Document of
The World Bank

FOR OFFICIAL USE ONLY

Report No: {ReportNo}

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CLEAN TECHNOLOGY FUND (CTF) GUARANTEE
IN THE AMOUNT OF US$25 MILLION

AND A

PROPOSED GRANT FROM THE GLOBAL ENVIRONMENTAL FACILITY (GEF) TRUST FUND
IN THE AMOUNT OF US$18 MILLION EQUIVALENT

TO INDIA

FOR

INDIA: PARTIAL RISK SHARING FACILITY for ENERGY EFFICIENCY (PRSF) PROJECT

{PROJECT DATE}

CURRENCY EQUIVALENTS

(Exchange Rate Effective {Date})

Currency Unit	=	Indian Rupees
INR 60	=	US$1
US$	=	SDR 1

FISCAL YEAR

April 1 – March 31

ABBREVIATIONS AND ACRONYMS

BEE	Bureau of Energy Efficiency
CA	Chartered accountant
CAAA	Controller of Aid Audit and Accounts
CAG	Controller and Auditor General
CAGR	Compounded Average Growth Rate
CO_2	Carbon dioxide
CPS	Country Partnership Strategy
CTF	Clean Technology Fund
DCs	Designated consumers
ECA	Energy Conservation Act, 2001
ECBC	Energy Conservation Building Code
EDD	Environmental Due Diligence
EE	Energy efficiency
EESL	Energy Efficiency Services Limited
EEFP	Energy Efficiency Financing Platform
EIRR	Economic internal rate of return
EPI	Energy Performance Index
ERMF	Environmental Risk Management Framework
ESCOs	Energy Service Companies
ESPC	Energy Savings Performance Contract
FEEED	Framework for Energy Efficient Economic Development
FI	Financial Institution
FLCTD	Facility for Low Carbon Technology Deployment
FY	Fiscal year
GAAP	Governance Accountability and Action Plan
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHGs	Greenhouse gases
GL	General Ledger
GoI	Government of India
GW	Gigawatt
GWh	Gigawatt hour

IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
IFR	Interim Financial Reports
IREDA	Indian Renewable Energy Development Agency
IRR	Internal rate of return
ISDS	Integrated Safeguard Data Sheet
kWh	Kilowatt-hours
LED	Light Emitting Diodes
M&V	Monitoring and Verification
MoF	Ministry of Finance
MoP	Ministry of Power
MSMEs	Micro, Small & Medium Enterprises
mtoe	Million tons of oil equivalent
NAPCC	National Action Plan on Climate Change (India)
NCB	National Competitive Bidding
NMEEE	National Mission on Enhanced Energy Efficiency
NPV	Net Present Value
PAT	Perform, Achieve and Trade
PFS	Project Financial Statements
PRGFEE	Partial Risk Guarantee Fund for Energy Efficiency
RBI	Reserve Bank of India
REC	Rural Electrification Corporation
SBI	State Bank of India
SIDBI	Small Industries Development Bank of India

Regional Vice President:	Philippe H. Le Houerou
Country Director:	Onno Ruhl
Sector Director:	John Henry Stein
Sector Manager:	Julia Bucknall
Guarantee Manager:	Pankaj Gupta
Task Team Leaders:	Ashok Sarkar, Ashish Khanna

INDIA

Partial Risk Sharing Facility for Energy Efficiency

TABLE OF CONTENTS

PAD DATA SHEET

India

Partial Risk Sharing Facility for Energy Efficiency (PRSF)

PROJECT APPRAISAL DOCUMENT

South Asia Region

Energy

Basic Information			
Date:		Sectors:	Energy Efficiency in Heat and Power (100%)
Country Director:	Onno Ruhl	Themes:	Climate Change (80%), Infrastructure Services for Private Sector Development (20%)
Sector Manager/Director:	Julia Bucknall / John H. Stein	EA Category:	Guarantee
Project ID:	P128921 / P132620		
Financing Instrument:	Grant and Guarantee		
Team Leaders:	Ashok Sarkar, Ashish Khanna		
Does the project include any CDD component? No			
Joint IFC: No			

Borrower of GEF Grant: SIDBI CTF Guarantee Beneficiary: SIDBI as Facility Manager			
Responsible Agency: Small Industries Development Bank of India (SIDBI), Energy Efficiency Services Limited (EESL)			
Contact:	N K Maini Saurabh Kumar	Title:	CMD, SIDBI MD, EESL
Telephone		Email:	

Project Implementation Period:	Start Date: September 01, 2014		End Date: September 1, 2021	
Expected Effectiveness Date: September 01, 2014				
Expected Closing Date: September 1, 2021				

Project Financing Data(US$M)		
[ ] Loan	[x] Grant	[ ] Other
[ ] Credit	[x] Guarantee	
For Loans/Credits/Others		

Total Project Cost : 43	Total Bank Financing : 43
Total Cofinancing: 135	Financing Gap: 0

Proposed Terms:

- The CTF Guarantee to India will be provided in US$ with a guarantee fee of 0.10 percent per annum on the annual committed CTF Guarantee amount and a 20-year availability period.

.

Financing Source	**Amount(US$M)**
BORROWER/RECIPIENT	0
IBRD	0
IDA: New	0
IDA: Recommitted	0
Clean Technology Fund Guarantee	25
GEF	18
Total Project Cost	43
Others (Private sector) (partially guaranteed)	135
Financing Gap	0
Total Program Cost[1]	141

.

Expected Disbursements (in USD Million)

Fiscal Year	1	2	3	4	5	6	7	8	9
Annual	14	7	12	10	0	0	0	0	0
Cumulative	14	21	33	43	43	43	43	43	43

.

Project Development Objective(s)

The Project development objective is to assist India in achieving energy savings by (a) mobilizing commercial financing using risk sharing mechanisms through GEF and CTF support; and (b) catalyzing ESCO-implemented energy efficiency projects. The project will accomplish this by (a) leveraging project funds to encourage private sector investment in energy efficiency projects and (b) providing complementary technical assistance and capacity building to stakeholders in India's energy efficiency market.

.

Components

Component Name	**Cost (USD Millions)**
Risk-Sharing Facility for Energy Efficiency	37
Technical Assistance and Capacity Building	6

Compliance

Policy

Does the project depart from the CPS in content or in other significant respects?	Yes [ ] No X

.

[1] Total of private capital mobilized of US$135 million and Technical Assistance of US$6 million

Does the project require any exceptions from Bank policies?	Yes [ ]	No X
Have these been approved by Bank management?	Yes [ ]	No []
Is approval for any policy exception sought from the Board?	Yes [ ]	No X
Does the project meet the Regional criteria for readiness for implementation?	Yes [x]	No []

.

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04		X
Forests OP/BP 4.36		X
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11		X
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12		X
Safety of Dams OP/BP 4.37		X
Projects on International Waters OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

.

Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**

Description of Covenant

GEF Grant: Standard legal provisions to ensure that the Recipient operates and manages the Facility in a manner consistent with the Bank's fiduciary, trust fund, and energy efficiency requirements and best practices.

CTF Guarantee: Appropriate representations, warranties and covenants standard to guarantee operations of this nature.

.

Team Composition

Bank Staff

Name	**Title**	**Specialization**	**Unit**	**UPI**
Ashish Khanna	Lead Energy Specialist	Co-Task Team Leader	SASDE	288695
Ashok Sarkar	Senior Energy Specialist	Co-Task Team Leader	SASDE	293754
Kristin Mayer	Energy Economist	Team Member	SASDE	421810
Kanv Garg	Energy Analyst	Team Member	SASDE	418967
Sanjukta Roy	Project Economist	Team Member	SASDE	372232
Jukka-Pekka Strand	Infrastructure Finance Specialist	Guarantee Specialist	TWIFS	333239
Shanker Lal	Senior Procurement Specialist	Procurement Specialist	SARPS	235050
Addepalli Sita Ramakrishna	Senior Environmental Specialist	Environmental Specialist	SASDI	235788
Surbhi Dhingra Singh	Social Development Specialist	Social Specialist	SASDS	415441
Sameena Dost	Senior Counsel	Legal	LEGES	246615
Junxue Chu	Senior Finance Officer	Financial Management	CTRLN	153387
Manoj Jain	Lead Financial Management Specialist	Financial Management	SARFM	219261

Neil Pravin Ashar	Senior Counsel	Guarantee Lawyer	LEGSO	374581
Vikram Raghavan	Lead Counsel	Country /GEF Lawyer	LEGES	
Victor Mosoti	Senior Counsel	Environmental Lawyer	LEGEN	
Mark Walker	Chief Counsel	Legal Advisor	LEGSO	
Neha Dhoundiyal	Financial Management Specialist	Financial Management	SARFM	346388
Ramola Bhuyan	Financial Management Specialist	Financial Management	SARFM	
Deepali Uppal	Program Assistant	Coordination	SASDO	301315
Nitika Surie	Program Assistant	Coordination	SASDE	251951
Minerva Espinosa-Apurada	Program Assistant	Coordination	SASDE	
Peer Reviewers				
Xiaodong Wang	Senior Energy Specialist	Peer Reviewer	EASCS	
Jeremy Levin	Senior Energy Specialist	Peer Reviewer	CSBO2, IFC	
Alan Townsend	Senior Energy Specialist	Peer Reviewer	EASWE	

Non-Bank Staff

Name	Title	Office Phone	City
Sonalal Datta	Financial Sector Expert	+91-9818289864	New Delhi

.

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments

I. STRATEGIC CONTEXT

A. Country Context

1. India's continued economic growth and rapid urbanization has led to dramatic increase in primary energy demand. A projected increase in primary energy supply and electricity generation by up to four and six times their current levels, respectively, will provide all households with 'lifeline' electricity consumption by 2031 and sustain economic growth at 8 percent.[2] Energy and peak load deficits were 9 and 11 percent, respectively, in 2012.

2. Adopting increased levels of energy efficiency (EE) is necessary not only to manage energy demand, but also to enhance energy security and address local and global environmental concerns. India has substantial untapped energy efficiency potential across various sectors. Recent studies have identified many energy efficiency investment opportunities throughout the economy that would yield high financial returns with short payback periods.[3]

B. Sectoral and Institutional Context

3. *India's Energy Efficiency Potential*: The GoI estimates that its overall EE market has an investment potential of US$9.77 billion and could save up to 183.5 billion kilowatt hours (kWh) and 148.6 million tons of CO_2 in only five years.[4] Over 25 percent of these estimated savings are expected to be achieved in the industrial sector. Much of this potential lies within micro, small and medium enterprises (MSMEs)[5], as they comprise more than 80 percent of the country's industrial enterprises and lag behind larger industry benchmarks in technology modernization and other energy efficiency measures.[6] Buildings sector can reduce an average of almost 20 percent of current energy usage through energy efficiency measures. Over 70% of the buildings' stock, proposed to be built by 2030, is yet to be developed in India.

4. *Regulatory Mandates and Policy Initiatives*: The GoI has recently enacted a variety of regulatory mandates and policy initiatives to tap energy savings opportunities under its National Mission for Enhanced Energy Efficiency (NMEEE). NMEEE aims to address inefficient usage of energy in the country by setting mandatory energy saving targets in industries, stimulating funding for ESCOs, and engaging in market transformation by introducing energy efficient appliances and introducing various different EE financing instruments. More details are provided in Annexure 2. By far the largest of these NMEEE initiatives is the Perform, Achieve and Trade (PAT) scheme, a globally unique program that has mandated energy-intensity targets for the country's most energy-intensive industrial sectors.

[2] Government of India Integrated Energy Policy (2006). 'Lifeline' electricity consumption is 30 kWh per household per month. These figures are equivalent to an installed capacity between 320 and 332 GW.
[3] Planning Commission 2006 estimates.
[4] World Resources Institute. "Powering Up: The Investment Potential of Energy Service Companies in India.", 2009
[5] The Government of India has enacted the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 which defines the micro, small and medium enterprises and their sizes.
[6] World Bank. "Energy Intensive Sectors of the Indian Economy: Path to Low Carbon Development.", 2011

5. *Financing for Energy Efficiency:* Financing for energy efficiency in India, particularly on the demand side, is still nascent, but pioneering institutions have made in-roads and shown interest in the area. Several banks and financial institutions[7] have been actively engaged in EE financing, including traditional lending, seed funding, venture capital finance, MSME loans, mortgage financing, equipment subsidies, and even a small amount of financing to the energy service companies (ESCOs), since 1999.[8] ICICI, for example, currently has a US$836 million portfolio in EE and renewable energy lending. Some banks have even developed financial products specifically for EE projects.[9] SBI, for example, had facilitated 60 energy audits and sanctioned 20 EE loans as of 2009. The Small Industries Development Bank of India (SIDBI) has worked extensively with the MSMEs in promoting EE.

