

**UNEP-World Bank Technical Assistance Project  
Developing Financial Intermediation Mechanisms for Energy Efficiency Investments  
Brazil, China and India**

**REPORT ON**

**INDIAN PARTICIPATION IN  
ESCO MINI EXCHANGE IN CHINA**

**AND**

**LOCAL DISSEMINATION ACTIVITIES IN INDIA**

REPORT PREPARED FOR THE INDIA CORE GROUP WITH INPUTS FROM  
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**UNEP-World Bank Technical Assistance Project  
Developing Financial Intermediation Mechanisms for Energy Efficiency Investments  
in Brazil, China and India**

**ESCO MINI EXCHANGE IN CHINA AND  
LOCAL DISSEMINATION ACTIVITIES IN INDIA**

**Executive Summary**

The Three-Country Energy Efficiency Project is a unique effort at *learning by doing* and sharing the best practices and lessons among three of the largest developing countries Brazil, China and India. These countries aim to tap their high domestic potential for energy efficiency by channelling investments from local/ domestic banks and financial institutions with ESCOs playing a key role in developing and designing projects. An ESCo mini exchange was hosted in China in November 2003 under the project, to provide an opportunity for ESCo managers in India and Brazil to meet and share experiences with their Chinese counterparts and bring back best practices and lessons which could be adapted in their own countries. The information obtained from the exchange was compiled and is being shared through reports and presentations, to project partners, other ESCOs, banks and financial institutions.

The India Secretariat organised a local dissemination meeting in Mumbai on the ESCo Mini Exchange in China to share information learned at the November exchange with other Indian ESCOs, commercial banks and the other Core Group members. The ESCOs shared their view on new approaches to market their services, structure projects and to explore new business. Discussions revolved around ESCOs ability to take on higher risks and to enter into shared-savings contracts. The security concerns of banks and financial institutions, the technical expertise to appraise projects and evaluate promoters and the support needed for Banks and ESCOs to stimulate the EE market was also highlighted in the discussions. The Forum helped in consolidating the lessons and recommendations for the benefit of the India Core Group as well as other Banks that participated. It has provided new direction and momentum for the Three Country EE project.

The ESCo Exchange and Discussion Forum has activated the India Core Group members to evolve new funding schemes and security mechanisms and to initiate projects in specific industry clusters, which can stimulate the market for energy efficiency projects. Through interactions with the banks and financial institutions the Core Group has also begun the process of identifying candidates from among the bankers, who can participate and benefit from the forthcoming Bankers Cross Exchange to be held in Brazil during May 2004.

## **Project Background**

To catalyse energy efficiency investments in these countries from domestic commercial financial institutions, United Nations Environment Programme (UNEP) with support from United Nations Foundation (UNF) has initiated a programme to *Develop Financial Intermediation Mechanisms for Energy Efficiency Investments*. The World Bank and UNEP Risoe Centre on Energy, Climate and Sustainable Development (URC) are implementing the project.

Brazil, China and India were chosen because they showed significant potential for energy savings and Green House Gas (GHG) reductions. There is a great need for increased investment in energy efficiency. The World Bank has the largest energy efficiency programmes in these countries; and utility, government and international energy efficiency assistance programmes are already in place providing both an existing knowledge base and a framework for large-scale follow-up investment. Once the 3-Country Technical Assistance Programme is completed, the findings are expected to guide the World Bank and other donors in their future strategy and programme in energy efficiency investment. The programme is targeted at capacity building among Commercial Banks to finance EE schemes as well as to develop skills among energy service companies (ESCOs) and EE consultants to structure projects with features that can attract investors.

In each of the partner countries, a Core Group has been formed to steer this programme, with representation from major stakeholders including Banks, Financial Institutions, Industry Associations and ESCo companies. The composition of India Core Group is given at *Annexure 1*.

### **ESCO Component of the Three-Country EE Project**

There was a keen interest among ESCo managers in China, Brazil and India to work jointly on practical, operational issues facing ESCOs. To address this, the project initiated a programme of ESCo exchange visits. Topics of interest were identified, and representatives from active ESCOs in the three countries were invited to a common location to exchange practical experiences and to evolve a common understanding of issues and develop recommendations relevant for the growth of ESCo industry in their respective countries. The additional benefit of the project would be to develop potential energy business opportunities for ESCOs in the partner countries.

### **ESCO Mini Exchange in China**

The first such Mini Exchange was organised in China during November 23-29, 2003. The India ESCo team was selected after a systematic process of multi-stage evaluation with two rounds of Questionnaires & Analysis of Responses. Four active ESCOs were selected to participate in the Mini Exchange. They represented the spectrum of Indian ESCOs in terms of large and small firms, equipment suppliers, software service providers, and companies active in industry, commercial, municipal and utility sectors.

The Mini Exchange in China provided a valuable learning experience for India ESCo managers and their Brazilian and Chinese. The official participants to the meeting consisted of representatives from 12 operating ESCOs in the three countries (i.e., four from each). The ESCo managers also met with the China ESCo Association and visited ESCo projects under implementation.

The Indian ESCOs members and their respective Case Studies are listed below:

**DSCL Energy Services**, New Delhi, Mr Ravi Gurjar – Head-Customer Services  
(Team Leader, ESCo Exchange

);

**Saket Projects Ltd.** Ahmedabad, Mr Prakash Vankani  
General Manager (Tech) &

Head, Energy Management Division;

**SEE Tech Solutions Pvt. Ltd.** Nagpur, Mr Milind Chittawar,  
Chief Consultant & Managing Director; and

**Thermax E P S Ltd.** Pune:

Mr S K Vichare,

Division Manager – Operations.

Case Studies presented by them are:

**DSCL: Performance Contracting in Paper Industry,**

**Saket Projects: ESCo Project Jamnagar Municipal Corporation,**

**SeeTech Solutions: Performance Contracting in Medical College & Hospital & Engineering College,**

**Thermax EPS: Power System Upgrade at ITC Tribeni Tissues Division (Kolkata).** These have been uploaded on ESCo pages of the [www.3countryee.org](http://www.3countryee.org) website.

