

ACTIVITY #3: SUPPORT TO ENERGY EFFICIENCY SERVICES INDUSTRY		DUE DATE
A	Develop business plan and 1st year agenda for an Indian ESCO trade association	DUE DATE
	Conduct 2 workshops on formation of an Indian ESCO Association	
	Draft a model M&V protocol for verifying energy savings and benefits	
	Conduct 2 workshops on international examples of M&V protocol	
	Conduct 2 courses on M&V protocol	
B	Create a business exchange program	Aug-01
	Conduct 2 workshops on EE business partnerships	
C	Conduct 1 U.S. study tour for Indian ESCO's and end-users.	Oct-01
D	Develop 3 model ESCO/EE performance contracts (applicable to commercial, residential, and industrial sector)	Apr-02
	Conduct 4 courses on ESCO development	
E	Facilitate 8 ESCO investment grade feasibility studies (including commercial and residential sectors)	Sep-02
F	Facilitate financial closure of project agreements for four ESCO projects (including commercial and residential sectors) using ECO loan funds	Oct-03

ACTIVITY #4: EFFICIENT TECHNOLOGY PROMOTION		DUE DATE
A	Complete 2 courses on efficient technology and systems	COMPLETED
B	Submit final market assessment report	COMPLETED
C	Submit detailed assessment on the entire market chain for at least 2 selected technologies	Dec-01
D	Submit white paper identifying options and recommendations for efficient technology promotion program	Mar-02
	Host 4 workshops on efficient technology promotion	
E	Facilitate development and implementation of EE technology promotion program workplan (for at least 1 selected technology)	Jan-03
F	Assist in establishing Energy Information Clearinghouse for end-use equipment/appliances	Oct-03

ACTIVITY #5: MARKET CONDITIONING AND PROMOTION		DUE DATE
A	Submit report on market potential for branded EE products (at least 2 products)	COMPLETED
B	Conduct a marketing course on EE products	Apr-01
C	Submit report on innovative marketing channels for distributing EE equipment (incorporating results from workshops and ally working groups)	Dec-01
	Conduct 2 workshops on innovative marketing	
D	Submit report assessing the market potential of control systems, IT and advanced energy audits in commercial and industrial facilities	Jun-02
E	Submit market report identifying market readiness (and key barriers to overcome) of at least 4 US/Indian EE processes/equipment for Indian market	Nov-02
F	Facilitate (working with BIS/BEE) a labeling and efficiency program for 2 appliances	Sep-03

ACTIVITY #6: NON-SUGAR COGENERATION MARKET DEVELOPMENT		DUE DATE
A	Submit a detailed market assessment of the technical and economic potential of cogeneration in the non-sugar industry	COMPLETED
B	Conduct 2 regional workshops on cogeneration systems, including technical and financial topics	Nov-01
C	Submit the draft technical and financial conditions for selecting a pilot project	Aug-02
	Facilitate preparation of 3 pre-feasibility cogeneration studies (including 1 in the ECO focus state)	
D	Repeat 2 regional workshops on cogeneration systems, including technical and financial topics	Dec-02
	Prepare supporting analyses including power pricing methodology for industrial customers	
	Prepare draft commercial agreements	
E	Facilitate preparation of 2 cogeneration feasibility financing studies (at least 1 in the focus state)	Aug-03
F	Facilitate the design, development, engineering and implementation of at least 1 cogeneration plant	Nov-03