6. Despite all of the EE potential, most end users on the demand side (such as industries, buildings, municipalities) are unable to implement EE projects on a large scale, because they either lack the technical capacity or have little financial credibility to borrow for EE investments. There are other implementation challenges faced by EE markets in general and those apply to India as well – small size and higher transaction costs, multiple stakeholders and ecosystem problems, and ambiguity on asset creation / ownership- which exacerbates the barriers to EE investments on a larger scale.

7. *ESCOs and Performance Contracting:* In many markets, intermediaries – generally energy service companies (ESCOs) – help clients overcome some of the key EE market barriers. ESCOs provide a range of services, including identification of EE opportunities, connection with equipment manufacturers, design and management, construction, maintenance of the EE technology, and structuring transactions that are based on monetized energy savings, and monitoring and verification of the resulting energy and cost savings. In many cases with smaller EE projects, ESCOs can also bundle them to bring down the cost of transactions and financing. However, a robust "energy efficiency ecosystem", with mature financial institutions and supporting EE policies, is necessary to enable a successful ESCO and energy service performance contracting market as depicted in Figure 1.

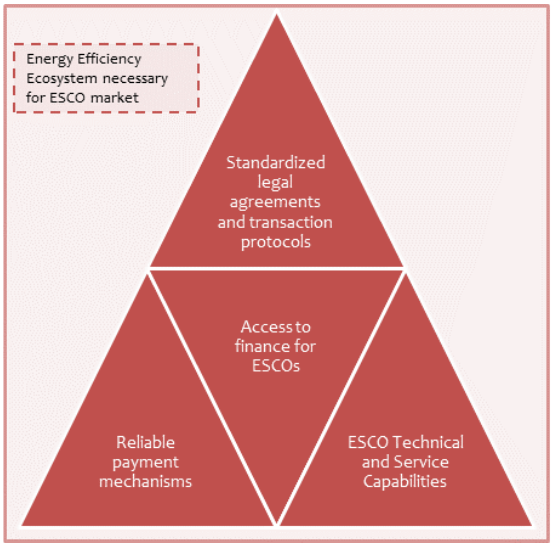
8. ESCOs establish credibility through an energy savings performance contract (ESPC) mechanism that guarantees the client (host entity), certain level of energy savings from the identified EE measures, thereby transferring technical project risk to the ESCO. Implementation of the EE measures can then be financed through a "guaranteed savings" model, in which the client finances the project. This approach can be extended to a "shared savings" model, in which the ESCO itself finances the project, thereby also assuming the project's credit risk, and gets repaid through a portion of the client's future monetized energy savings. In this latter case, the client (host entity) does not make any investments.

9. Irrespective of the two ESCO models to be used to scale up EE investments, the very nature of energy savings performance contracting approach requires that all market participants – clients, ESCOs, and lenders – accept the contract processes and transaction templates. These

[7] State Bank of India (SBI), Bank of Baroda (BoB), IDBI Bank, ICICI Bank IL&FS, IREDA, SIDBI and Yes Bank.
[8] Natural Resources Defense Council, 2012.
[9] World Resources Institute. "Powering Up: The Investment Potential of Energy Service Companies in India." 2009

include ESPC templates, monitoring and verification (M&V) guidelines, appraisal and contractual agreements, etc. However, in India, there currently are neither widely accepted regulations nor established practices or associated legal provisions for the ESCO-implemented transactions.

Figure 1: Enabling "Energy Efficiency Ecosystem" Conditions for ESCO Market



10. A shared savings model is often essential when clients cannot – or do not want to – themselves borrow to finance an EE project. In addition, the shared savings model is more acceptable in unproven ESCO markets, as clients are often hesitant to initially trust ESCOs, and having ESCOs assume both technical and credit risk increases clients' perceptions of their ability to deliver energy savings. An emphasis on introducing the shared savings model was, for example part of the impetus behind the strong growth in China's ESCO market.

11. The Indian financial sector boasts of strong and mature financial institutions (FIs) with considerable liquidity in the market. However, there are perceived risks in the mind of FIs which impede investments towards EE opportunities in general, and to lending to ESCOs in particular. The industry, in turn, also needs support towards EE technologies and contractual agreements. Demonstration of ESCO-based EE transactions through this proposed operation – Partial Risk Sharing Facility (PRSF) for Energy Efficiency project – would help alleviate the perceived risks, assist the market actors like ESCOs to have better access to finance, mobilize over US$135 million of commercial financing for EE investments across various demand side sectors and thereby trigger large-scale EE market transformation.

C. Higher Level Objectives to which the Project Contributes

12. *Alignment with India's National Action Plan on Climate Change (NAPCC):* The GoI's flagship National Action Plan for Climate Change (NAPCC), sets out the path for mitigation and adaptation to address the global challenge of climate change. The PRSF proposes to build upon the enabling regulatory environment through NMEEE, one of NAPCC's eight Missions, and leverage India's mature financial sector to overcome the barriers, mobilize commercial financing

and trigger EE market transformation by supporting the demonstration of ESCO-based implementation which can overcome some of the key EE market barriers. The proposed project complements a GoI initiative – the Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE)[10]. More details are provided in Annexure 2.

13. *Alignment with Country Partnership Strategy (CPS) for India (2013-17)*: The project is aligned with the second pillar of the India CPS – "Transformation". The project is aimed at unlocking significant private sector investment potential and catalyzing an energy savings performance contracting market in India by encouraging increased investment in energy efficiency. Promotion of investments in energy efficiency will also reduce the need for increasingly expensive and difficult generation capacity expansions and reduce operating costs for end users, including industries, municipalities and buildings. PRSF will contribute to enhancing energy security, increasing competiveness, and reducing GHG emissions and local pollutants.

14. The World Bank Group's Energy Sector Directions Paper launched in 2013 lays out the important role and contours of energy efficiency as one of the strategic pillars of the Bank Group's future engagement in the energy sector. The WBG has also been collaborating with the UN's Sustainable Energy for All (SE4All) which aims to double the rate of improvement of energy efficiency at global level by 2030, through energy efficiency gains in both the supply side and the demand side. In addition, the IEG report (2010) has highlighted the critical role of demand side energy efficiency in climate change mitigation.

15. The GoI had proposed several operations in Phase 1 of its the Clean Technology Fund (CTF) Investment Plan (prepared in 2011) focused on large scale transformative programs in the area of energy efficiency and renewable energy, through the public investment window of Asian Development Bank and the World Bank. This proposed PRSF project is one of those operations, which is also co-financed through support from the Global Environment Facility (GEF). PRSF is the first-of-a-kind for India program on Finance Plus approach of DEA targeting an innovative risk sharing facility. It is also the first global test case for a new CTF instrument of Guarantee (contingent finance) to mobilize and leverage large-scale commercial financing for EE investments.

16. It is expected that the PRSF project will start to provide upstream support to the Indian EE market by addressing the key barriers and triggering the scale up of EE investments through ESCO-based implementation in India. At the same time, the International Finance Corporation (IFC) could indirectly support the overall development objective by contributing to the downstream developmental elements of this sector by helping strengthen the ESCO industry as well as private sector end-user host entities and the banking sector by taking equity positions and/or providing debt support and through capacity building.[11]

[10] PRGFEE is proposed to primarily target public sector entities. This model follows a case-by-case sub-project appraisal and is fundamentally different from PRSF. The PRSF targets both public and private entities using a portfolio approach.

[11] Current regulatory restrictions of the Reserve Bank of India do not allow IFC to directly support and float risk-sharing guarantees, the issue being much larger of financial regulations. Also, undertaking PRSF itself would conflict IFC in taking debt or equity positions in these participating ESCOs, host entities and FIs. [Check with IFC]

17. *World Bank Group value-added:* The World Bank Group's policy dialog and investments, accompanied by concessional finance such as through CTF and GEF, and coupled with technical assistance and capacity building have been instrumental in catalyzing the transformation of EE markets in several countries, where EE markets faced barriers similar to those prevalent in India, such as in Eastern Europe and Central Asia, and East Asia regions.[12] Combined with this global experience and its convening power to disseminate lessons, an extensive portfolio of analytical work in EE markets in India and around the world, the WBG is well-placed to deliver this operation. The PRSF design synthesizes the experience and knowhow about EE financing and implementation solutions and blends them into local, practical solutions in order to tackle the barriers and scale up the EE market in India.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

18. The project development objective is to assist India in achieving energy savings by: (a) mobilizing commercial financing using risk sharing mechanisms; and (b) catalyzing ESCO-implemented energy efficiency projects. The Project will accomplish this by (1) leveraging project funds to encourage private sector investment in energy efficiency projects, and (2) providing complementary technical assistance and capacity building to stakeholders in India's energy efficiency market.

B. Project Beneficiaries

19. The PRSF is broadly aimed at addressing various market barriers that impede EE practices and financing, and to catalyze the energy savings performance contracting modality of transactions for implementing EE projects through ESCOs in India. The project will contribute to the NMEEE initiative of GOI.

20. The project will benefit the institutions that are at its core – namely, MSMEs, large industries, commercial entities, building owners, and municipalities, responsible for providing street lighting; the banking sector; and the ESCO industry, by strengthening the processes involved in EE financing using energy savings performance contracting approaches and building the capacity of EE market stakeholders, particularly the participating entities. GOI's own initiative, PRGFEE, will also benefit from PRSF. It will use the lessons learned from PRSF and benefit from the TA components of PRSF which will target the same set of stakeholders (ESCOs, FIs, etc.) who may participate in PRGFEE.

[12] World Bank's past projects like the Commercializing Energy Efficiency Finance (CEEF) Program in Eastern Europe, the China Utility Energy Efficiency Program (CHUEE), and the China Energy Conservation II Program have been highly successful, and contributed to valuable lessons learned. Notably in China, following implementation of CHUEE and Energy Conservation II, the ESCO industry grew from three companies in 1997 to about 560 companies with over US$4 billion in energy performance contracts in 2010.

C. PDO Level Results Indicators

21. PRSF will catalyze a sustained market for ESCO-implemented EE projects, thereby enabling the implementation of many more EE projects, all of which will save additional energy, beyond the duration of the PRSF.

22. PRSF lends itself to accurate and robust measurement of outcome indicators by design. Sub-projects that receive PRSF risk coverage will estimate energy savings through agreed upon M&V protocol associated with the respective ESPCs.

23. The key outcome indicators for this project are:

a. Annual energy savings achieved by projects that receive PRSF risk coverage (GWh)
b. Annual mitigation of CO_2 emissions achieved by projects that receive PRSF risk coverage (million tons; estimated based on the type and amount of energy savings recorded)
c. Total number of ESCO-implemented energy efficiency investments whose loans receive credit guarantee from PRSF

24. The intermediate indicators of the project are:

a. Total amount of loans that receive risk-sharing coverage through credit guarantees from PRSF (million USD)
b. Total amount of co-financing[13] (million USD)
c. Default rate of loans that receive risk-sharing coverage through credit guarantees from PRSF (%)

III. PROJECT DESCRIPTION

A. Project Components

25. The PRSF project will consist of the following components:

1. Component 1: A risk sharing facility for energy efficiency, managed by SIDBI, of US$37 million, funded from a GEF contribution of US$12 million and backstopped by a CTF Guarantee, in the form of contingent finance, of US$25 million, and

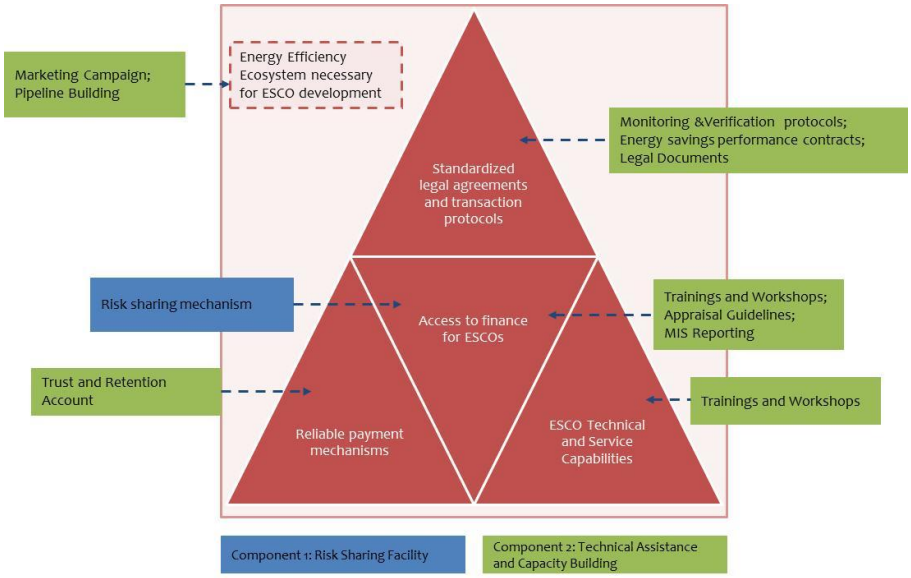
2. Component 2: A technical assistance and capacity building component of US$6 million, funded by GEF, US$4 million managed by SIDBI and US$2 million managed by Energy Efficiency Services Limited (EESL).[14]

[13] Co-financing is defined here as the total amount of GEF financing, the total amount of loans that receive risk-sharing coverage, and the total equity financing for projects whose loans receive risk-sharing coverage [Why is GEF funding being included in co-financing total? Also if the term refers to additional private sector investments, is this really co-financing as the Bank usually uses the term?]