### **Benefits of the Exchange**

The Exchange provided an enriching experience for the ESCOs involved. The topics chosen were, concrete measures to reduce risks of non-repayment to ESCOs from host clients, review of energy Performance Contracts currently in use, and the role of a Guarantee Fund mechanism. The ESCo managers shared practical experiences from the three countries on how to profitably and effectively market their ESCo businesses to prospective customers, and design projects for efficient closure with those customers.

They learnt of new approaches to market their services and to explore new business within their countries. The participants compiled information obtained, and are in the process of sharing increased knowledge and experience via back-to-country reports and presentations, to other ESCOs, Banks and Financial Institutions in their countries. The presentations and information from the Exchange has been uploaded up on the project's website.

The India Secretariat organised a local dissemination meeting in Mumbai on the ESCo Mini Exchange in China to share information with other Indian ESCOs, Commercial Banks and Core Group members. The Discussion Forum was held in Mumbai (India's financial and business capital) on December 15, 2003.

### **Discussion Forum for Commercial Banks and ESCOs**

(See Annexure 2 & 3 for *List of Participants* and *Meeting Agenda*)

**Overview:** The Discussion Forum organised for Commercial Banks and ESCOs in Mumbai received good participation from Commercial Banks and ESCOs. The forum was held as part of the World Bank-UNEP Project on *Developing Financing Mechanisms for Energy Efficiency*, as a local dissemination effort by Indian ESCo Managers who participated in a Mini Exchange in China. There were 26 participants in the Forum including 3 members from the India Secretariat at IREDA, New Delhi. (See Annexure 3 for *List of Participants*). Mr. D Majumdar, Director (Tech) IREDA, Convenor of the Core Group, moderated the discussions. There were four India Core Group members including State Bank of India, Credit Guarantee Trust Fund of India (CGTSI), DSCL ESCo and Saket Projects, IREDA and India Secretariat members.

A total of five Banks and Financial Institutions (FIs) participated. These included State Bank of India, Bank of Baroda, Canara Bank and Bank of India. Financial institutions such as Industrial Development Bank of India (IDBI), SIDBI member CGTSI and IREDA participated. State Bank of India, the country's largest public sector Bank, has played a lead role in EE financing through its Project Uptech. IDBI has been operating Technology Upgradation Fund for Textile Industry (which is similar to SBI's Uptech scheme) for the last 5 years. CGTSI has been set up recently to boost investments in small-scale sector by developing a credit guarantee mechanism.

Besides the four ESCOs who made the presentations on China and Brazil based on the ESCo Mini Exchange in China, there were 6 other ESCOs / EE consulting companies represented. These were from Mumbai, Pune, Hyderabad, and Ahmedabad. International Copper Promotion Council (India), Financial Consultants ICRA, CRISIL and Crestar also attended the meeting.

In view of the interest shown by the various Banks in the EE financing project, Canara Bank and Union Bank of India have been invited to join the Core Group of the 3CEE project. These Banks have since nominated senior Officials to the Core Group. The CII- Energy Management Cell was also subsequently recruited into the Core Group to share their expertise and offer guidance to the project.

### **Highlights of the Discussion Forum**

- A. Lessons from China and Brazil: Presentation by ESCo team on China Exchange
- B. Present Barriers in India to replicating China and Brazil models
- C. ESCOs Recommendations for India Core Group and World Bank
- D. Issues and Concerns to be addressed by the 3CEE Project
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### **A. Lessons from China and Brazil**

Four ESCOs were selected for the ESCo Mini Exchange in China held November 23-29, 2003. The companies and their case studies are listed below: **DSCL Energy Services**, New Delhi, Mr Ravi Gurjar – Head-Customer Services

(Team Leader, ESCo Exchange  
);

**Saket Projects Ltd.** Ahmedabad, Mr Prakash Vankani  
General Manager (Tech) &  
Head, Energy Management Division;

**See Tech Solutions Pvt. Ltd.** Nagpur, Mr Milind Chittawar,  
Chief Consultant & Managing Director; and

**Thermax E P S Ltd.** Pune:

Mr S K Vichare,  
Division Manager – Operations.

**ESCO Team Presentations:** Mr Ravi Gurjar made the lead presentation on behalf of the ESCo Team. The following tables highlighted the key findings. Mr SK Vichare, Mr Prakash Vankani and Mr Milind Chittawar also shared the lessons learned and related it to their specific sectors.

The Case Studies are:

**DSCL - Performance Contracting in Paper Industry,**

**Saket Projects - ESCo Project Jamnagar Municipal Corporation,**

**SeeTech Solutions - Performance Contracting in Medical College & Hospital & Engineering College, Thermax EPS - Power System Upgrade at ITC Tribeni Tissues Div (Kolkata).** These have

been uploaded on ESCo pages of the [www.3countryee.org](http://www.3countryee.org) website. (See Annexure 4 for URLs of website link)

**Present Scenario in India:** In India energy costs are very high. Typically power from grid costs US \$ 0.09 / kWhr (unit), Heavy Oil costs US \$ 250 / KL, Diesel US \$ 500 / KL, Gasoline US \$ 750 / KL, Coal (Calorific Value 4500 kcal / kg) US \$ 50 / Ton. Industry and businesses are very energy conscious. Most of the EE projects with payback of less than 1½ years are being implemented by clients themselves. ESCos typically end up doing projects with around 2 years simple payback.

The most critical issues facing Indian ESCos were identified as how to market more effectively, specially with companies with good credit rating, and how to mitigate risks. Effective marketing means capturing more business from the ‘A’-rated companies and obtaining easy entry in client’s premises. In recent years clients have begun to appreciate ESCos increasing role in improving plant efficiency, in providing better technology and solutions, as well as in arranging finance. Indian ESCos being small, unlike those in Brazil and China, and hence do not have their own finance. Finance has to be arranged from banks and FIs.