POLICY COMPONENT

ACTIVITY #7: ENERGY EFFICIENCY POLICY AND INSTITUTIONAL SUPPORT		DUE DATE
A	Submit report identifying candidate institutions to certify energy auditors and assessment of abilities and a needs to create and sustain a certification program	COMPLETED
	Present a workshop on voluntary energy auditor certification	
	Conduct 2 workshops on energy auditor instruction (train the trainers)	
B	Complete a strategy paper on the charter, compliance requirements and outreach needed to create a viable certification program	Dec-01
	Conduct 2 workshops on financial training for accelerated depreciation	
	Submit draft training curriculum for certifying energy auditors	
C	Present 2 courses on rational tariff design	Apr-02
	Conduct 2 training courses on industry-specific EE guidelines to industry owners and managers	
	Conduct a workshop on international case studies on restructuring an EE agency	
D	Complete an impact assessment on the use of multiple electric meters in commercial establishments and their impact on the utility's rate base	Oct-02
E	Submit a draft white paper analyzing impacts of phasing out tax incentives and subsidies for low efficiency technologies	Mar-03
	Establish at least 1 EE pilot program within at least 2 central government facilities to test the feasibility of energy audits and implementation of at least 1 EE technology retrofit	
F	Establish at least 2 systems for the development of market based EE strategies	Oct-03
	Develop a national EE promotion plan for BEE	
	Assist in developing and implementing an EE awareness campaign	
	Develop EE promotion program for 3 EDAs (1 in the focus state) to strengthen market based energy conservation programs	

ACTIVITY #8: ENERGY EFFICIENCY STANDARDS AND LABELING FOR CONSUMER APPLIANCES		DUE DATE
A	Working with BEE, develop a comprehensive EE standards improvement plan for at least 2 appliances	May-02
	Conduct 2 workshops on consumer appliance efficiency standards	
B	Conduct 2 training courses on consumer appliance efficiency standards and EE labeling and standards	Aug-02
	Assist BIS in drafting the implementing regulations for appliance labeling for at least 2 appliances	
C	Develop a method for BEE to monitor industry's labeling compliance and the overall impact	Oct-02
	Develop and initiate with BEE a short and long term consumer awareness program for EE labels for at least 2 appliances	
	Conduct 4 workshops on marketing high efficiency products through customer awareness	
D	Develop detailed specifications on institutional requirements to qualify as a certified EE testing laboratory	Mar-03
	Develop an EE testing plan for private firms to conduct EE testing of appliances	
E	Conduct 2 workshops on appliance efficiency testing	Jun-03
F	Prepare and implement a pilot label awareness program and voluntary label implementation program (in at least 4 cities) for a market impact analysis for at least 2 appliance labels	Oct-03

ACTIVITY #9: ENERGY EFFICIENCY IMPROVEMENT IN GOVERNMENT FACILITIES AND PRIVATE BUILDINGS		DUE DATE
A	Prepare a report (using life cycle costing) on at least 2 high volume and high energy use appliances/equipment procured by the government for which minimum standards could be developed	COMPLETED
B	Conduct 2 training courses for government staff on procurement using life cycle costs	Apr-02
	Develop a procedure for government agencies to authorize performance contracts with ESCOs on EE projects	
	Train government officials on EE Performance Contracting	
C	Develop a National EE Program for Hospitals, Municipalities and Local Governments in coordination with BEE.	Sep-02
	Provide 2 workshops on Performance Contracting	
	Conduct 3 courses on incorporating energy efficiency into procurement practices	
D	Prepare a status report on building codes in India and efforts in other developing countries to develop and implement building energy codes	Jan-03
	Conduct 2 workshops on building energy code compliance for government officials	
E	Train architects/engineers on Voluntary Building Energy Codes	Jul-03
F	Facilitate the development of a Model Building Energy Code for India.	Nov-03
	Train architecture faculty on curriculum development for energy efficiency	