[14] EESL is a Joint Venture of NTPC Limited, Power Grid Corporation of India Limited (PGCIL), Power Finance Corporation Limited (PFC) and Rural Electrification Corporation Limited (REC) to facilitate implementation of EE projects in India. Under

26. The above two components are designed to strengthen the market-driven "energy efficiency ecosystem" conditions necessary for addressing EE market barriers and development objectives identified in Section I. Both SIDBI and EESL are leading institutions in India in the area of EE financing and EE and ESCO market development. SIDBI's experience with guarantees and EESL's experience of market development and aggregation will complement each other in achieving the objectives of the Project. Figure 2 depicts the specific design elements, and the following description explains the concepts in more detail.

Figure 2: PRSF Project Components to Build an EE Ecosystem



Component 1: Risk Sharing Facility for Energy Efficiency (US$37 million)

27. This component will be executed by SIDBI[15], the proposed Project Execution Agency (PEA)[16], to establish a Risk Sharing Facility for Energy Efficiency. This facility would provide partial credit guarantees to cover a share of the default risk that financial institutions face in extending loans to eligible EE sub-projects. Initially the partial credit guarantee from PRSF will be limited to 40-75 percent of the EE loan.

28. The Partial Risk Sharing Facility will be available to supporting EE loans made by SIDBI and by participating financial institutions (PFIs) that will be empanelled and sign a memorandum of understanding (MoU) with the PEA as part of this project. A sub-guarantee fee, at a pre-determined rate, will be charged for each EE sub-project supported under PRSF.[17] While the

---

the purview of the Ministry of Power, EESL is leading the market-related actions of the NMEEE, and it complements the objectives of BEE, which is the statutory body created by the Energy Conservation Act of 2001.

[15] SIDBI is also the implementing agency of the ongoing GEF-financed World Bank project in India, "Financing EE at MSMEs Project" (P100530).

[16] Hereinafter, PEA will imply SIDBI and vice-versa.

[17] Details of the sub-project guarantee structure, modalities and terms and conditions will be in an Operations Manual.

guarantee window for SIDBI loans, to be maintained as a sub-account[18], will have an initial corpus of US$6 million of GEF grant for risk coverage, the window for guarantee calls from PFIs (not including SIDBI), in the second sub-account, will also have an initial corpus of US$6 million GEF grant for risk coverage and will in addition be backstopped by additional risk coverage through CTF guarantee of US$25 million (contingent finance).

29. All the Facility fees and expenses covered from interest and sub-guarantee fee income which will increase over time, will be maintained under the third sub-account of PRSF. This window will be used to pay CTF's MDB fee for IBRD and CTF guarantee fee, fixed and variable management fees for SIDBI as a PEA, and other operating expenses of the Facility (such as M&V expenses). SIDBI will have the flexibility to move funds to and from any of the three sub-accounts. In case funds from the PFI sub-account have to be moved out, consent from IBRD/CTF/GEF will be required.

30. To be eligible for credit guarantees from PRSF, PFI loans will have to be for EE projects that are implemented by ESCOs. For projects to be eligible, the implementing ESCO will have to have an energy savings performance contract (ESPC) with the beneficiary host entity. Further, SIDBI and the PFIs will have to appraise the projects using the standardized appraisal documents and using the PRSF Operations Manual (OM) and template agreements attached to the OM. This arrangement is explained in Figure 3.

31. **Project Pipeline for PRSF***:* There is a robust market of potential ESCO-implemented energy efficiency projects for PRSF support, and there are several potential candidates to receive initial PRSF support. Initial PRSF support will focus on energy efficient street lighting projects in the short term, including those under development with EESL and MSME EE projects being developed by SIDBI.[19] The initial projects would likely be ten municipal street lighting projects, requiring a total of US$ 70 million in investment, which EESL has identified as the best candidates.[20] In the medium term, the pipeline will be focused on buildings. See Annex 7, section E for a brief description of these projects.

32. A larger set of projects that could be eligible for PRSF has been identified by the team in collaboration with ESCO and industry associations, as well as EESL and SIDBI during project preparation. This additional pipeline comprises 34 projects from industrial MSMEs, large industries, buildings, and municipalities requiring a total of US$108 million in investment. The candidacy of these specific projects for PRSF is more certain for the medium term and they are representative of the depth of EE projects in India that would be eligible for implementation through ESCOs and for PRSF support. See Annex 7, Section E for a list of these projects. In addition, Annex 7 analyzes the economic and financial viability of a selection of the street lighting and other projects.

Component 2: Technical Assistance and Capacity Building (US$6 million)

[18] Also referred to as a ledger account

[19] Including an investment-grade pipeline of EE projects in MSME sector developed under the ongoing GEF-financed World Bank project in India with SIDBI, "Financing EE at MSMEs Project" (P100530).

[20] Six of these ten are small street lighting projects that EESL believes would be implemented by smaller ESCOs.

33. This component will fund technical assistance and capacity building to ensure that Component 1 is successful and to address other aspects of the energy efficiency ecosystem needed to sustain a strong EE market transformation. It will develop the capacity of PRSF Facility; standardize transaction and appraisal documents for ESCO projects; provide for monitoring and evaluation of the project; provide marketing and awareness for the project; and develop a pipeline of sub-projects to utilize the PRSF.

34. Component 2 will have two TA implementing agencies: SIDBI will manage US$4 million and EESL will manage the remaining US$2 million. EESL has a GoI mandate to function as a market aggregator for EE projects in India. SIDBI has a successful track record of running EE projects and guarantee operations, including under World Bank-funded projects. As a part of SIDBI's broader strategic vision, it intends to develop and provide end-to-end solutions for delivering EE services in India.

35. SIDBI will provide upfront project preparation support and market development and facilitation support to help the implementation of the risk-sharing facility itself. In addition, it will provide assistance to the PFIs, ESCOs and host entities by bringing them together and facilitating match-making and disseminating information about the PRSF. The SIDBI team operating PRSF will make consultants, standardized tools and templates available to PFIs, ESCOs and beneficiary sectors directly involved in PRSF or working in EE market. It will also provide capacity building and training.

36. EESL will deliver technical support to address broader EE market barriers in India. Its support will be on a broader scale and reach out to a larger set of EE market stakeholders than SIDBI's. BEE works closely with EESL in the latter's role as a financial and implementing agency to facilitate the enabling environment for scaling up EE investments in India, particularly through ESCOs.

B. Project Financing

Financing Instrument

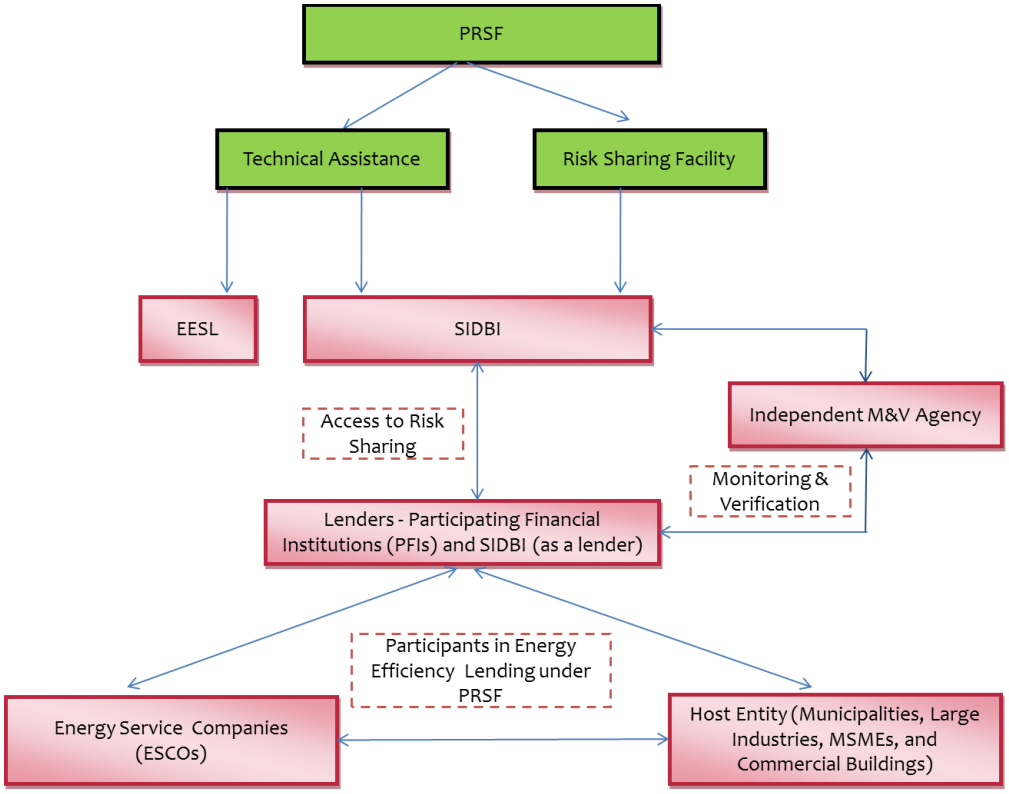
37. The financing instrument for the CTF financing for this project will be a CTF Guarantee of US$25 million. The US$25 million CTF Guarantee will be provided as contingent finance for the risk-sharing facility to cover the risk of capital shortfall in the PFI sub-account of the Facility, which will be capitalized by US$6 million of the US$12 million GEF grant into the Facility. The CTF contingent finance will disburse only if the amount in the PFI sub-account is insufficient to meet sub-guarantee calls[21]. The CTF Guarantee fee is 0.1% per annum on the committed CTF amount[22] for a maximum period of 20 years. The CTF Guarantee does not

[21] It is expected that the minimum amount of CTF Guarantee payment will be US$500,000 even if the cash shortfall in the PFI sub-account is less than that. This is to limit the transaction costs associated with a potentially high number of CTF Guarantee claims if losses occur on many of the 570 PRSF sub-guarantees forecast to be issued over 10 years.

[22] The committed amount in this context is interpreted as the amount of guarantee being at risk. Although, the CTF Guarantee will be made available for up to 20 years for a maximum amount of US$25 million, the Government of India has requested that only part of the CTF Guarantee may be committed in a given year depending on capital needs of the Facility. The CTF Guarantee

require a sovereign counter-guarantee. The instrument will be committed in increments, using a step-up schedule based on the proposed capital requirement of the risk-sharing facility and, the CTF guarantee fee of 0.1% per annum will be charged only on the amount committed in each step. A front-end fee of US$200,000 will be payable by SIDBI to IBRD for the CTF guarantee, at guarantee effectiveness.

Figure 3: Design and Institutional Structure of PRSF



38. The instrument for the GEF financing for this project will be a GEF Grant of US$18 million. The risk sharing facility will be capitalized with US$12 million of the grant funds to be used for facility management and operating expenses as well as sub-guarantee calls, and US$6 million will be allocated to Technical Assistance component.