Based on the observations of ESCos in China and Brazil, the Exchange participants now accept that Indian ESCos should take up shared savings projects, and the ESCo community could examine approaches to taking greater risks. It is necessary to explore and develop other enabling provisions both regulatory and market based.

**Key Observations on Functioning of ESCos in India, China & Brazil:**

**Scale of Projects and Financing**

Parameters	India	China	Brazil
Size / Value of Projects	Generally small, very few medium	Many Large	Small to large
Typical Payback	Less than 3 year	Less than 1.5 year	Up to 3 years
Interest Rates	Approx 10%	Approx 8 %	High & fluctuating
Financing Mechanisms	Practically non-existent	Govt. support (initially even equity). Different financial products	By utilities, Government policy

**Motivation for Energy Efficiency and Type of Projects**

Parameters	India	China	Brazil
Business Driver	High energy costs	Government focus and high energy costs	Government focus due to power shortage as 97% power is hydro
Cost of Power*	100	80	35-40
Cost of Fuel*	100	70	80-90
Type of Projects	Mainly EE & EC	EE, EC many Distributed Generation projects	EE, EC many Distributed Generation projects

\* Energy cost in India is taken as the baseline = 100.

**Explanatory Note:** Discussions with Chinese and Brazilian teams brought out the above points. Amongst the 3 countries Brazil has one of the lowest cost of power – almost 35-40 % of that India. Thus under normal condition industry will not have as great motivation for investing in EE projects as the payback will be longer due to low cost of energy. However in case of Brazil almost 97% of electrical energy produced is hydro power. In the event of a prolonged drought, power generation may be inadequate. In the year 2000 and 2001 – Brazil faced draught conditions significantly affecting power generation. The government made it compulsory for every industry to reduce power consumption by 20%. This became major driver for growth in ESCo industry.

In China the government has taken significant initiative to promote energy efficiency. This scenario is somewhat similar to what BEE is doing in India with regard to government buildings. However China appears to be a step ahead of India in implementation. Further, financial products such as Guarantee Fund are available for ESCOs. These are primarily government initiatives.

**Source of Funds and Financing Models**

<b>Parameters</b>	<b>India</b>	<b>China</b>	<b>Brazil</b>
<b>Equity</b>	Very small	Rs 25-40 crore	Combination
<b>Model</b>	Guaranteed Savings	Shared Savings	Shared Savings
<b>Financing</b>	Client's	ESCO's own funds	Combination
<b>Contract term</b>	Varies from 1-7 years	3-5 years	5-7 years

## Findings and Lessons

1. **Scale of Operations:** China and Brazil ESCOs have large equity, and are able to take on greater risks and contracts are mostly based on shared savings between ESCOs and clients.
2. **Guarantee Fund:** China had in place a partial Guarantee Fund that was initially set up with World Bank-GEF support to provide comfort to banks lending for ESCo projects. In the initial stages the Government also provided equity to ESCOs, known as EMCs in china. This has not been the case in India.
3. **Contracts:** ESCOs in China and Brazil are mostly operating on *Shared Savings* contracts, whereas in India ESCOs are operating on *Performance Guarantee*.
4. **Motivating Factors:** The motivation and policy thrust for Energy Efficiency in Brazil and China were given by various factors. In Brazil 97% of power generation is accounted for by hydro-power. Due to the power crisis originating from prolonged drought power generation was affected. The government made it mandatory for the industry and commercial establishments to reduce energy consumption by 20 percent over the previous year. Any industry, which could not comply with this limit or exceeded in their consumption were charged penal rates for the excess power consumed. This put pressure on industry to go in for EE projects, technologies and processes giving a strong impetus for energy conservation, and opened up avenues for a wider ESCo market.
5. **Utility Support:** Further, Brazilian Government mad it mandatory for the Utilities invest 0.5% of their revenue in energy efficiency and another 0.5% on R&D. This had ensured higher investment in energy efficiency & conservation activities and greater opportunities for ESCOs.

## **B. Present barriers in India in replicating China and Brazil models**

The ESCo team members discussed and identified the following barriers influencing EE market development and financing in India

### **Market Barriers**

1. The ESCo community in India is small and does not have a large asset base or strong balance sheet to take on the risk of EE financing. While a number of Energy Auditors and Consultants are active in India, the number of ESCo capable of implementing *performance contracts* let alone *shared-savings contracts*, are very few.
2. The legislative and regulatory framework is only now being put in place to encourage energy efficiency and conservation. Provisions of the Energy Conservation Act (2001) are now in implementation stage and would become mandatory only after 2005. The legal framework to safeguard contracts or indemnify a breach in contract is under developed in India.
3. The banking sector in general does not have an understanding of EE projects and their payback potential and do not want to depart from conventional asset-based lending, whereas EE project requires an innovative approach.
4. While many Banks are ready to finance modernisation and upgradation of plant, technology and machinery which may have incidental energy savings benefits, they are presently not inclined to finance EE projects in an ESCo mode.
5. Banks appear to be more comfortable dealing with their existing customers/ account holders where as many of the ESCOs may be first generation entrepreneurs with limited financial strength but high technical capabilities.

6. Except State Bank of India, none of the other Banks have any schemes for EE as such. Some of the banks such as Syndicate Bank and Canara Bank have schemes for lending to renewable energy technologies including Solar Hot Water System and Solar Home Lighting Systems. These technologies are eligible for subsidy from MNES (Indian Ministry of Nonconventional Energy).