ACTIVITY #10: ENERGY EFFICIENCY THROUGH REGULATORY REFORM AND RESTRUCTURING		DUE DATE
A	Assess training needs for EE through regulation in at least 3 states, and develop a curriculum for training regulatory staff	COMPLETED
B	Prepare and conduct an integrated training program targeted at regulatory personnel (including courses on access to regulatory process for industrial and commercial customers	May-01
	Awareness in regulation for residential consumers	
C	Conduct a U.S. study tour for utility staff on the access to the regulatory process	Aug-01
D	Conduct training on International Experience in power Sector Regulation and Restructuring	Jan-02
	Conduct training on IRP and DSM through regulation	
E	Conduct a second U.S. study tour to visit utilities and regulatory commissions on IRP and DSM topics	Aug-02
F	Conduct a course on implementing regulatory systems	Jul-03
	Facilitate the adoption of DSM and IRP in the regulatory process of the SERC in the focus state	

ACTIVITY #11: ELECTRIC UTILITY DSM/ENERGY EFFICIENCY CAPACITY BUILDING		DUE DATE
A	Establish selection criteria and identify the focus state	COMPLETED
B	Establish a DSM Cell in at least 1 DISCO of the focus state and assess their staff needs	Apr-01
	Conduct at least 2 workshops on Cell Organization and Management	
C	Conduct 2 regional training programs on the role of EE	Nov-01
	Assist in the design and implementation of a Load Research Program	
	Provide the necessary training and conduct 2 workshops on application of load research to other utility functions	
D	Conduct 1 U.S. study tour to introduce participants to successful utility-driven EE programs	Jul-02
E	Assist and train the DSM Cell in planning, screening, designing, implementing and evaluating DSM programs and policies	Oct-02
	Conduct 2 courses on EE technologies and project implementation	
	Assist the DSM Cell to establish links with private sector agencies (industry associations/chambers of commerce and other private sector EE service providers)	
	Assist in the development of consumer awareness and information program	
	Assist the DSM Cell to design a Pilot DSM program and develop a long term DSM plan.	
F	Conduct 2 workshops on EE financing mechanisms	Oct-03
	Assist in obtaining finance for the Pilot program and aid in its implementation	

ACTIVITY #12: STATE ENERGY EFFICIENCY FINANCING (SEEF) SCHEMES		DUE DATE
A	Selection of the financial institution in the focus state	Oct-01
B	Develop screening and assessment procedures for the selected financial institutions	Jan-02
C	Prepare draft eligibility criteria for different types of SEEF projects	Apr-02
D	Design an EE financing scheme with the financing institution for statewide programs	Jul-02
E	Assist in the design of financial and operational conditions for EE projects, including financial intermediation mechanisms	Oct-02
	Conduct a workshop on state energy efficiency financing (SEEF) for government and bank officials	

ACTIVITY #13: DSM/ENERGY EFFICIENCY WITHIN PRIVATIZED DISTRIBUTION UTILITIES		DUE DATE
A	Submit detailed work plan	COMPLETED
B	Analyze at least 2 distribution zones/systems (1 urban, 1 rural) and make recommendations on reducing commercial losses	Dec-01
	Host 2 workshops with case studies to assist utilities in reducing commercial losses	
C	Prepare a policy framework document for promoting DSM through bulk and retail tariff design and recovery of lost revenues	Jul-02
	Host at least 2 workshops on EE/DSM in distribution privatization	
D	Prepare workable options for including DSM/EE into competitive bid documents for selection of private distribution companies	Nov-02
	Conduct at least 2 workshops on DSM and Efficiency in Privatization Bid Design	
E	Design 2 privately sponsored pilots in distribution efficiency including design and financing mechanism	Nov-03

APPENDIX B: YEAR 2 MILESTONE LIST

Shown are those Milestones whose completion date will occur during the next project year (June, 2001 through May, 2002). The Milestones typically require a minimum of six months to complete, and some may take much longer. For that reason, work will also be under way on other Milestones as well. However, the accompanying list is only for those that are scheduled for completion during the coming project year.