Project Cost and Financing

39. The total project cost is estimated to be US$43 million, of which the CTF Guarantee will constitute $25 million and the GEF grant will finance $18 million. Of the CTF and GEF funds, US$37 million will be used to support the risk sharing facility and US$6 million will be provided as TA. The total program cost will include PRSF-covered debt of US$51 million (amount of sub-

fee would not apply on the entire CTF guarantee amount approved by CTF TFC but only on the committed amount. While, depending on interpretation, the guarantee charge might be different from the guarantee charge for contingent finance as stipulated in the CTF Public Sector Financing Paper, its structure is analogous to the charge for loan guarantees.

guarantees[23] issued over a 10-year period, including rolling over some of the funds in the Facility for a second round of sub-guarantees), uncovered commercial debt (part of the debt of the EE projects that will not be guaranteed by the Facility) of US$44mn and private co-financing/equity of US$40mn. Together with TA, the total program cost is therefore US$135 million.

40. The PRSF is expected to mobilize over US$135 million of commercial financing in EE investments. The initial project duration is 15 years, and risk coverage of sub-guarantees will extend for up to 5 years (or until the project closes, whichever is earlier); some of sub-guarantees issued in the earlier years can be reissued until year 10 so that any 5-year guarantee issued that year would amortize by the end of year 15. SIDBI has the flexibility to continue issuing guarantees until the end of year 15 since the CTF Guarantee will be made available for 20 years. The PRSF will use the funds under Component 1 to issue risk coverage for 40-75 percent of the loan principal. It is estimated that about US$14 million – will be reissued as new guarantees (as some risk claims may have been made on the first "set", and many of the first guarantees will not mature until the Facility's 7th or 8th year). After accounting for reflows, facility income, and management and operating expenses, the PRSF will likely issue a total of US$51 million in sub-guarantees which would mobilize US$95 million in energy efficiency loans. These loans typically cover 70 percent of the capital cost, as debt, of an energy efficiency project, so the total energy efficiency investment supported by these loans would be US$135 million.

Table 1: Project Components and Financing

Project Components	Project cost	CTF and GEF Financing	Private sector financing	% Financing
1. Risk-Sharing Facility for Energy Efficiency	US$37 million	US$25 million as CTF Guarantee; US$12 million as GEF Grant	US$51 million in covered commercial debt; US$44 million in uncovered commercial debt; US$40 million in equity	
2. Technical Assistance and Capacity Building	US$6 million	US$6 million as GEF Grant		
Total Project Costs	US$43 million			
Private financing	US$135million		US$135 million (loans and equity)	
Total Financing Required (Program Cost)	US$141 million (private investment + TA)			

[23] The maximum tenure of each sub-guarantee supported by PRSF will be 5 years.

C. Lessons Learned and Reflected in the Project Design

41. The ESCO performance contracting adopted in various countries show promising results towards helping address the EE market barriers and scaling up EE investments. For example, in the United States, there have been over 500 programs that have saved energy worth 30 trillion BTU leading to $11.7 billion cost savings. In Canada, ESCO projects have been undertaken covering 7,500 buildings saving over $40 million in energy costs and reducing energy intensity by 20%. In the EU, ESPC projects have been implemented in over 2,000 properties with savings of 30 to 45 million Euros. Japan has recently completed 50 ESPC projects producing 12% reduction in energy intensity, and about 1,400 projects have been implemented in South Korea. In China, the ESCO industry grew from three companies in 1997 to about 560 companies with over US$4 billion in ESPCs in 2010.

42. The EE market in India is more similar to that of China and other developing countries, in terms of barriers and risks perceived by various stakeholders in the EE markets. Lessons learned from the experiences in CHUEE and China Energy Conservation II Program in China and from experiences in other World Bank programs have been applied in PRSF project design. The targeted, innovative EE financial incentives such as risk-sharing programs and well-designed TA efforts in these programs were able to address the key EE market barriers, demonstrate successful implementation, and had laid the roadmap for large scale implementation, The mix of success provides important lessons with respect to key parameters the risk-sharing programs are likely require for achieving success in EE market transformation. These lessons include having the provision of coupling a strong technical assistance and capacity building with financial incentive models like that of the risk-sharing facility, having a conducive EE regulatory fiat in the country (like in India, the NMEEE and India's Energy Conservation Act of 2001), having a mature commercial banking sector in the country with strong competition, having some flexibility in design to incorporate mid-term corrections, and having a pro-active implementing institution that can assume the anchor role to transform markets (such as that proposed with SIDBI as the PEA for the PRSF Guarantee Facility).

43. The task team gathered knowledge, considered multiple sources, and consulted with a diverse range of stakeholders in India, including BEE, EESL, SIDBI, other financial institutions, and industry / ESCO associations to inform the project design. The consultative approach included specifically the following: (a) Analysis of India's Financial sector & EE regulations; (b) Experience of the World Bank in EE risk sharing programs; (c) Study on other non-World Bank risk sharing mechanisms in India in the same or similar space; (d) Working closely with BEE and study of the GoI's PRGF under design; (e) Extensive stakeholder consultations with Financial institutions, ESCOs, industry, private sector, GEF, CTF, IFC, etc. Further details are provided in Annex 2.

44. However, ESCO market in India remains a relatively unchartered territory. Therefore, the PRSF Project design allows the flexibility of some of the structural elements and modalities. For instance, PRSF will be pursuing both shared and guaranteed savings ESPC approaches, as well as demonstrating the feasibility of other locally-adapted, emerging models like deemed savings ESPC models. The latter is being applied in a limited number of municipal EE street lighting projects.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

45. The implementation of the PRSF involves multiple stakeholders, and design elements, modalities and processes, and governance framework to ensure close coordination amongst themselves. A Cooperation Agreement between India and GEF and CTF (with IBRD as implementing entity) along with a CTF Guarantee Agreement with SIDBI and GEF Grant Agreements with each of SIDBI and EESL will lay the legal framework for this proposed operation. All agreements will include references to other key documents, including the Operations Manual.

46. SIDBI will, as a Project Execution Agency (PEA), manage the PRSF Guarantee Facility on behalf of India as shown in Figure 4. SIDBI functions under the aegis of Department of Financial Services, Ministry of Finance and the Ministry of MSMEs. The institutions, who will benefit from the PRSF Facility to be managed by SIDBI, will be the PFIs, ESCOs and the beneficiaries (MSMEs, industries, municipalities and buildings). [24] The TA implementing agencies are SIDBI and EESL.

47. Both ESCOs and host entity beneficiaries could be the borrowers of energy efficiency loans from PFIs under PRSF. The project (host entity) beneficiaries are the owners, represented by authorized representative, within whose premises the energy efficiency project is to be implemented. The project beneficiaries are: (a) Large industries, including those notified under the BEE's energy consumption norms and standards (i.e., through PAT), or (b) MSMEs, or (c) street lighting (municipalities), or (d) buildings.

48. PFIs will be scheduled commercial banks and non-banking financial corporations (NBFCs), regulated by the RBI, that will meet the PFI eligibility criteria for empanelment.[25] The empanelment criteria for PFIs will be laid out in the Operations Manual.

49. An initial allocation of US$6 million out of the GEF Funds for PRSF would also be made available to support SIDBI's lending operations, provided that its lending and facility management roles are clearly separated, it meets all necessary eligibility criteria and that the loans are extended on a commercial basis[26]. The empanelled PFIs will be allowed to access the other sub-account window of $6 million of GEF Funds for the PRSF Facility and lend to ESCOs

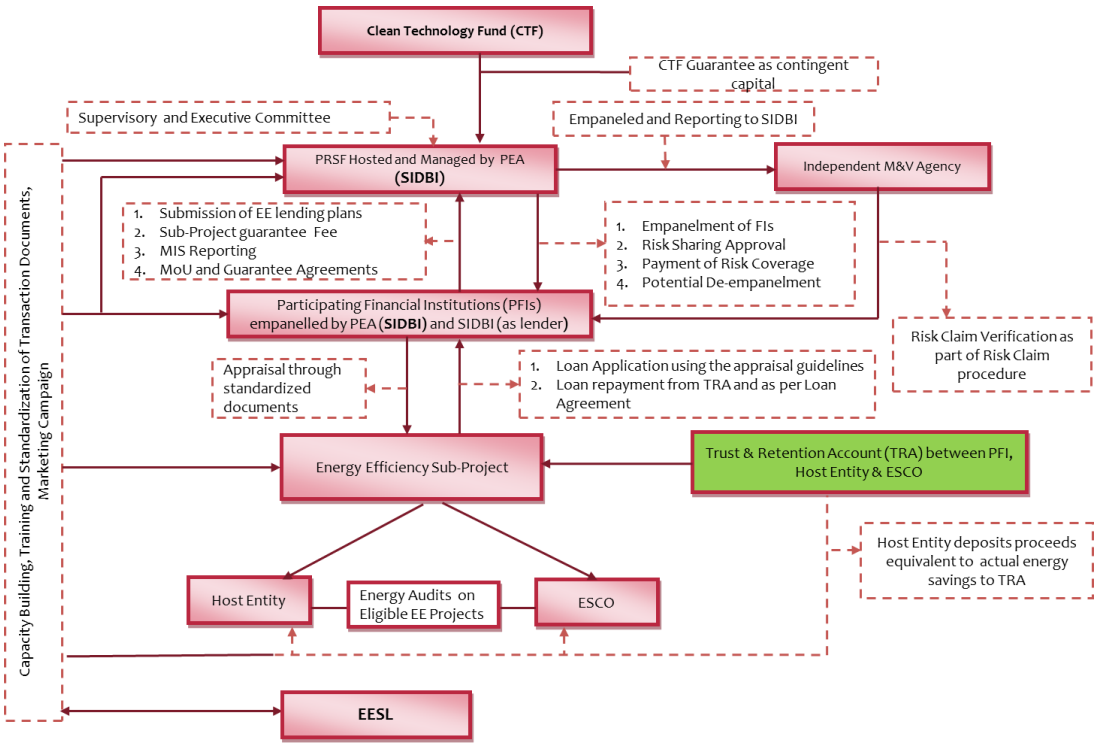
[24] As per the current Authorization from the Government of India, SIDBI can issue loans to MSMEs, but issue sub-project guarantees to loans made by other FIs to only micro and small enterprises, while they can indemnify their own loans to medium scale enterprises.

[25] Regardless of ownership, scheduled commercial banks and NBFCs will also need to meet applicable World Bank guarantee policy requirements in order to become PFIs. As the implementing agency of CTF for this operation, the World Bank's policy requirements relating to eligible guarantee beneficiaries apply. As SIDBI would likely not meet those requirements, the sub-account window allotted to support SIDBI's lending will not benefit from the CTF guarantee.

[26] Subject to appropriate conflict of interest arrangements, the Facility's proceeds may be used to underwrite Sub-Financings made by SIDBI, on its own account. The precise nature of these underwriting arrangements, and their legal modalities (whether in the nature of financial indemnification, loan-loss provisioning or other equivalent arrangements) will be finalized at negotiations. Such underwriting of SIDBI's Sub-Financings would not be backstopped by the CTF Guarantee.

or host entities for implementing ESPC-based EE projects. This latter sub-account window will be backstopped by the $25 million CTF guarantee.

Figure 4: Overall Implementation Arrangements Under PRSF



50. Considerable preparation effort in collaboration with SIDBI and other entities have led to the preparation of the Guarantee Product, which would be further integrated into the Operations Manual. The Guarantee Product includes elements like: risk sharing arrangements and options; verification and payment mechanisms; guarantee tenor and limits, risk claim procedures, fees, etc.

51. The Operations Manual (OM) will be the guiding document for the SIDBI to manage the PRSF Facility as a PEA, empanel PFIs, determine eligibility of ESCOs, apply standard transaction and appraisal documents (which will be annexed to the OM), setup of a Trust and Retention Account (TRA) and appoint independent Monitoring and Verification Agencies (MVAs). Annex 3 gives further details of the implementation arrangements.

52. The key pillars of the project's implementation arrangement and governance measures include setting up an Executive Committee and an Advisory Committee. These Committees will ensure that proper guidance is provided for smooth functioning and governance of the Facility. It will take appropriate corrective measures, if required, during the implementation phase to ensure that PRSF meets its objectives. The Executive Committee will include operational teams of SIDBI and EESL. The Advisory Committee will be co-chaired by Managing Director / Deputy Managing Director, SIDBI and Director General, BEE. As laid out in the Operations Manual, the Executive Committee will have the operational flexibility to define / alter various parameters of

the Guarantee Product to be used by the Facility within allowable ranges. The decisions by the Executive Committee will be reviewed, on a quarterly basis, by the *Advisory* Committee.[27]

53. An annual Business and Implementation Plan for the PRSF will be prepared by the Executive Committee. The Plan will describe the expected activities and will be submitted to the Advisory Committee, IBRD and Government of India for review and advice. This Plan will also be used by the IBRD for supervision of the Project.