### **Project-specific Barriers**

Some of the project specific barriers which may constrain Bank capacity to lend for EE projects are:

1. When an energy efficiency project is implemented, there is no distinct cash flow generated from projects undertaken in the premises of project promoter / client which can be securitised for repayment (since these are primarily savings).
2. Repayment from ESCOs to Banks in turn depends on the ESCOs actually receiving payment from the client. Therefore the Banker's perception of risk is two fold, the ESCo's credibility as well as the client's credibility.
3. Even though Bank may be willing to take risks on project of specific clients or ESCo, there is no Guarantee mechanism available to Banks to fall back on in the event of default.
4. Banks presently may not have the technical expertise to evaluate energy-saving equipment and processes especially when price and performance parameters are critical factors in decision-making.
5. Banks prefer to operate lines of credit which are simple to implement, and where clients could be appraised quickly based on the company's assets and known collateral securities.

### **Measures to Address these Barriers**

The Forum was informed of specific initiatives and measures underway as well as planned with World Bank and UNEP support to facilitate commercial financing of EE projects. The India Core Group of 3 Country EE Project has initiated an assignment to develop a workable scheme for appraisal of energy efficiency projects including designing an **Appraisal Manual** which would assist banks in screening and evaluating EE project. A consultant has also being identified to design **Financial Structures and Instruments** for EE Projects. The consultant would develop financial structures that would meet the requirements of the Commercial Banks and SIDBI / CGTSI and also are acceptable to the end-user segments including large industry, SMEs and the building sector.

IREDA under the World Bank and GEF technical assistance plan has assigned CII's Energy Management Cell to prepare an Investors' Manual for energy efficiency sector – industrial sub sector, as a guide to intending entrepreneurs. The **Investors' Manual** covers topics like energy saving potential for various industries, technologies available to improve energy efficiency, equipment suppliers, government policies / incentives available for the sector, terms of IREDA and other financial institutions extending support to such projects etc. The end objective of the activity is market development for energy efficiency / conservation products & services. The Manual in CD format was given to Commercial Banks as well as ESCo participants in the Discussion Forum.

Further, the World Bank and UNEP are hosting a **Banking Window Exchange** in Brazil during May 2004. This should provide an opportunity for selected banks in India who are keen to initiate EE financing schemes to learn from the experience in Brazil and China.

## C: Banks Concerns and Response to EE Financing Issues

The Banks voiced some of their concerns regarding EE Financing, (*off balance-sheet* financing) without conventional security arrangements, and where the payback is mainly dependent on project cash-flow. They were also keen to understand how ESCOs can play an intermediary role initiating and designing such projects.

**Security Norms:** The chief concern of Bankers was how to ensure repayment of loan in the absence of conventional security mechanisms. Other key questions related to security norms for EE projects. ESCOs setting up projects in the client's premises may retrofit equipment, which may have been already hypothecated to the Bank, which lends working capital to the clients. As per usual security norms, all present and future assets created by a project are earmarked as security for the Bank's loan. In such cases the assets may not be available for the ESCOs to hypothecate to the Bank. A possible solution may be that a tripartite agreement between the Client's existing Bank and ESCo and the Client to set up an Escrow account for funnelling the revenues to the extent of savings expected from the project.

State Bank of India suggested that where the existing assets are already hypothecated to the Bank providing working capital finance, the concerned bank can give a letter of disclaimer relinquishing their charge over the equipment installed by the ESCOs in the client's premises. The equipment then can be charged to the Banker of ESCo.

**Monitoring and Verification of Projects:** Another concern of Banks was how the performance and status of projects could be monitored to ensure prompt payback. Monitoring and Verification is the central element of identifying energy savings and ensuring cash-flow from a project. The ESCOs pointed out that creating an India-specific M&V Protocol equivalent of IPMVP (**I**nternational **P**erformance **M**easurement and **V**erification Protocol) may address some of the concerns expressed by Banks. (IPMVP Inc. is a non-profit organisation dedicated to serving the energy and water efficiency marketplace and promoting worldwide investment in energy/water efficiency projects by helping to quantify and manage the associated performance risks).

**Guarantee Fund:** Ground work needs to be done to identify the need for a Guarantee fund for ESCo operation to facilitate Indian ESCOs to move from *performance guarantee* to *shared savings* model. This will open up new avenues of ESCo business, which may have greater risk but generate higher savings and revenue. A Guarantee fund could provide increased comfort for the Banks enabling them to sanction more projects through ESCo route.

State Bank of India suggested that CGTSI initiate and administer a Guarantee Fund which could guarantee loans and performance guarantees given to ESCOs by commercial banks up to Rs. 50 lakhs. (note 1 lakh is 100,000 Rs.) This would enable banks to take more risks in financing ESCOs taking into account their weak financial strength and also the fact that they are new to Indian environment.

**Focus on SMEs:** Banks at the meeting appeared to be more interested in financing the Small and Medium Enterprises (SMEs) sector as a first step. Canara Bank representative observed that there is scope for EE financing in the SSI and SME sector. In fact these sectors need support more than the large corporates who have better access to information and technology. Moreover, the SSI sector is under significant competitive pressure to cut costs and improve efficiency in order to survive.

Canara Bank reported that inspired by the scheme of SBI, they have given shape to similar scheme for the SSI and SME sector, which is now awaiting final clearance. One of the constraints they are facing is that of getting information on accredited energy auditors, state-wise.

**Credit Rating of ESCOs:** If there is a credit rating mechanism for ESCo, it would make it easier for bankers to evaluate projects and move forward on projects developed by ESCOs with higher credit rating

than others. This would give them some experience in financing EE projects and gain sufficient experience and expertise. There after Banks could selectively increase their exposure to companies with lower rating, using other options such as Guarantee fund etc.

**Equipment Selection and Standards:** One critical issue for Banks who finance ESCos is that type of equipment and whether they are standard across various sectors or industry / sector specific. The ESCos clarified that some equipment are of standard type and have applications in different sectors. There are a large number of equipment and devices, which are common across different industry sectors, whereas some are industry-specific. It was informed that under the EC Act (2001) BEE had initiated Standards and Labelling programme for various energy intensive equipment and appliances in the domestic, commercial, industrial and agricultural sectors.