YEAR 2 MILESTONES

MARKET COMPONENT

ACTIVITY #1: TECHNICAL AND PROJECT STRUCTURING SERVICES FOR SPONSORS		DUE DATE
B	Complete 2 investment grade feasibility studies	Sep-01
C	Prepare and disseminate technical/financial analysis spreadsheet for sponsors/investors to appraise EE projects (developed and market tested)	Mar-02
	Conduct three training courses on Project Screening	

ACTIVITY #2: DEVELOPMENT OF FINANCIAL INCENTIVES FOR CREDIT ENHANCEMENT/RISK MITIGATION		DUE DATE
B	Develop EE financial incentive mechanisms (at least 5 mechanisms)	Aug-01
C	Develop ECO Loan Fund Marketing Plan including operational and management guidelines	Oct-01
D	Conduct 3 courses on EE Financial Incentive Program	Mar-02

ACTIVITY #3: SUPPORT TO ENERGY EFFICIENCY SERVICES INDUSTRY		DUE DATE
B	Create a business exchange program	Aug-01
	Conduct 2 workshops on EE business partnerships	
C	Conduct 1 U.S. study tour for Indian ESCO's and end-users.	Oct-01
D	Develop 3 model ESCO/EE performance contracts (applicable to commercial, residential, and industrial sector)	Apr-02
	Conduct 4 courses on ESCO development	

YEAR 2 MILESTONES

		DUE DATE
C	Submit detailed assessment on the entire market chain for at least 2 selected technologies	Dec-01
D	Submit white paper identifying options and recommendations for efficient technology promotion program	Mar-02
	Host 4 workshops on efficient technology promotion	

ACTIVITY #5: MARKET CONDITIONING AND PROMOTION		DUE DATE
C	Submit report on innovative marketing channels for distributing EE equipment (incorporating results from workshops and ally working groups)	Dec-01
	Conduct 2 workshops on innovative marketing	

ACTIVITY #6: NON-SUGAR COGENERATION MARKET DEVELOPMENT		DUE DATE
B	Conduct 2 regional workshops on cogeneration systems, including technical and financial topics	Nov-01

YEAR 2 MILESTONES

POLICY COMPONENT

ACTIVITY #7: ENERGY EFFICIENCY POLICY AND INSTITUTIONAL SUPPORT		DUE DATE
B	Complete a strategy paper on the charter, compliance requirements and outreach needed to create a viable certification program	Dec-01
	Conduct 2 workshops on financial training for accelerated depreciation	
	Submit draft training curriculum for certifying energy auditors	
C	Present 2 courses on rational tariff design	Apr-02
	Conduct 2 training courses on industry-specific EE guidelines to industry owners and managers	
	Conduct a workshop on international case studies on restructuring an EE agency	

YEAR 2 MILESTONES

ACTIVITY #8: ENERGY EFFICIENCY STANDARDS AND LABELING FOR CONSUMER APPLIANCES		DUE DATE
A	Working with BEE, develop a comprehensive EE standards improvement plan for at least 2 appliances	May-02
	Conduct 2 workshops on consumer appliance efficiency standards	

ACTIVITY #9: ENERGY EFFICIENCY IMPROVEMENT IN GOVERNMENT FACILITIES AND PRIVATE BUILDINGS		DUE DATE
B	Conduct 2 training courses for government staff on procurement using life cycle costs	Apr-02
	Develop a procedure for government agencies to authorize performance contracts with ESCOs on EE projects	
	Train government officials on EE Performance Contracting	

ACTIVITY #10: ENERGY EFFICIENCY THROUGH REGULATORY REFORM AND RESTRUCTURING		DUE DATE
C	Conduct a U.S. study tour for utility staff on the access to the regulatory process	Aug-01
D	Conduct training on International Experience in power Sector Regulation and Restructuring	Jan-02
	Conduct training on IRP and DSM through regulation	

YEAR 2 MILESTONES

ACTIVITY #11: ELECTRIC UTILITY DSM/ENERGY EFFICIENCY CAPACITY BUILDING		DUE DATE
C	Conduct 2 regional training programs on the role of EE	Nov-01
	Assist in the design and implementation of a Load Research Program	
	Provide the necessary training and conduct 2 workshops on application of load research to other utility functions	