B. Results Monitoring and Evaluation

Monitoring

54. The PRSF project design ensures effective monitoring at every crucial step of the project. Because measurement and verification (M&V) of energy saving is an integral element of ESPCs, the project by design lends itself to accurate and robust measurement of outcome indicators.

55. The key outcome indicators for this project, such as annual energy and CO2 savings achieved by projects and number of ESCO-implemented energy efficiency investments, will be tracked at the aggregate level through the annual PRSF Business and Implementation Plan and a dedicated MIS-based system that will also provide access to information on the financial and operational performance of the Facility.

C. Sustainability

56. The PRSF project design includes a risk-sharing facility to address one of the key barriers faced by ESCOs and many end-users such as SMEs, municipalities, mid-tier large industries and buildings, that is, their ability to access commercial finance. Ultimately, PRSF aims to trigger a sustainable market transformation by demonstrating successful implementation of EE projects using ESPC approach by ESCOs that would address FIs' perceived risk in dealing with such end-users and ESCO. This will be achieved by creating the enabling conditions for the ESCO and ESPC markets which would sustain beyond the lifetime of the project. Past World Bank experience in EE markets has shown that projects that pair a strong technical assistance and capacity building component along with a facility providing financial incentives, have been significantly more successful in generating a sustained impact.

57. The PRSF is designed with a market exit strategy in place. Although the PRSF project could continue for 20 years, it is estimated that the program for risk-sharing coverage through partial credit guarantees will last for 15 years. It is being assumed that the last sub-guarantee is issued in year 10. The project will mobilize over US$135 million of commercial capital and demonstrate successful ESCO-implemented projects, and it is expected that this will help the PFIs in particular and commercial banks in general to become comfortable with ESPC models thereby reduce their risk perception that is currently prevalent in EE market in India, about

[27] The terms of reference, etc. for these committees will include provisions for dealing with conflicts of interest especially when SIDBI sub-projects are submitted for coverage.

ESCO transactions and non-asset based financing approaches that EE projects entail. In addition, the technical assistance provided through the project will have increased the capacity of financial institutions to analyze and appraise EE loans. Together, this should obviate the need for the type of risk-sharing offered through PRSF, and the facility can exit the market and let market forces take over.

V. KEY RISKS AND MITIGATION MEASURES

A. Risk Ratings Summary Table

Stakeholder Risk	Rating
Implementing Agency Risk	**M**
- Capacity	M
- Governance	M
Project Risk	**S**
- Design	M
- Social and Environmental	L
- Program and Donor	L
- Delivery Monitoring and Sustainability	S
Overall Implementation Risk	**S**

B. Overall Risk Rating Explanation

58. Even though SIDBI is a financial institution which has experience with guarantees and in EE sector, the capacity to deliver a complex transaction through PRSF involving multiple stakeholders could be a significant challenge. SIDBI also has limited experience of EE transactions involving ESCOs. The PRSF Operations Manual will include roles and responsibilities of different stakeholders, ESPC and M&V guidelines, eligibility criteria, environmental and social safeguards, etc. The capacity building and targeted technical assistance support will help in driving the risks down to moderate level.

59. The PRSF project design is inherently complex throughout the scope and scale of the project. It includes multiple building blocks to create an ecosystem that would catalyze the market functioning together. The initial design risk was expected to be ‘Substantial’. However, the proposed design, tailored to address the ecosystem barriers, has mitigated the risk to ‘Medium’ level.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analyses

60. The economic and financial analyses are based on a set of sub-projects from the sectors covered by PRSF that are representative of those likely to receive PRSF support. The economic and financial returns are analyzed at the sub-project level to confirm that projects likely to receive risk coverage under PRSF are financially-viable and produce sufficient economic returns. In addition, the sub-projects are aggregated up to form a representative portfolio, and the economic returns of the portfolio are analyzed to confirm that the project as a whole is economically viable.

61. The representative sub-projects are individually financially viable and provide substantial economic returns to the country. Their financial internal rates of return (IRRs) range from 16 to 197 percent, with payback periods ranging from 0.56 to 7.01 years, and their economic rates of return (EIRRs) range from 35 to 427 percent. In aggregate, a representative portfolio of sub-projects likely to be supported by PRSF would also provide significant economic returns to the $43 million of funding provided for the project. Depending on the portfolio composition (see Section B of Annex 7 for more discussion on this), the EIRR for the PRSF will likely be between 19 and 54 percent, with an accompanying NPV of between US$25.29 million and US$378.36 million, respectively. In addition, the portfolio would likely avoid between 0.08 and 0.40 million tons of CO2 over the cumulative 19-year lifetime of supported projects.

62. The Facility is also financially viable on a portfolio basis based on a 15-year cash flow forecast, which assumes that a total of US$51 million of sub-guarantees would be issued. The cash available for the facility from the GEF Grant, interest earned and sub-guarantee fee income will be sufficient to cover all facility management and operating costs as well as all sub-guarantee claims in the base case scenario. The CTF Guarantee will backstop a large part of the outstanding sub-guarantee portfolio on a second-loss basis but is not expected to be called at all in the base case. The CTF Guarantee will start to be called only when the payout rate reaches 15 percent of all outstanding sub-guarantees, which is considered as a pessimistic and unlikely scenario.

63. Sensitivity analysis suggests that the likelihood of CTF funds disbursed under a CTF Guarantee call depends greatly on the actual losses incurred by the facility and on what terms the sub-guarantees are issued (pricing being the most important). Risk management mechanisms will be introduced to proactively adjust the facility's risk profile and sub-guarantee terms in response to market conditions and actual losses sustained.

B. Technical

64. The PRSF will support energy efficiency projects in large industries, MSMEs, buildings, and municipalities (street lighting) that are based on commercially available, well-tested and proven technologies which save energy. The design of the PRSF project has taken into consideration the importance of generating a sustainable market transformation. Ultimately, PRSF aims to trigger this EE market transformation by creating the conditions for the ESCO and

ESPC markets to flourish in India. The focus of PRSF will largely be on MSMEs and Street Lighting sub-projects in the short term, and buildings in the medium-term.

65. The premise under PRSF design and approach is that even financially viable EE opportunities are not being captured by the market. These projects not being implemented especially by the mid-tier large industries, MSMEs buildings, municipal street lighting, etc. primarily due to the lack of their technical capacity but also due to their inability to borrow from FIs for EE projects. Even though ESCOs bring robust technical solutions which could bridge the technical gap in these end-user segments, most ESCOs themselves being small in size with limited balance sheets, are also constrained by their ability to access finance.

66. The risk-sharing component of this project is also fundamental to the PRSF's achievement of sustained impact. The PRSF project, in addition to a risk-sharing financial incentive-based framework, has a significant technical assistance component to help create asset and knowledge base and a strong capacity building component to ensure both financial institutions and ESCOs gain the technical expertise and experience with ESPCs, necessary to scaling up financing and implementation in the energy efficiency market.

C. Financial Management

67. The project will be implemented by two agencies – (i) SIDBI, a statutory body incorporated under SIDBI Act 1989 as a financial intermediary/ institution with business domain as lending to micro small and medium enterprise and (ii) EESL, a public sector entity under the administrative control of Ministry of Power. The project involves issuance of guarantees by SIDBI and related technical and financial management and project management activities. EESL will be undertaking the TA activities, including supporting activities that would help expand the pipeline for the project.

68. Financial Management assessments of SIDBI and EESL were carried out to determine if as implementing agencies, these entities have the capacity to produce timely, relevant and reliable financial management information on the project and whether their underlying controls are adequate to meet the fiduciary objectives. The assessment concludes that the overall risk of the project is considered 'High' before mitigation and 'Substantial' post mitigation. Details of the assessment and mitigation actions are provided in Annex 3, Section B.

69. SIDBI is adequately exposed to the Bank's financial management procedures having successfully implemented Bank funded SME financing projects and with the ongoing 'financing energy efficiency at MSME' operation. Hence it is proposed to use the current mainstream FM systems of SIDBI for the project. However, given the background of the innovative project design of the operation involving ESCOs and due to the multiplicity of agencies (PFIs, ESCO, end user companies/ host entities and its related M&V structure), there are risks, which needed to be mitigated through certain special arrangements. Overall SIDBI financial management systems including accounting, financial reporting and auditing systems along with the recommended mitigation measures are adequate to meet Bank's requirements under OP BP 10.00. EESL systems were appraised and they are adequate to meet the requirements under OP 10.00.

70. **Challenges**: What remains challenging in the project from design perspective would be:

- Given the limited experience of ESCO projects in India, to continue building a sustaining and credible pipeline of EE projects to be implemented by ESCOs.
- Independent claim verification agency mechanism for monitoring project related activities vis-a-vis agreed milestone for each sub-guarantee which is unique due to its industry, size, terms of financing, amount and other modalities involved.
- Predictability of guarantee facility utilization.

Funds Flow and Disbursement Arrangements

71. As per GoI Circular[28], GEF funds need to be mandatorily routed through GOI's budgetary channel. However, direct transfer from Bank to SIDBI and EESL is being explored by SIDBI in consultation with DEA. The arrangements on fund flow will be firmed up by appraisal.

A. GEF Guarantee fund US$12 million: The funds for the two guarantee facilities of US$ 6 million each will be released immediately on signing of the grant agreement and will be considered as eligible expenditure. SIDBI will receive the funds into their common pool bank account and utilize them towards guarantee calls in the manner specified in the OM.

B. CTF Guarantee (contingent finance) US$25 million: CTF guarantee would flow to SIDBI to cover capital shortfall to meet sub-guarantee calls from PFIs in the manner specified in the OM up to the amount committed each year subject to a maximum of US$25 million.

C. GEF TA US$6 million: The TA amount would flow to SIDBI (US$4 million) and EESL (USD2 million) as reimbursement on the basis of quarterly Interim Unaudited Financial Report submitted to the Bank within 45 days from the end of each quarter.

Amount in USD/ million

Particulars	SIDBI	EESL	Total	GEF	CTF
GEF: Seed capital for risk sharing facility	12	0	12	12	
GEF: Technical Assistance	4	2	6	6	
CTF: Guarantee (backstop)	25	0	25		25
Total	**41**	**2**	**43**	**18**	**25**

D. Procurement

72. Apart from contributing US$37 Million to risk sharing facility to be managed by SIDBI, the proposed grant will finance technical assistance (US$ 6 Million) involving mostly the selection of consultants and some procurement of goods and IT system. All the contracts will be issued at SIDBI (which has prior experience of handling Bank financed procurement) and EESL

[28] Letter F. No.1(15)B(Ac)-2012 dated September 14 2012 of MoF, DEA, Budget division.

(which has never handled Bank financed procurement). The residual procurement risk rating is "moderate". The major risk is delays in procurement decision-making and mitigation measures are advance contracting and closer monitoring/handholding by the Bank. More details on procurement arrangements are provided in Annex 3.

E. Social (including Safeguards)

73. The proposed project as mentioned above will be executed by SIDBI as the PEA, through PFIs, which will extend the guarantee facility to EE projects. Though the project does not trigger social safeguard issues (indigenous people and involuntary resettlements); however, it demands attention on the social and gender issues.

74. As per the PRSF design, either ESCOs or the host entities will be the borrowers from PFI and their loans will be covered through partial credit guarantees. It is important to ensure that the ESCOs and host entities participating under the project are gender sensitive, i.e. (a) either give preference to projects that improves working conditions for women or, at a minimum, do not allow projects that worsen working conditions (b) adopt minimum safety/labor conditions that the beneficiaries have to meet for their projects' loans to get guarantees. Further, in order to promote female participation the project can consider to (a) relax the eligibility criteria for guarantees going to loans for projects at beneficiaries with female decision-makers and/or (b) design the eligibility criteria to be more attractive to beneficiaries with female decision-makers.

75. Given the mandate of the project, it is pertinent to conduct sensitization and capacity building workshops for SIDBI, Project Management Unit (PMU) to be set-up within SIDBI, financial institutions, ESCOs and other borrowers on social and gender issues within the project.

76. Monitoring and evaluation component of the program may also include review of social and gender aspects.

F. Environment (including Safeguards)

77. The proposed PRSF will be executed by SIDBI acting as the PEA. The loans to ESCOs and host entity beneficiaries from participating FIs will be supported by the PRSF Fund, through partial credit guarantees. The ESCOs participating under the project will be the ones that are empaneled by BEE. The project will aim at achieving efficiency through technology upgradation / retrofits in target sectors – mid-tier large industries, MSMEs, street lighting and buildings. Thus, the project will support brown field beneficiaries leading to EE benefits, as well environmental co-benefits.