**Ownership / Hypothecation of Assets:** Banks also had certain queries related to the assets and fixtures that would be installed or replaced in the client's premises. In cases where these are already hypothecated to the Bank that provides working capital to the company, what will be the lender's (other Banks) claim over the new assets installed or replaced? Issues such as ownership of the new assets and fixtures installed or replaced by ESCos required further discussion and clarity.

**Sharing Lessons:** Organisations like IREDA and SBI have existing financing schemes for supporting projects in renewable and energy sector. It may be possible to adopt some of the operative methodologies and product features and adapt them while devising the new financing schemes for EE projects. Banks should also share lessons learnt by SBI, Syndicate and Canara Bank on their experience with Renewable Energy and EE financing

#### **D. ESCos Recommendations for India Core Group and World Bank**

**Methodology for Screening EE Projects:** The ESCo team suggested a new methodology for identifying and screening of projects. It also included financial structuring as well as a payment security mechanism. In the case of existing customers, Banks need to consider providing working capital to the company after approval from the client to securitise a Trust and Retention Account (TRA) by placing limit on the working capital. While lending to the client the new assets could be hypothecated by ESCo to the Bank on different terms, or may be given to the Bank in the form of lease.

**The Trust & Retention Account:** The concept of TRA has emerged recently in the context of ESCo business in India. DSCL Energy Services along with Citibank NA and Charles River Associates (CRA) of Australia conducted a study to identify the potential for EE in India and to develop financial products to facilitate the process. The TRA methodology was developed for a public sector enterprise under this programme and was shared with bankers. It is necessary develop or modify the TRA to suit the needs and conditions of private sector companies.

The TRA is a separate account created by the client. All the payment made by the client towards his energy bills is routed through this account. The client makes a commitment to put aside an amount periodically, with his bankers providing a security cover for the amount. As the ESCo implements the energy saving project using his own funds, the client's energy bill is reduced resulting in a surplus in TRA account. This surplus is first used to pay for the project based on the terms and conditions agreed beforehand. As there is a security cover from the client's bankers in the form of this TRA, the chances of client meeting his payment obligation is greatly increased.

**Escrow Account:** Energy efficiency projects could be easier to execute if the ESCo has a primary claim on project cash flow, and a TRA mechanism is set up for specific projects. However, in the case of second- and third-level companies, where the bankers may be unwilling to open a TRA, client could open an Escrow account, whereby the collection (revenue income) is deposited in to that account. This may be

a more acceptable solution to the bankers. In such cases the ESCOs should be involved in the operation of Escrow accounts. However, one concern is that for smaller projects operating an Escrow account may be unviable. The high transaction cost may make it impractical.

**Technical Cell to Evaluate EE Projects:** The ESCOs suggested that there should be a Technical Cell or body, which can evaluate ESCo projects based on their technological soundness. The Cell could offer its services on a chargeable basis to rate ESCo projects, based on the project's energy saving and payback potential. ESCOs could get their projects evaluated or certified, or the Banks could ask the Cell to evaluate a project which has been submitted to them. The ESCOs suggested that the World Bank UNEP project could initiate the formation of such an institution.

The Cell could also identify and certify energy efficient technologies and their savings potential. This would make it easier for Banks to appraise and approve projects by consulting the standard and estimating the cash flow and payback period of the technology under question.

**Model Performance Contracts:** If standard performance contracts are available for different types of ESCo projects in different sectors it would simplify designing and executing ESCo projects. IREDA informed that this work has already been initiated with support from World Bank-GEF Fund.

**Equity Fund:** Presently, ESCOs are inadequately capitalised and have limited financial strength to fund only a small number of projects; besides, in accordance with conventional banking norms, they will have to bring in seed capital in order to avail bank financing.

**ESCO Incubation Fund:** The ESCo participants also suggested establishment of an ESCo incubation fund which could be utilised to address the needs of the ESCo industry including market development support, information dissemination, to develop contractual documents, evolve security mechanisms, with the objective of bringing many more potential ESCo projects to fruition.

**Other Supports:** The ESCOs strongly endorsed a Guarantee Fund that could safeguard the Banks' interests, and suggested that the prospects of establishing a Guarantee Fund may be examined. Citing the case of Brazil, the ESCOs proposed that the Government should notify Energy Efficiency financing as a priority sector and enable the Banks set aside 2 to 5 percent of their lending for EE projects as is done in the case of Small Scale Industry or Agriculture. The case of Brazil was cited where there Government made it mandatory for the Utilities set aside 0.5 per cent of their revenue to invest in EE projects. This gave a boost to ESCo market.

**Innovative Financing Models:** It is necessary to expose Banks to innovative financing models/mechanisms for ESCo financing where adequate weightage may be given to the technical expertise (intellectual capital) of ESCOs as compared to their limited financial strength. Banks need to be equipped to evaluate the technical capability of the ESCOs to set up EE projects that will be technically and commercially viable with acceptable financial parameters such as early payback period. However, it was felt that it is too premature to expect this concept to have a significant impact on ESCo market development.

## **E Existing Schemes of Banks and Financial Institutions**

The Discussion Forum deliberated on some of the ongoing and emerging schemes of Banks and Fis presented below.

**a) SBI's Project Uptech for EE:** The State Bank of India (SBI), corporate team Development Banking Department, is implementing the Project Uptech scheme. The Project aims to provide Rs. 350-400 million (US\$7.8-8.9 million) in about 70 new energy efficiency loans to small-medium scale enterprises in the initial phase. The programme focuses on 7 geographic areas or Circles, and focuses on just a few technologies or industries. The programme focuses on a few technical project types in each Circle, replicating them in the same area, locality or cluster or among the same types of industries, in order to reduce transaction costs and risks. The programme is open only to small and medium-sized industry, and only existing clients of SBI in order limit the credit risks. Clients must pay a registration fee of Rs 10,000 up-front to participate.