ACTIVITY #12: STATE ENERGY EFFICIENCY FINANCING (SEEF) SCHEMES		DUE DATE
A	Selection of the financial institution in the focus state	Oct-01
B	Develop screening and assessment procedures for the selected financial institutions	Jan-02
C	Prepare draft eligibility criteria for different types of SEEF projects	Apr-02

ACTIVITY #13: DSM/ENERGY EFFICIENCY WITHIN PRIVATIZED DISTRIBUTION UTILITIES		DUE DATE
B	Analyze at least 2 distribution zones/systems (1 urban, 1 rural) and make recommendations on reducing commercial losses	Dec-01
	Host 2 workshops with case studies to assist utilities in reducing commercial losses	

APPENDIX C: PROGRESS PAYMENT SCHEDULE

The attached spreadsheet printout shows the month and associated cost for each Milestone that is scheduled for completion in Year 2.

PROGRESS PAYMENT SCHEDULE - YEAR 2

	2001							2002					
CLIN	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	
1				B $232,185						C $123,296			$355,481
2			B $114,232		C $146,598					D $238,329			$499,159
3			B $24,802		C $388,555						D $52,012		$465,369
4							C $69,273			D $129,685			$198,958
5							C $44,156						$44,156
6						B $117,083							$117,083
7							B $226,504				C $210,423		$436,927
8												A $23,786	$23,786
9											B $100,525		$100,525
10			C $149,069					D $139,131					$288,200
11						C $167,826							$167,826
12					A $120,103			B $133,178			C $77,542		$330,823
13							B $209,306						$209,306

THE MILESTONES ARE DUE AT THE END OF THE MONTH SHOWN.

TOTAL: $3,237,599

APPENDIX D: PERFORMANCE INDICATORS

The attached spreadsheet shows estimated impacts in Year 2 of the reduction of carbon dioxide emissions as a result of the tasks undertaken in the ECO project.

MARKET COMPONENT

PERFORMANCE INDICATORS

ACTIVITY & INDICATORS	DESCRIPTION	ESTIMATED ENERGY SAVINGS, MILLION KWH	ANTICIPATED RESULTS (PERCENTAGE BY YEAR)				EXPECTED RESULTS- MILLION TONS CO_2	ESTIMATED YEAR 2 RESULTS- MILLION TONS CO_2
			2000	2001	2002	2003		
1. Technical and Project Structuring Services for Sponsors Indicators: select 10 projects and facilitate financial closure for at least 4 projects	AVERAGED SAVINGS FROM INITIAL PROJECTS – 5.857 MILLION KWH SAVED/PROJECT	23.4	0	25	75	100	0.0234	0.00585
2. Development of Financial Incentives for Credit Enhancement/Risk Mitigation Indicators: establish at least 5 financing mechanisms and obtain financial closure on at least 4 projects	BASED ON #1 ABOVE, BUT ASSUME 10 PROJECTS/YEAR	234	0	25	60	100	0.234	0.0585
3. Support to Energy Efficiency Services Industry Indicators: development of a national ESCO association, with financial closure for 4 projects, using ECO loan funds	BASED ON #1 ABOVE, BUT ASSUME 10 PROJECTS/YEAR	234	0	25	50	100	0.234	0.0585
4. Efficiency Technology Promotion Indicators: develop EE technology promotion program and establish energy information clearinghouse	ASSUME 100 KW/YR SAVINGS @ 4000 HOURS	0.4	0	20	50	100	0.0004	0.00008
5. Market Conditioning and Promotion Indicators: assess market for 4 EE processes and facilitate a labeling program for at least 2 appliances	ASSUME 1000 KW/YR @ 2080 HOURS	2.08	0	20	60	100	0.00208	0.000418
6. Non-Sugar Cogeneration Market Development Indicators: facilitate the design, development and implementation of at least one non-sugar cogeneration system	BASED ON 40 KW SYSTEM, OPERATING 8000 HOURS/YR.	0.32	0	25	50	100	0.00032	0.00008
						COMPONENT TOTAL:	0.4942	0.123428