78. However, from the environmental safeguards perspective, the current status of target sectors vis-à-vis environmental performance would be of importance from the regulatory and reputational risks point of view. In addition, the environmental impacts of proposed technology upgradation in target sectors also cannot be ruled out, though the proposed EE interventions are relatively small investments and do not lead to any significant environmental impacts. Thus, SIDBI as the PEA, as well as the PFIs whose loans to EE projects will be supported by partial credit guarantees issued by the PEA needs to integrate safeguards mechanism as part of appraisal of PRSF transactions. Considering the target sectors under the project and the type of

investments, the environmental issues/risks could vary from low to moderate intensity. These are not amenable for upfront identification for designing a particular or set of environmental mitigation/management measures. Also, there could be practical limitations (in some sectors) in retrofitting the environmental performance complying with the EHS guidelines of the World Bank Group, especially in case of industrial sector investments as: (a) the project facility supports marginal investments, in the context of overall size and turnover of industrial units and hence limited leverage; (b) the industrial units expected to be covered under the project are brown-field in nature and any environmental retrofits, in case if required, could be time consuming and need not necessarily be part of the expected EE measures.

79. Given the foregoing, the prudent means to address the environmental safeguard issues would be to use a risk based environmental approach, considering the country environmental standards and formulation of an environmental management framework, which includes: (i) establishing effective institutional management mechanisms which may include, integration of basic environmental management protocols for ESCOs and PFIs, and ensuring mandatory environmental due diligence as part of proposals for energy efficiency improvement (the Detailed Project Reports), integration of environmental considerations in PFIs credit and risk appraisals, etc.; and (ii) focused Monitoring and Evaluation mechanism which will ensure compliance with environmental safeguards. These requirements are addressed through an Environmental Risk Management Framework (ERMF) which essentially defines the protocols to identify risk management mechanisms including remedial actions within the purview of best industrial management practices in the country as well as locally sensitive environmental aspects associated with the targeted host large and MSME industries, buildings, municipalities, on a case to case basis. The draft ERMF is already in place, which was reviewed by SIDBI as well as the Bank team and has been disclosed for review by all the potential stakeholders including ESCOs, large industries, MSMEs, municipalities, citizens groups, etc. to further refine and formalize as part of the project operations manual. Further, the project envisages enhancing the awareness and capacity of the project stakeholders through institutional component of the project.

Annex 1: Results Framework and Monitoring

INDIA: Partial Risk Sharing Facility for Energy Efficiency

PDO	Project Outcome Indicators	Use of Project Outcome Information
To assist India in achieving energy savings by catalyzing the market for ESCO-implemented energy efficiency projects	• Annual energy savings achieved by projects that receive PRSF risk coverage (GWh) • Annual mitigation of CO_2 emissions achieved by projects that receive PRSF risk coverage (million tons; estimated based on the type and amount of energy savings recorded) • Total number of ESCO-implemented energy efficiency investments whose loans receive credit guarantee from PRSF	• To monitor achievement of PDO and assess sustainability of the program • To calculate the annual CO2 reduction resulting from the annual electricity savings
Intermediate Outcomes	**Intermediate Outcome Indicators**	**Use of Intermediate Outcome Monitoring**
Increase EE financing by PFIs to ESCOs and build capacity among PFIs and ESCOs	• Total amount of loans that receive risk-sharing coverage through credit guarantees from PRSF • Total amount of co-financing • Default rate of loans that receive risk-sharing coverage through credit guarantees from PRSF	• Monitor the trend in PFI and ESCO involvement in performance contracting

Arrangements for Results Monitoring

Project Outcome Indicators	Target Values*[29]											Data Collection and Reporting		
	Base-line	YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	YR10	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Annual energy savings achieved by projects that receive PRSF risk coverage (GWh)	0	37.4	112.3	261.9	449.1	636.2	785.8	898.1	972.9	1029.1	1066.5	Quarterly	MIS and M&V	SIDBI
Annual mitigation of CO_2 emissions achieved by projects that receive PRSF risk coverage (million tons; estimated based on the type and amount of energy savings recorded)	0	0.027	0.082	0.192	0.329	0.466	0.575	0.657	0.712	0.753	0.781	Quarterly	MIS and M&V	SIDBI

[29] The World Bank's formal supervision will end in year 7 (Project End Date) with the Implementation Completion Report (ICR), while monitoring will continue from year 8 through year 15. The Facility will issue sub-guarantees until year 10.

Project Outcome Indicators	Target Values*[29]											Data Collection and Reporting		
	Base-line	YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	YR10	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Total number of ESCO-implemented EE investments whose loans receive credit guarantee from PRSF	0	20	60	140	240	340	420	480	520	550	570	Quarterly	MIS and M&V	SIDBI
Total amount of loans that receive risk-sharing coverage through credit guarantees from PRSF (million USD)	0	3.0	10.0	23.0	40.0	56.0	70.0	80.0	86.0	91.0	95.0	Quarterly	MIS	SIDBI
Total amount of co-financing[30] (million USD)	0	18.0	16.0	35.0	57.0	80.0	100.0	114.0	123.0	130.0	135.0			
Default rate of loans that	0	15	15	15	15	15	15	15	15	15	15	Quarterly	MIS	SIDBI

[30] Co-financing is defined here as the total amount of GEF financing, the total amount of loans that receive risk-sharing coverage, and the total equity financing for projects whose loans receive risk-sharing coverage. On a cumulative basis the private co-financing target of 135mn will be reached only by the end of year 10, the last year of issuance of sub-guarantees.

Project Outcome Indicators	Target Values*[29]											Data Collection and Reporting		
	Base-line	YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	YR10	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
receive risk-sharing coverage through credit guarantees from PRSF (%)														

Annex 2: Detailed Project Description

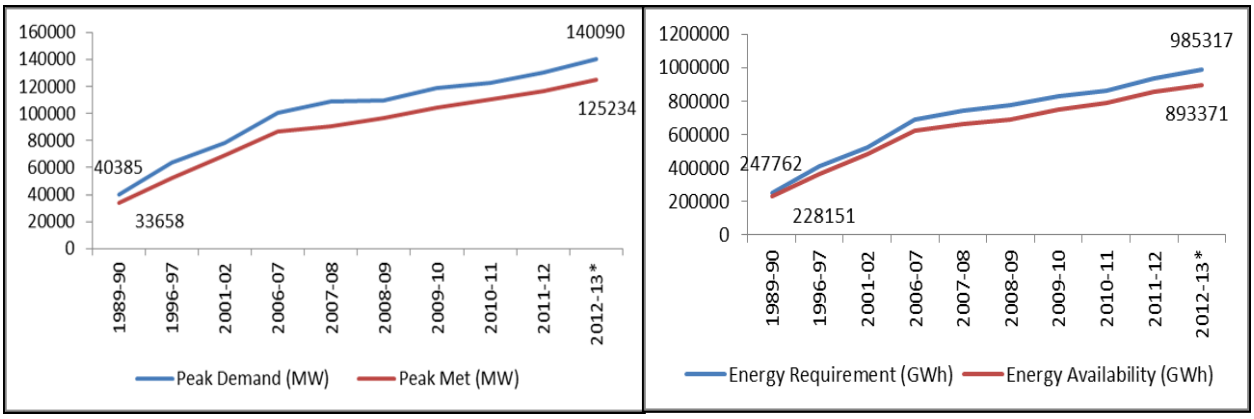
INDIA: Partial Risk Sharing Facility for Energy Efficiency

Country Context

1. India is growing and urbanizing rapidly. The Indian economy registered a robust GDP growth rate of 8 percent during the Eleventh Plan Period (2007-2012), even despite a slowdown in 2011-2012.[31] Commensurate with the high growth rate has been the growing urbanization rate. The urbanization rate was 31.2 percent in 2011, compared to 27.8 percent in 2001, and is expected to exceed 40 percent by 2030.

2. This massive national urban transformation - the largest of the 21st century – defines India's fundamental opportunities and challenges. It must respond to the demands imposed by an increasingly affluent and urban society by providing adequate services and infrastructure but also ensure that the growth and urbanization are environmentally sustainable. Continued economic growth and rapid urbanization will require increase primary energy supply and electricity generation by up to four and six times their current levels, respectively, to provide all households with 'lifeline' electricity consumption by 2031 and sustain economic growth at 8 percent.[32] This is a formidable task, given that, for example, the energy and peak load deficits were 9 and 11 percent, respectively, in 2012, and they are projected to continue growing (Figure 1).

Figure 1: Peak Demand vs. Supply and Energy Requirement vs. Availability in India



*Source: Central Electricity Authority **Anticipated power supply position.*

3. Electricity supply growth is constrained by insufficient domestic energy resources (a shortage of indigenous coal requires India to meet 30 percent of its energy needs through expensive imports) and challenges in implementing renewable energy projects. Such supply limitations mandate turning to demand-side management to ensure electricity supply meets the country's needs. In addition, though India's per-capita primary energy consumption is low relative to even other middle-income countries, it is fourth in the world in terms of total energy

[31] Twelfth Five Year Plan (2012-2017), Volume I, Planning Commission, Government of India

[32] Government of India Integrated Energy Policy (2006). 'Lifeline' electricity consumption is 30 kWh per household per month. These figures are equivalent to an installed capacity between 320 and 332 GW.

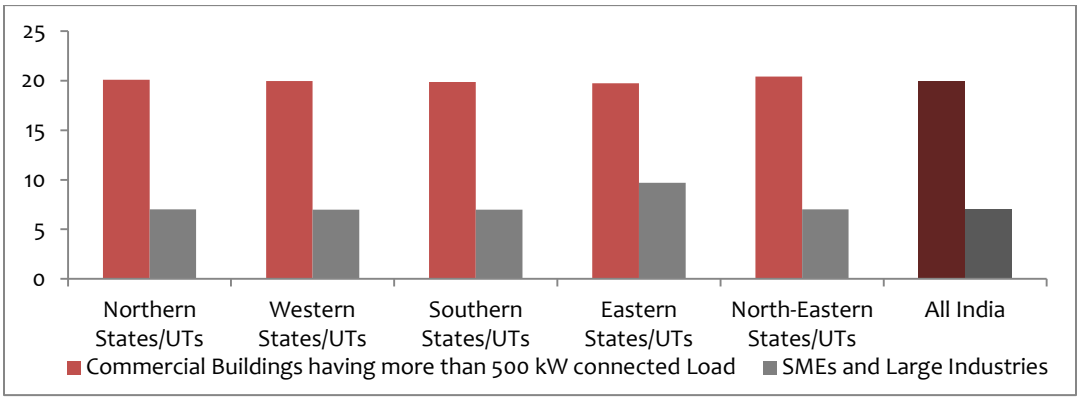
consumption.[33] This suggests a strong need to mitigate the growth of India's energy consumption (particularly among energy-intensive sectors of the economy) going forward, and the Government of India (GoI) is therefore taking strong steps to manage energy demand.

4. Adopting increased levels of energy efficiency (EE) is necessary not only to manage energy demand, but also to enhance energy security and address local and global environmental concerns.

Sectoral and Institutional Context

5. *India's Energy Efficiency Potential*: India has substantial room to save energy. As Figure 2 shows, for example, buildings can avoid an average of almost 20 percent of current energy usage through energy efficiency measures. The industrial sector too has considerable room to gain from incorporating EE initiatives. The GoI estimates that its overall EE market has an investment potential of US$9.77 billion and could save up to 183.5 billion kilowatt hours (kWh) and 148.6 million tons of CO_2 in only five years.[34] Over 25 percent of these estimated savings are expected to be achieved in the industrial sector. Much of this potential may lie with micro, small and medium enterprises (MSMEs)[35], as they comprise more than 80 percent of the country's industrial enterprises and lag behind larger industry benchmarks in technology modernization and other energy efficiency measures.[36] Recent studies have identified many energy efficiency investment opportunities throughout the economy that would yield high financial returns with short payback periods.[37]

Figure 2: Energy Saving Potential as Share of Energy Consumption



Source: Bureau of Energy Efficiency (BEE) Estimates, 2007-08.