Auditing and project preparation are supported by a grant of up to 50% of the costs, subject to a maximum of Rs 50,000, with the clients paying the other 50%. Half of the cost of these grants will be covered by SBI's Technology Development Fund (which SBI operates with its own funds, to support the development of new project concepts), and half of the grant cost will be covered by GEF through the WB-IREDA project. The loans will be given at the SBI medium term lending rate, which is about 11%, with a tenure of 5-7 years, and a maximum grace period of one year grace.

The project was approved by SBI's Board in Dec. 2002. Bank has gone ahead with introducing the scheme in the seven of the circles. Borrowers have been selected in most of the Circles, and consultants have been identified to complete the project preparation work. IF the programme is successful, the loan programme would be expanded in the second stage. SBI reported that, the scheme has evoked good response so far.

**Comments on SBI's Project Uptech scheme for EE Financing:** SBI support of Rs 50,000 to cover the cost of Energy audit cost is a very small sum, however as it is a grant it is a positive initiative. It would easier for them to approve loans if they had access to a list of accredited ESCOs or energy auditors.

The ESCOs felt that that this is a very good initiative by the Bank and offered the following comments: For any EE project to be successful it has to complete five steps

- Identification of opportunity
- Development of concept into project report, which takes into account the site- specific conditions and technology suitability.
- Financial structuring of the project
- Implementation of the project
- Monitoring and verification of savings.

The problem industry faces in implementing EE projects is not the 'identification of opportunity' but the other four steps. Generally auditors take first step and are not ready to take any of the additional steps while ESCOs by nature of their business and service offerings are inclined towards taking all the steps. ESCOs also face problems that the soft cost involved in converting the identified opportunity into IGA report is not appreciated by most of the clients. Hence if this fund is earmarked towards projects implemented through ESCOs it will be great boost not only to ESCOs industry but also to EE project implementation.

**b) IREDA EE Scheme:** IREDA's Energy Efficiency financing scheme is applicable to industries like steel, cement, paper, engineering, textile, glass, chemicals, paper, etc., having significant cost towards energy. It was felt that IREDA's scheme is also quite stringent for financing ESCOs in general (in terms of security matrix). IREDA officials explained that IREDA is subject to the same constraints as the other

institutions and banks. IREDA would also require comfort in the form of security or guarantees for funding such projects. Further, IREDA had tried different schemes in ESCo financing including lease financing (lease rentals), shared saving etc. and is in the process of fine-tuning its scheme. ESCos would like to see IREDA's scheme in a more market friendly form, as IREDA has a good grasp of the RE and EE sector.

IREDA thereafter presented its Grant Scheme for providing assistance to Commercial Banks (to the tune of Rs 25,000) for financial support of energy efficiency and conservation projects. Bankers at the forum noted that this amount is relatively small and therefore the scheme needs to be strengthened further. It was informed that another incentive scheme covering the cost of energy audit, DPR, preparation of M & V protocol is being circulated to all the bankers for their comments.

### ***Details of IREDA's New Scheme***

<b>A.</b>	<p><b>Support to Commercial Banks</b></p> <p><b>Coverage of the scheme:</b></p> <ol style="list-style-type: none"> <li>1) IREDA will extend a lumpsum grant of Rs.25,000 using GEF TA to each of the project for covering partial cost of energy audit/ DPR preparation. The balance cost will be met by the bank/ banks' clients.</li> <li>2) This grant scheme would cover initial 100 projects identified under the EE Project financing scheme of the Bank limited to Rs 25 lakh.</li> <li>3) The scheme may be extended to cover further project based on the review of the progress of the scheme for initial 100 projects.</li> <li>4) The beneficiary bank will share with IREDA a) copy of energy audit report/DPR; b) Copy of bills/ receipt issued by energy auditor/ consultant; c) Progress Report/Monitoring Report of the projects funded using IREDA's grant and d) The total energy saved/expected to be saved post commissioning of all such projects.</li> </ol>
<b>B.</b>	<p><b>Proposed Support for Commercial Banks</b></p> <p><b>Coverage of the scheme:</b></p> <ul style="list-style-type: none"> <li>• <b>For End User Energy Efficiency Projects:</b> The scheme would meet the cost of the energy audit, preparation of Detailed Project Report (DPR), preparation of M&amp;V Protocol and the financial structuring of the project to the extent of <u>Rs.10 lakh per Project</u> or <u>5 percent of the project cost</u>, which ever is lower. The client/commercial bank would decide and select the energy auditor/ consultant for preparation of DPR/ Energy Audit report/M&amp;V Protocol/Financial Structuring.</li> <li>• <b>For ESCo financed Energy Efficiency Projects:</b> The scheme would meet the cost of the energy audit, preparation of Detailed Project Report (DPR), preparation of M&amp;V Protocol, Preparation of Energy Performance Contract and the financial structuring of the project to the extent of <u>Rs.20 lakh per project</u> or <u>10 percent of the project cost</u>, whichever is lower. The ESCo/ Commercial Bank would decide and select the energy auditor and consultant for preparation of DPR, Performance Contract, M&amp;V Protocol, and Energy Audit report and for Financial Structuring.</li> </ul>

**c) IDBI Technology Upgradation Fund Scheme:** The TUF Scheme has been set up by the Government of India and is implemented by IDBI, to offset technological obsolescence and lack of economies of scale in the Indian Textile industry. Given the significance of this industry to the overall health of the Indian economy, its employment potential and the huge historical backlog of technology upgradation, particularly in the context of the liberalisation and globalisation of textile trade, a focussed and time-bound Technology Upgradation Fund Scheme (TUFS) was launched. The scheme provides a focal point for modernisation efforts through technology upgradation in the textile industry.