NOTES: DATA FOR THE 'EXPECTED RESULTS - MILLION TONS OF CO2 HAS BEEN ESTIMATED BASED ON EXPECTED IMPACT OF EACH ACTIVITY AND KNOWING WHEN EACH ACTIVITY IS LIKELY TO BE COMPLETED. THIS INFORMATION WILLTHEN BE UTILIZED TO TRACK THE PROJECT'S PERFOMANCE AGAINST THE REDUCTION IN EMISSIONS.

POLICY COMPONENT

PERFORMANCE INDICATORS

ACTIVITY & INDICATORS	DESCRIPTION	ESTIMATED ENERGY SAVINGS, MILLION KWH	ANTICIPATED RESULTS (PERCENTAGE BY YEAR)				EXPECTED RESULTS- MILLION TONS CO_2	ESTIMATED YEAR 2 RESULTS- MILLION TONS CO_2
			2000	2001	2002	2003		
7. Energy Efficiency Policy and Institutional Support Indicators: develop a voluntary auditor certification program, curriculum, and a national EE promotion plan	ASSUME 1000 KW @ 2080 HRS	2.08	0	40	80	100	0.00208	0.000832
8. Energy Efficiency Standards and Labeling for consumer Appliances Indicators: facilitate 2 appliance labels, develop criteria for a certified EE testing laboratory	ASSUME 100,000 APPLIANCES SAVING 1 KW/YR @ 2080 HRS	208	0	20	60	100	0.208	0.0416
9. Energy Efficiency Improvement in Government Facilities and Private Buildings Indicators: facilitate local government EE procurement practices and a national building energy code	ASSUME 1,000,000 LAMPS, EACH SAVING 25 W/YR @ 2080 HRS	52	0	25	50	100	0.052	0.013
10. Energy Efficiency through Regulatory Reform and Restructuring Indicators: train regulatory staff on IRP and DSM	TARIFF CHANGES MAY INCREASE REVENUES, BUT NOT AFFECT EFFICIENCY. TOD CHANGES WILL ALSO NOT SAVE ENERGY	0	0	0	0	0	0	0
11. Electric Utility DSM / Energy Efficiency Capacity Building Indicators: select focus state, develop DSM cell, conduct load research, develop DSM programs, finance pilot program	ASSUME 1000 NEW AG PUMPS, BUT EACH SAVES ONLY 1 KW @ 2000 HRS/YR	2	0	25	70	100	0.002	0.0005
12. Development of State Energy Efficiency Financing Schemes Indicators: select financing institution in focus state, assist in developing financing intermediation mechanisms	ASSUME 100 KW @ 2080 HRS/YR	0.2	0	25	60	100	0.0002	0.00005
13. DSM / Energy Efficiency within Privatized Distribution Utilities Indicators: promote DSM in privatized DISCOs, design 2 pilots in distribution efficiency including financing	ASSUME 1000 NEW AG PUMPS, BUT EACH SAVES ONLY 1 KW @ 2000 HRS/YR	2	0	25	50	100	0.002	0.0005
						COMPONENT TOTAL:	0.26628	0.056482
						PROJECT TOTAL:	0.76048	0.17991

NOTES: DATA FOR THE 'EXPECTED RESULTS - MILLION TONS OF CO2 HAS BEEN ESTIMATED BASED ON EXPECTED IMPACT OF EACH ACTIVITY AND KNOWING WHEN EACH ACTIVITY IS LIKELY TO BE COMPLETED. THIS INFORMATION WILLTHEN BE UTILIZED TO TRACK THE PROJECT'S PERFOMANCE AGAINST THE REDUCTION IN EMISSIONS.