[33] According to World Development Indicators, 2013, the average annual per-capita energy consumption in India was 565.64 kilograms of oil equivalent (kgoe) in 2010, compared to a world average of 1,851 kgoe and a middle-income-country average of 1309.5 kgoe. In 2011, India's total primary energy consumption was 559 million tons of oil equivalent (mtoe). Above it was China (2,613 mtoe), the US (2,269 mtoe), and Russia (686 mtoe). Source: BP, "Statistical Review of World Energy." June 2012.
[34] World Resources Institute. "Powering Up: The Investment Potential of Energy Service Companies in India.", 2009
[35] The Government of India has enacted the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 which defines the micro, small and medium enterprises and their sizes.
[36] World Bank. "Energy Intensive Sectors of the Indian Economy: Path to Low Carbon Development.", 2011
[37] Planning Commission 2006 estimates.

6. *Regulatory Mandates and Policy Initiatives*: The GoI has recently enacted a variety of regulatory mandates and policy initiatives to encourage and/or mandate private sector players to realize these energy savings opportunities. By far the largest of these is the Perform, Achieve and Trade (PAT) scheme, under NMEEE, a globally unique program that has mandated energy-intensity targets for the country's most energy-intensive industrial sectors. Thus far, it has set targets for 478 large firms ("designated consumers" (DCs)) covering eight industries, to be achieved by fiscal-year 2015 (Annex 6 describes specific energy-saving measures available to these industries). The Planning Commission estimates that full implementation of PAT would save approximately 24 million tons of oil equivalent (mtoe; 6 percent of India's current energy consumption) by 2020. An array of other government policy initiatives complements the PAT Scheme by providing additional incentives for industrial firms and encouraging similar savings by buildings and MSMEs.

7. *Financing for Energy Efficiency:* Financing for energy efficiency in India is still nascent, but pioneering institutions have made in-roads and shown interest in the area. In 2011, India constituted only 4 percent of total global clean energy investment (US$257.5 billion).[38] Of that, India's investment in solar and wind energy initiatives constituted US$4.2 and US$4.6 billion, respectively. Several banks and financial institutions[39] have been actively engaged in EE financing, including traditional lending, seed funding, venture capital finance, MSME loans, mortgage financing, equipment subsidies, and even a small amount of ESCO financing, since 1999.[40] ICICI, for example, currently has a US$836 million portfolio in energy efficiency and renewable energy lending. Some banks have even developed financial products specifically for EE projects.[41] SBI, for example, had facilitated 60 energy audits and sanctioned 20 energy efficiency loans as of 2009. SIDBI has worked with the MSMEs in promoting EE. However, initial analysis of the schemes suggested these limited set of EE activities did not involve ESCOs to a large extent, and failed to address the main barrier of ESCOs' ability to access financing, and ESCOs' inability to provide security and collateral requirements demanded by lenders.

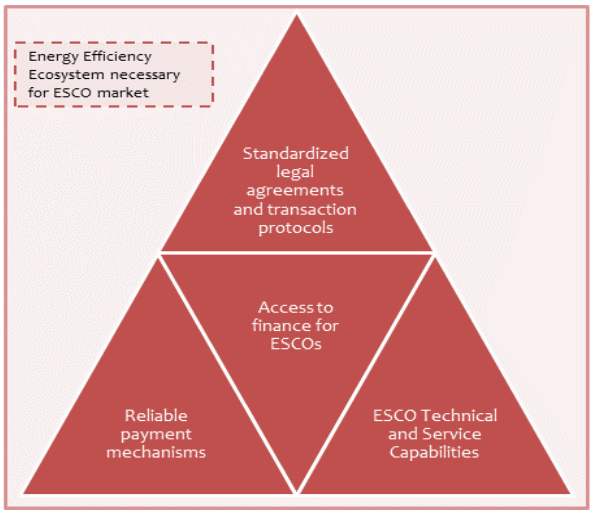
8. *ESCOs and Performance Contracting:* Many consumers with energy savings opportunities, including large middle-tier industrial enterprises (including those covered by PAT), buildings, MSMEs, and municipalities, are unable to implement EE projects, as they lack the technical capacity, have limited ability to obtain financing for EE projects, or face other barriers. In many markets, intermediaries – generally energy service companies (ESCOs) –help clients overcome these barriers and realize their EE potential. ESCOs provide a range of services, including identification of EE opportunities, connection with equipment manufacturers, design and management, construction, maintenance of the EE technology, and monitoring and verification of the resulting energy and cost savings. They establish credibility through an energy savings performance contract (ESPC) mechanism that guarantees the client (host entity) energy savings from the identified EE measures, thereby transferring technical project risk to the ESCO.

[38] RBI 2011
[39] State Bank of India (SBI), Bank of Baroda (BoB), IDBI Bank, ICICI Bank IL&FS, IREDA, SIDBI and Yes Bank.
[40] Natural Resources Defense Council, 2012.
[41] World Resources Institute. "Powering Up: The Investment Potential of Energy Service Companies in India." 2009

9. Going beyond this modality, where the implementation of the EE measures can be financed through a "guaranteed savings" model, in which the client finances the project there is a "shared savings" model, in which the ESCO finances the project, thereby also assuming the project's credit risk, and gets repaid through a portion of the client's future savings.[42]

10. ESCOs are often essential to address EE market barriers and realize energy efficiency potential; however, implementation of ESCO transactions is still inherently complex. Multiple stakeholders of the EE market – ESCOs, firms and buildings that require the EE projects, financial institutions, and sometimes even equipment manufacturers and electricity utilities, and entities that monitor and verify energy savings – have to coordinate to conclude such projects. Thus, a robust "energy efficiency ecosystem" is necessary to enable a successful ESCO and energy service performance contracting market. Figure 3 depicts the conditions of an enabling EE ecosystem for ESCO market.

Figure 3: Enabling "Energy Efficiency Ecosystem" Conditions for ESCO Market



11. *Current ESCO Market in India*: Despite some growth, the Indian ESPC and EE markets have yet to take off on a large scale, financing for smaller ESCOs and pure-play EE projects (where EE is the main focus of a project rather than just a component) is nearly nonexistent, and India's ESCOs are generally limited to equipment manufacturers that operate as vendor-ESCOs and use guaranteed savings models. India has evolved from having only three ESCOs registered with the BEE in the 1990s to 128 presently.[43] However, in 2007, annual ESCO revenues in India were US$21 million, less than one-tenth that of China in 2006 and about one-twentieth that of Brazil in 2008US$. In China, currently over $4 billion a year of business is done in the ESCO industry. In 2009, all ESCO projects financed by banks were implemented by larger ESCOs

[42] For simple EE measures involving technologies with known performance characteristics (e.g., light bulbs) in well-known and consistent use conditions, there is also a "deemed savings" model, in which the energy savings are estimated in advance rather than measured in real-time. In this model, typically the host entity finances the project and takes on the very minimal technical risk that exists in such projects. This model is often used in municipal street lighting projects, for example.
[43] BEE, 2013.

earning more than US$0.2 million.[44] In addition, most direct EE financing is for modernization and/or refurbishment projects where EE is only a component of a broader project. Finally, as of 2009, 42 percent of ESCOs could not use shared savings model at all, and many others had to rely on both guaranteed and shared savings models.

12. *Barriers to the EE and ESCO Market in India:* As discussed above, primary barrier to large-scale implementation of EE measures particularly through ESCOs is a lack of access to commercial credit for most ESCOs as well for host entities such as municipalities, MSMEs and large, middle-tier industries. Most commercial banks have limited or no understanding of EE business and ESCOs' energy savings performance-contracting business model, in which loans are backed by shared benefits from future cost savings rather than traditional collateral and plans to increase revenue. They also distrust smaller ESCOs' creditworthiness – but without the ability to get financing, these ESCOs are unable to resolve this distrust. The result has been an unnecessarily high risk perception of EE loans among commercial banks and, in India's credit-constrained environment in which lenders have higher priorities than EE, banks simply choose not to lend - particularly to smaller ESCOs and for pure-play EE projects by middle tier industries, buildings, MSMEs, and municipalities.

13. A lack of standardization of the processes and standards involved in ESPCs is also a significant impediment to EE market transformation through ESCOs. The very nature of performance contracting, in which an ESCO guarantees minimum energy savings from proposed EE measures, requires that all market participants – clients, ESCOs, and lenders – accept the contract processes. These include contract templates, monitoring and verification (M&V) guidelines, appraisal and contractual agreements, etc. However, in India, there currently are neither widely accepted codes nor standards or associated legal provisions for these ESPC documents. As a result, many projects often devise their own contract templates and M&V protocols, which many market participants perceive as risky.

14. A final barrier is a lack of client demand for ESCO services, which to a large degree results from the other barriers. The use of the shared savings models is often necessary for new and smaller ESCOs to gain client trust; without having ESCOs take on project credit risk, clients are hesitant to engage them to implement projects simply take technical risks through guaranteed savings projects. The lack of standardized contracts and M&V protocols also increases the transaction cost for clients of engaging with ESCOs. Finally, many potential clients are simply unaware of the potential gains from EE projects and the benefits of using an ESCO to implement them (though the GoI's PAT scheme addresses the former barrier, at least among industrial clients). In most cases, lack of client demand for ESCOs means that many EE projects, even those with significant potential savings and high financial returns, go unimplemented.

15. The PRSF proposes to build upon the enabling regulatory environment and leverage India's mature financial sector to overcome these barriers and catalyze the market for energy efficiency projects. It would provide a suite of measures, complementary to existing GoI initiatives, to increase ESCOs' access to finance, help standardize transaction protocols and appraisal guidelines, and build capacity among all EE market participants.

[44] World Resources Institute. "Powering Up: The Investment Potential of Energy Service Companies in India." 2009

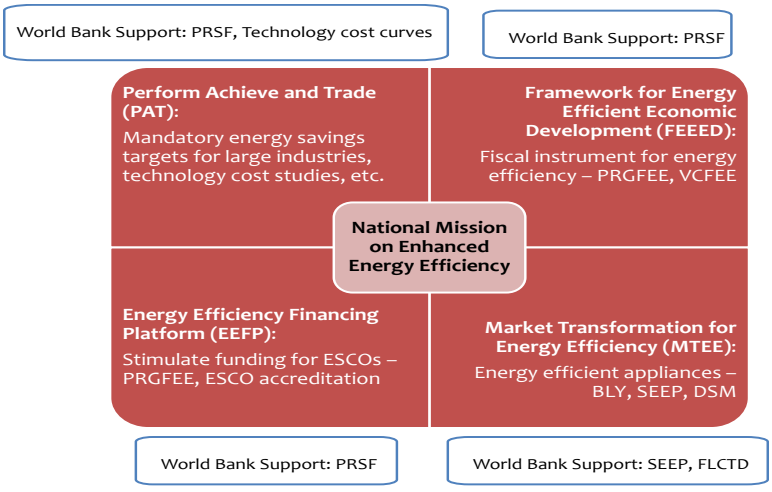
Higher Level Objectives to which the Project Contributes

16. *Alignment with India's National Action Plan on Climate Change (NAPCC):* The GoI has pursued actions to mitigate the emissions growth in its developing economy. Its flagship National Action Plan for Climate Change (NAPCC), articulated in June 2008, sets out the path for mitigation and adaptation to address the global challenge of climate change. The NAPCC includes eight missions: (i) National Solar Mission, (ii) National Mission on Enhanced Energy Efficiency (NMEEE), (iii) National Mission on Sustainable Habitat, (iv) National Water Mission, (v) National Mission for Sustaining the Himalayan Ecosystem, (vi) National Mission for a Green India, (vii) National Mission for Sustainable Agriculture, and (viii) National Mission for Strategic Knowledge for Climate Change. The PRSF aligns with the second mission, NMEEE.

17. *Contribution to NMEEE:* NMEEE, one of the eight NAPCC missions, was launched in 2008 and is based on the Energy Conservation Act of 2001. It aims to address inefficient usage of energy in the country by setting mandatory energy saving targets in industries, stimulating funding for ESCOs, and engaging in market transformation by introducing energy efficient appliances and introducing various different EE financing instruments. The GoI estimates the NMEEE can: (i) Reduce carbon dioxide emissions by 98 million tons annually by 2014-15, (ii) Avoid 19 GW of electricity generation capacity additions, and (iii) Save at least 23 mtoe of fuel.

18. The proposed project, PRSF, falls under "Creation of mechanisms that would help finance demand side management program in all sectors by capturing future energy savings",[45] one of the four NMEEE initiatives. Figure 4 shows how PRSF fits into the broader NMEEE framework, along with the Super-Energy Efficient Equipment Program (SEEP) and the Facility for Low-Carbon Technology Deployment (FLCTD), the two other World Bank projects in the India energy efficiency sector).