The main feature of TUFS is a 5 percent reimbursement given by the Ministry of Textiles, on the interest actually charged by the identified financial institutions on the sanctioned projects. The TUFS has been in operation from April 1, 1999 for a period of five years.

The brief general observations on the TUF Scheme of IDBI was that, IDBI selects companies based on the strength, attractiveness and viability of the of the project and not merely on the assets of the company.

**d) Credit Guarantee Scheme of CGTSI:** The objective of CGTSI Scheme is to make available bank credit without the hassles of collateral security or Third Party guarantees. This scheme is targeted at first generation entrepreneurs who are trying to set up a unit of their own in the Small Scale Industries (SSI) sector. The Government of India, in the Ministry of SSI, launched Credit Guarantee Scheme so as to strengthen credit delivery system. To operationalise the scheme, Credit Guarantee Fund Trust for Small Industries (CGTSI) was set up by GOI and SIDBI with an initial corpus of Rs. 125 crore. The corpus size has since been enhanced to Rs. 362.5 crore.

The Guarantee scheme seeks to assure the lender that, in the event of an SSI unit which availed collateral-free credit facilities fails to discharge its liabilities to the lender, the Guarantee Trust would make good the loss incurred by the lender up to 75 percent of the credit facility.

Any collateral-free credit facility (both term loan as well as working capital) extended by eligible institutions, to new as well as existing manufacturing SSI units. These include Information Technology and software industry, particularly in the tiny sector, with a maximum credit cap of Rs.25 lakh per borrowing unit. The unit will be extended guarantee cover of 75 percent of the loan sanctioned, with a maximum guarantee cap of Rs.18.75 lakh. Presently, 37 eligible lending institutions comprising 25 Public Sector Banks, 6 Private Sector Banks, 3 Regional Rural Banks (RRBs), National Small Industries Corporation (NSIC), North Eastern Development Finance Corporation Ltd (NEDFi) and Small Industries Development Bank of India (SIDBI) have been registered as Member Lending Institutions (MLIs) of the Trust for availing of guarantee facility from CGTSI.

As on January 31, 2004, some 12,874 projects were covered under the Credit Guarantee Scheme. The credit extended by the 22 MLIs (Allahabad Bank, Andhra Bank, Bank of Baroda, Bank of India, Bank of Maharashtra, Canara Bank, Central Bank of India, Corporation Bank, Dena Bank, Indian Bank, Indian Overseas Bank, Oriental Bank of Commerce, Punjab & Sind Bank, Punjab National Bank, State Bank of India, State Bank of Mysore, Syndicate Bank, Union Bank of India, United Bank of India, UCO Bank, Vijaya Bank and NSIC) in respect of these projects was to the tune of Rs 16,745 lakh.

The major beneficiaries of SSI assistance were the states of Karnataka, Tamil Nadu, Maharashtra, Uttar Pradesh, Andhra Pradesh, Kerala, Madhya Pradesh, Bihar, Punjab followed by Jharkhand, Haryana, West Bengal, Assam, Rajasthan, Gujarat, Himachal Pradesh, Chhattisgarh, Delhi, Orissa, Jammu & Kashmir, Daman & Diu, Pondicherry, Tripura, Manipur, Goa, Chandigarh, Uttaranchal, A & Nicobar Islands, Meghalaya, Sikkim and Nagaland. Industries covered are Food products, cotton textiles, wood furniture, metal products, repairing services, wool, silk etc., electrical machinery, basic metal industries, paper and printing, information technology, jute textiles, non-metallic products, beverages etc, chemicals, leather products are the industry segments which have benefited from the coverage of guarantee scheme. The 12,874 projects that were covered under the Credit Guarantee Scheme, have generated / are expected to generate employment for 38,892 persons. Production worth Rs 1,124 crore and exports worth Rs 1,1842 lakh are expected to be generated.

CGTSI had specified a minimum credit limit of Rs 5 lakh for providing guarantee cover under its CGFSI scheme. With effect from September 01, 2003, this minimum ceiling has been withdrawn. New and existing SSI units engaged in manufacturing activity or in information technology or in software industry would be eligible for coverage. Further, Credit facilities **up to Rs. 25 lakh** sanctioned without collateral security and/or third party guarantee by the Member Lending Institutions (MLIs) to the new and existing Small Scale Service & Business (Industry Related) Enterprises have also been made eligible for coverage under the scheme.

**Comments on the Scheme:** ESCOs suggested that the CGTSI Guarantee Scheme could be more relevance and acceptable to EE projects, IREDA could work with CGTSI to develop the guarantee conditions to suit EE Project particularly in small sector. The ESCOs observed that this is possibly the best readymade scheme if can be extended to EE, RE and EC projects. CGTSI's experience in provision of guarantees would be vital and their learning and experience should be available to the Core Group.

## Next Steps under the Three Country EE Project

The India Secretariat has initiated the following activities after the China Mini Exchange:

- Local dissemination meeting on ESCo Mini Exchange in India to share information with other Indian ESCos, Commercial Banks and Core Group members including this discussion forum in Mumbai.
- Sharing information in the form of a Report on the Mini Exchange and Local Dissemination programme, with India Core Group members, Banks and Financial Institutions, Industry Associations and other stakeholders
- Inviting other Commercial Banks (and CII- Energy Management Cell) to join the India Core Group. However, the priority should be to demonstrate to the Banks and other lenders, successful mechanisms or methodology, which they can adopt. The 3CEE project should identify at least one or two knowledgeable persons from each industry who are ready and willing to invest their time and efforts to evolve/ design project structure.
- Reviewing existing schemes of Banks and Financial Institutions to address or include Energy Efficiency. Discussions on possible Technical Assistance to Banks to evolve EE schemes.
- Identifying consultants to develop cluster-based energy efficiency projects in steel, glass, pulp & paper industry.
- Discussing and evolving a Concept Note examining the need for a Guarantee Fund for EE Projects in India.
- Identifying representatives from Commercial Banks and Financial Institutions for Banking Window Exchange in Brazil during mid-2004.