APPENDIX E: TRAINING CALENDAR

The training calendar identifies the programs that are scheduled to be conducted between June 1, 2001 and May 31, 2002. The training calendar identifies the program by name, the type of program (whether it is workshop, course, or study tour), plus the number of days for the program. Locations and dates for the programs are listed as they become known, which is usually about three months prior to the program. While every effort is made to avoid changes, changes are many times necessary. Therefore it is suggested that the ECO training coordinator, Mr. Rajiv Arora, be consulted for details on the programs.

TRAINING CALENDAR - JUNE 2001 - MAY 2002

	PROPOSED DATE	PROPOSED LOCATION	VENUE	# OF DAYS	TYPE OF TRAINING			# OF PART.	MILESTONE/DELIVERABLE		COMPLETION DATE
					WKSHP	COURSE	S. T.				
1	06-Jun-01	Jaipur	RIPA	2	x			15	11C	Load Research	Nov-01
2	02-Jul-01	Mumbai	BSES	5		x		20	11C	The Role of Energy Efficiency	Nov-01
3	09-Jul-01	Hdyerabad	ASCI	5		x		20	11C	The Role of Energy Efficiency	Nov-01
4	04-Sep-01	U.S.	U.S.	10			x	10	03C	Indian ESCO and End-User Efficiency Mgmt	Oct-01
5	13-Sep-01	Udaipur/Alwa	TBD*	2	x			15	06B	Cogeneration Systems	Nov-01
6	13-Sep-01	Chennai	CII	1	x			10	07B	Financial training on accelerated depreciation	Dec-01
7	17-Sep-01	Chennai	TBD*	2	x			15	06B	Cogeneration Systems	Nov-01
8	18-Sep-01	Delhi	CII	1	x			10	07B	Financial training on accelerated depreciation	Dec-01
9	20-Sep-01	Delhi	IHC	2		x		20	10D	International Experience in Power Sector	Jan-02
10	26-Sep-01	Mumbai	TBD*	1	x			20	05C	Innovative marketing	Dec-01
11	28-Sep-01	Bangalore	SICCI	1	x			20	05C	Innovative marketing	Dec-01
12	04-Oct-01	Ahmedabad	TBD*	1		x		15	09B	Procurement using Life Cycle Costs	Apr-02
13	08-Oct-01	Pune	ICICI	3		x		15	03C	ESCO Development - Financial - End Users	Apr-02
	11-Oct-01			2							
14	09-Oct-01	Hyderabad	ASCI	1		x		15	09B	Procurement using Life Cycle Costs	Apr-02
15	15-Oct-01	Bangalore	TBD*	2		x		15	03C	ESCO Development - End Users - Financial	Apr-02
	17-Oct-01			3							
16	30-Oct-01	Kolkata/BBS	TBD*	1	x			20	13B	Reducing Commercial Losses	Dec-01
17	01-Nov-01	Delhi (Noida)	TBD*	1	x			20	13B	Reducing Commercial Losses	Dec-01
18	26-Nov-01	Mumbai		5		x		15	02D	EE Financial Incentive Program	Mar-02
19	26-Nov-01	Bangalore		5		x		20	10D	IRP and DSM thru Regulation	Jan-02
20	01-Dec-01	Delhi		2	x			20	07C	Restructuring an Energy Efficiency Agency	Apr-02
21	03-Dec-01	Chennai		5		x		15	02D	EE Financial Incentive Program	Mar-02
22	03-Dec-01	Bhopal		2	x			20	04D	Efficient Technology Promotion	Mar-02
23	03-Dec-01	Delhi/Jaipur		5		x		20	10D	IRP and DSM thru Regulation	Jan-02
24	06-Dec-01	Kolkata		2	x			20	04D	Efficient Technology Promotion	Mar-02
25	10-Dec-01	Kolkata		5		x		15	02D	EE Financial Incentive Program	Mar-02
26	10-Dec-01	Trivandrum		2	x			20	04D	Efficient Technology Promotion	Mar-02
27	13-Dec-01	Pune		2	x			20	04D	Efficient Technology Promotion	Mar-02
	YEAR 2002										
28	Jan-02	Delhi		3		x		20	01C	Project Screening	Mar-02
29	Jan-02	Kerala		3		x		20	01C	Project Screening	Mar-02
30	Jan-02	Pune		3		x		20	01C	Project Screening	Mar-02
31	Jan-02	Bangalore		1		x		15	09B	Energy Efficiency Performance Contracting	Apr-02
32	Jan-02	Delhi		1		x		15	09B	Energy Efficiency Performance Contracting	Apr-02
33	Jan-02	Bangalore		3	x			15	09C	Performance Contracting	Sep-02
34	Jan-02	Delhi		3	x			15	09C	Performance Contracting	Sep-02
35	Feb-02	Jaipur		2		x		20	07C	Rational tariff design	Apr-02
36	Feb-02	Bangalore		2		x		20	07C	Rational tariff design	Apr-02
37	Feb-02			5		x		15	03D	ESCO Development	Apr-02
38	Feb-02			5		x		15	03D	ESCO Development	Apr-02
39	Feb-02			1	x			15	08A	Consumer Appliance Efficiency Standards	May-02
40	Feb-02			1	x			15	08A	Consumer Appliance Efficiency Standards	May-02
41	Mar-02	Chennai		3		x		15	07C	Industry-Specific EE guidelines	Apr-02
42	Mar-02			3		x		15	07C	Industry-Specific EE guidelines	Apr-02
43	Mar-02			5		x		15	11E	EE Technologies and Project Implementation	Oct-02
44	Mar-02			5		x		15	11E	EE Technologies and Project Implementation	Oct-02
45	Mar-02			3	x			20	13C	EE and Distribution Privatization	Jul-02
46	Mar-02			3	x			20	13C	EE and Distribution Privatization	Jul-02
47	Apr-02	U.S.	U.S.	10			x	10	11D	Introduction to Successful Utility Driven EE	Jul-02
48	Apr-02			2		x		15	08B	EE Product Labeling and Standards	Aug-02
49	Apr-02			2		x		15	08B	EE Product Labeling and Standards	Aug-02
50	May-02	Pune		2	x			25	01E	Financial Model	Sep-02
51	May-02	Chennai		2	x			25	01E	Financial Model	Sep-02
52	May-02	Calcutta		2	x			25	01E	Financial Model	Sep-02
53	May-02	U.S.	U.S.	10			x	8	10E	IRP & DSM	Aug-02

DATES AND LOCATIONS ARE SUBJECT TO CHANGE

APPENDIX F

LIST OF YEAR SUBCONTRACTORS/CONSULTANTS

This table lists the Indian and US subcontractors and consultants who participated in the ECO project during Year 1.

	INDIAN CONSULTANTS/ SUBCONTRACTORS	US CONSULTANTS/ SUBCONTRACTORS
ACTIVITY 1	INTESCO 3EC Conserve	Kiona
ACTIVITY 2	none	Craig O'Connor
ACTIVITY 3	Conserve INTESCO Saha Sprague Limited	Schiller Associates Kiona NAESCO
ACTIVITY 4	A.K. Sachdeva M.K. Raju	Brian Wood
ACTIVITY 5	A.K. Sachdeva Conserve INNOTEM 3EC	Brian Wood
ACTIVITY 6	3EC	none
ACTIVITY 7	NPC	AEE
ACTIVITY 8	none	none
ACTIVITY 9	INNOTEM	none
ACTIVITY 10	none	IIE
ACTIVITY 11	Saha Sprague Limited	Dr. Claire Fulenwider Dr. Hameed Nezhad
ACTIVITY 12	none	none
ACTIVITY 13	none	none