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## **ANNEXURE 1**

### **List of India Core Group Members**

<b>India Core Group Members (March 2004)</b>		
<b>UNEP-World Bank Three Country Energy Efficiency Project</b>		
<i>Developing Financial Intermediation Mechanisms for Energy Efficiency Investments in Brazil, China and India</i>		
	<b>Name &amp; Designation</b>	<b>Organisation</b>
<b>Commercial Banks</b> (In alphabetical order)		
1.	<b>Mr R K Garg</b> General Manager-Credit	<b>Bank of Baroda, Mumbai</b>
2.	<b>Mr R Prabha</b> General Manager – Priority Credit Wing	<b>Canara Bank, Bangalore</b>
3.	<b>Mr C P Swarnkar</b> General Manager – Credit	<b>Punjab National Bank, Head Office, New Delhi</b>
4.	<b>Mr E S Balasubramanian</b> Dy General Manager – Development Banking	<b>State Bank of India, Devt Banking Dept, Mumbai</b>
5.	<b>Mr Sonalal Datta</b> Asst. General Manager (Consultancy Services Cell)	<b>State Bank of India, Consultancy Services Cell</b> Local Head Office, New Delhi
6.	<b>Mr TN Madhusoodhanan</b> (NOT CONFIRMED) General Manager – Credit & c	<b>Syndicate Bank, Head Office, Manipal</b>
7.	<b>Mr P L Gairola</b> General Manager – Credit	<b>Union Bank of India, Mumbai</b>
<b>Financial Institutions</b>		
8.	<b>Mr Utpal Bajpai</b> General Manager & CEO	<b>Credit Guarantee Trust Fund for Small Industries</b> (GOI& SIDBI), Mumbai –21
9.	<b>Mr Dharam Prakash</b> Chief General Manager	<b>Technology Bureau for Small Enterprises /SIDBI,</b> New Delhi
<b>Industry Association</b>		
10.	<b>Mr S Raghupathy, Sr. Adviser &amp; Head (EMC)</b>	<b>Energy Management Cell, CII - Sn Region, Hyderabad</b>
11.	<b>Mr M A J Jayaseelan, Executive Director – BISNET</b>	<b>FICCI, New Delhi</b>
<b>Energy Services Companies (ESCOs)</b>		
12.	<b>Dr G C Datta Roy, Chief Executive – Energy Business</b>	<b>DSCL Energy Services, DCM Sriram Consolidated Ltd. New Delhi</b>
13.	<b>Mr Ravi Gurjar, Head Customer Services</b>	<b>DSCL Energy Services, DCM Sriram Consolidated Ltd. New Delhi</b>
14.	<b>Mr Prakash Vankani, Gen Manager (Technical)</b>	<b>Saket Projects Ltd. Ahmedabad</b>
<b>India Secretariat</b>		
1.	<b>Mr Debashish Majumdar, Director Technical</b>	<b>IREDA, New Delhi (Core Group Convener)</b>
2.	<b>Mr K S Sridharan, Chief General Manager (TS)</b>	<b>IREDA, New Delhi</b>
3.	<b>Ms Debjani Bhatia, Deputy Manager (TS)</b>	<b>IREDA, New Delhi</b>
4.	<b>Ms Jyotsna Rani, Technical Officer</b>	<b>IREDA, New Delhi</b>
5.	<b>Dr Kapil Thukral, Senior Consultant</b>	<b>ThinkSmart Solutions, New Delhi</b>
6.	<b>Dr Koshy Cherail, Consultant</b>	<b>Consultant to India Secretariat, New Delhi</b>

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**Agenda of the Meeting:**

Introduction to 3 Country EE Project – Mr D Majumdar, Director (Tech), IREDA

ESCo Presentations:

- Overview and Lessons for Indian ESCo – Mr Ravi Gurjar, DSCL (Team Leader)
- Lessons for Small ESCos – Mr Milind Chittawar, SeeTech Solutions, Nagpur
- ESCos working with Utilities & Municipalities – Mr Prakash Vankani, Saket Projects, Ahmdabad
- Equipment Vendors – Mr S Vichare, Thermax EPS, Pune

Response and comments on presentation from ESCos, Banks and other Stakeholders

Financing Strategies:

- WB-UNEP Project Support for Developing Mechanisms for EE Financing - Mr D Majumdar, DT, IREDA
- IREDA's EE financing Strategy – Ms Debjani Bhatia
- SBI's Project Uptech for Energy Efficiency – Mr Sonalal Datta, AGM, SBI
- CGTSI Guarantee Scheme
- IDBI Technology Upgradation Fund
- Existing Schemes of Banks
- Canara Bank, Bank of Baroda, Bank of India etc

Bankers Perspective and Concerns

Recommendations for Action Plan by Core Group of World Bank-UNEP 3CEE Project

**LIST OF PRESENTATIONS**

- 1. An Overview of Indian Team for China ESCo Mini Exchange**
- 2. First Presentation by Indian Team in China**
- 3. Day 3 Presentation by Indian ESCO Team in China**
- 4. DSCL Energy Services: Company Status Report**
- 5. DSCL Energy Services: Case Study**
- 6. Saket Projects Limited: Case Study of ESCO Project Implementation at Jamnagar Municipal Corporation**
- 7. SEE-Tech Solutions Pvt. Ltd.: Company Status Report & Case Study**
- 8. Thermax EPS-India: Company Status Report**
- 9. Thermax EPS-India: Case Study Of Power System Up-Grade at ITC - Tribeni Tissues Division Kolkata-India**
- 10. ESCO Team Presentation in India on China & Brazil - Lessons Learned**

**Note:** The Powerpoint presentations of Company Status Reports and Case Studies have been uploaded on ESCo pages of the project website < [www.3countryee.org](http://www.3countryee.org) >.