Figure 4: NMEEE and World Bank Alignment



[45] NMEEE publication: http://www.moef.nic.in/downloads/others/Mission-SAPCC-NMEEE.pdf

19. *Complementarity with and Support to PRGFEE*: As depicted in the figure above, the PRSF complements a GoI initiative– the Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE). The PRGFEE will play largely the same role as the PRSF, thus increasing the funds available to support this project's objective of catalyzing the market for ESCO-implemented EE projects. The PRGFEE will focus on financial support for EE projects in municipalities and government buildings, while the PRSF will cover those sectors but also large industries, MSMEs, municipal street lighting and buildings. The two programs will cross-leverage the TA and capacity building each delivers. In addition, the GoI's PRGFEE facility will benefit from the risk-sharing facility development led by the World Bank under the PRSF project.

20. *Alignment with Country Partnership Strategy (CPS) for India (2013-17)*: The PRSF is aligned with the second pillar of the India CPS – "Transformation". The project is aimed at unlocking significant private sector investment potential and catalyzing am energy savings performance contracting market in India by encouraging increased investment in energy efficiency. Promotion of investments in reduced energy consumption will also reduce the need for increasingly expensive and difficult generation capacity expansions and reduce operating costs for industries and buildings. PRSF will contribute to enhancing energy security, increasing competiveness, and reducing GHG emissions and local pollutants.

21. *World Bank Group value-added:* The World Bank Group's policy dialog and investments, accompanied by concessional finance such as through CTF and GEF, and coupled with technical assistance and capacity building have been instrumental in catalyzing the transformation of EE markets in several countries, where EE markets faced barriers similar to those prevalent in India, such as in Eastern Europe and Central Asia, and East Asia regions.[46] Combined with this global experience and its convening power to disseminate lessons, an extensive portfolio of analytical work in EE markets in India and around the world, the WBG is well-placed to deliver this operation. Thus, the World Bank can draw lessons from its past experience – both successes and failures – to help India achieve intended results. The PRSF design synthesizes the experience and knowhow about EE financing and implementation solutions and blends them into local, practical solutions in order to tackle the barriers and scale up the EE market in India.

22. The GoI had proposed several operations in Phase 1 of its the Clean Technology Fund (CTF) Investment Plan (prepared in 2011) focused on large scale transformative programs in the area of energy efficiency and renewable energy, through the public investment window of Asian Development Bank and the World Bank. This proposed PRSF project is one of those operations, which is also co-financed through support from the Global Environment Facility (GEF). PRSF is the first-of-a-kind for India program on Finance Plus approach of DEA targeting an innovative risk sharing facility. It is also the first global test case for a new CTF instrument of Direct Guarantee (contingent finance) to mobilize and leverage large-scale commercial financing for

[46] World Bank's past projects like the Commercializing Energy Efficiency Finance (CEEF) Program in Eastern Europe, the China Utility Energy Efficiency Program (CHUEE), and the China Energy Conservation II Program have been highly successful, and contributed to valuable lessons learned. Notably in China, following implementation of CHUEE and Energy Conservation II, the ESCO industry grew from three companies in 1997 to about 560 companies with over US$4 billion in energy performance contracts in 2010.

EE investments. This guarantee instrument, financed by a Bank-administered trust fund, does not require a sovereign counter-guarantee and does not put Bank capital at risk.

23. It is expected that the PRSF project will start to provide upstream support to the Indian EE market by addressing the key barriers and triggering the scale up of EE investments through ESCO-based implementation in India. At the same time, the International Finance Corporation (IFC) could indirectly support the overall development objective by contributing to the downstream developmental elements of this sector by helping strengthen the ESCO industry as well as private sector end-user host entities and the banking sector by taking equity positions and/or providing debt support and through capacity building.[47]

Lessons Learnt

24. The World Bank's experience with risk-sharing projects for energy efficiency has been mixed. Some partial risk-sharing projects for EE, particularly in Eastern Europe, have had very limited success and, in several cases, the risk-sharing facilities were ultimately converted into more traditional support measures (credit lines and subsidies) to buy-down costs of EE sub-projects. However, the World Bank has also piloted relatively successful projects, including the Commercializing Energy Efficiency Finance (CEEF) Program in Eastern Europe, the China Utility Energy Efficiency Program (CHUEE), and the China Energy Conservation II Program.

The EE market in India is more similar to that of China and the lessons learned from experiences have been applied in PRSF project design. The mix of results provides important lessons for key parameters risk-sharing programs likely require for success. These include providing strong technical assistance and capacity building to complement the risk-sharing facility, having a conducive EE regulatory fiat in the country, having a mature commercial banking sector in the country with strong competition, and having a pro-active implementing institution that can assume the role of the guarantor. For example, in China, following implementation of CHUEE and Energy Conservation II, the ESCO industry grew from three companies in 1997 to about 560 companies with over US$4 billion in energy performance contracts in 2010.

25. Performance contracting adopted in various countries show promising results. For example, in the United States, there have been over 500 programs that have saved energy worth 30 trillion BTU leading to $11.7 billion cost savings. In Canada, ESCO projects have been undertaken covering 7500 buildings saving over $40 million in energy costs and reducing energy intensity by 20%. In the EU, ESPC projects have been implemented in over 2,000 properties with savings of 30 to 45 million Euros. Japan has recently completed 50 ESPC projects producing 12% reduction in energy intensity, and about 1,400 projects have been implemented in South Korea.

Project Background

[47] Current regulatory restrictions of the Reserve Bank of India do not allow IFC to directly support and float risk-sharing guarantees, the issue being much larger of financial regulations. Also, undertaking PRSF itself would conflict IFC in taking debt or equity positions in these participating ESCOs, host entities and FIs.

26. The Bureau of Energy Efficiency (BEE) has already developed the concept for the Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE) for promoting energy efficiency projects implemented by ESCOs, in government buildings and municipalities.

27. The PRSF is a supporting program to the GoI's efforts on PRGFEE and is focused on energy efficiency ESCO-led interventions under an ESPC approach in the following sectors:

a. Large industries, including those notified under the BEE's energy consumption norms and standards of BEE (PAT scheme),
b. Micro, Small, and Medium Enterprises (MSMEs),
c. Municipalities, and
d. Buildings

28. The demonstration of viable ESCO-led energy efficiency projects through PRSF support is expected to reduce the risk commercial banks perceive in providing credit to ESCOs and go a long way toward demonstrating the efficacy of investments in ESCOs, thereby helping the GoI's PRGFEE to use the PRSF experience, TA and outputs, to also help unlock the enormous untapped potential for EE investments across various sectors.

Project Description

29. The PRSF aims to catalyze the energy efficiency performance contracting market in India by promoting an increased level of EE investments. It will specifically promoted ESCO-implemented EE projects that use an ESPC approach. The PRSF will overcome existing barriers in this market by:

a. Addressing the barriers of access to financing faced by ESCOs, by providing risk coverage to reduce the risks perceived by financial institutions in financing Ee projects implemented by ESCOs on performance contract basis,

b. Engaging financial institutions, host entities and ESCOs and building the former's capacity to finance EE projects on a commercially-sustainable basis and the latter's capacity to structure and seek financing for ESPC- based energy efficiency projects,

c. Structuring the transactions involved in financing EE projects by standardizing ESPC. Measurement and Verification (M&V) protocols, appraisal and other supporting documents.

30. The learning from the PRSF is expected to help build the capacity of commercial banks to analyze and appraise loans to EE projects implemented by ESCOs, thereby reducing their risk perception of such EE loans and obviating the need for the type of risk-sharing offered by the PRSF in the future. The operational templates for ESPC, M&V protocols, and appraisal tools will be made available widely ensure that the reduction in financial institutions' risk perception of EE loans and providing increased access to credit for EE in future.

31. Towards the above-mentioned objective, the PRSF, of a total corpus of US$43 million, will consist of the following components:

a. A risk-sharing facility of US$37 million, funded from a GEF contribution of US$12 million backstopped by a CTF contingent guarantee of US$25 million, and

b. A technical assistance and capacity building component of US$6 million funded from GEF.

32. The above components are designed to create the "energy efficiency ecosystem" conditions necessary for ESCO barriers development identified in Section I. Figure 1 depicts the specific design elements, and Figure 2 depicts how this project will combine with the existing conditions in India to catalyze the ESCO and EE performance contracting market.

Project Components

Component 1: Risk Sharing Facility for Energy Efficiency (US$37 million)

33. The Risk Sharing Facility will be established by the Republic of India, managed by a Project Execution Agency (PEA). The PEA in this project will be Small Industries Development Bank of India (SIDBI).

34. This component will be deployed to partially cover the default risk faced by financial institutions in extending loans for EE sub-projects to be implemented by ESCOs on the premises of host entities.

Figure 5: PRSF Project Components to Build an EE Ecosystem

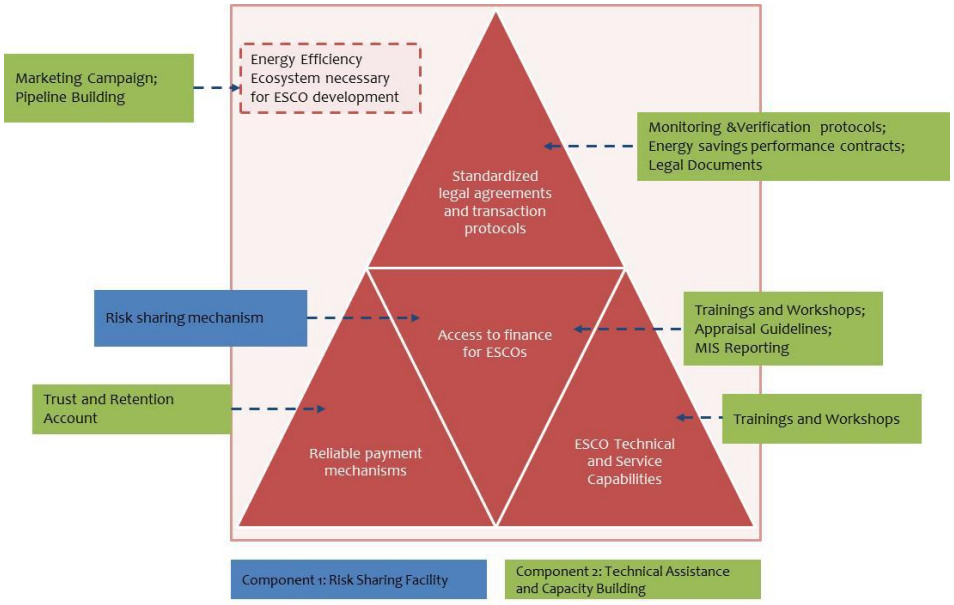
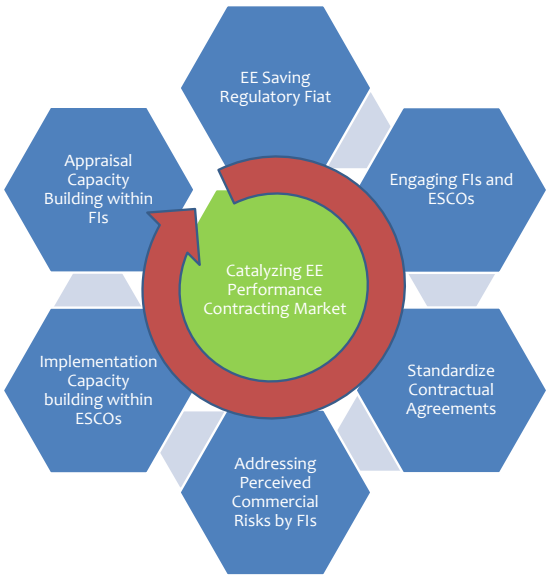


Figure 6: Catalyzing EE Performance Contracting Market through PRSF



35. SIDBI, as the PEA, will receive on an annual basis a fixed management fee equivalent to 0.75 percent of the facility corpus and a variable management fee of 0.25 percent on the amount of guarantees outstanding. After the first four years and except as SIDBI may request to extend the initial fee structure, the fixed management fee will be lowered to 0.50 percent and the variable management will fee increase to 0.50 percent on the amount of loans outstanding (as opposed to guarantees) to encourage the PEA to lower the coverage ratio on the guarantees issued allowing for greater risk sharing with PFIs.

36. The facility will be available to only the PFIs that will be empanelled and will sign a memorandum of understanding (MoU) with the PEA as part of this project, as well as to SIDBI as lender under the PRSF. The PFIs (and SIDBI as lender) will deposit a sub-project guarantee fee, at a pre-determined rate, for each EE sub-project supported under PRSF.

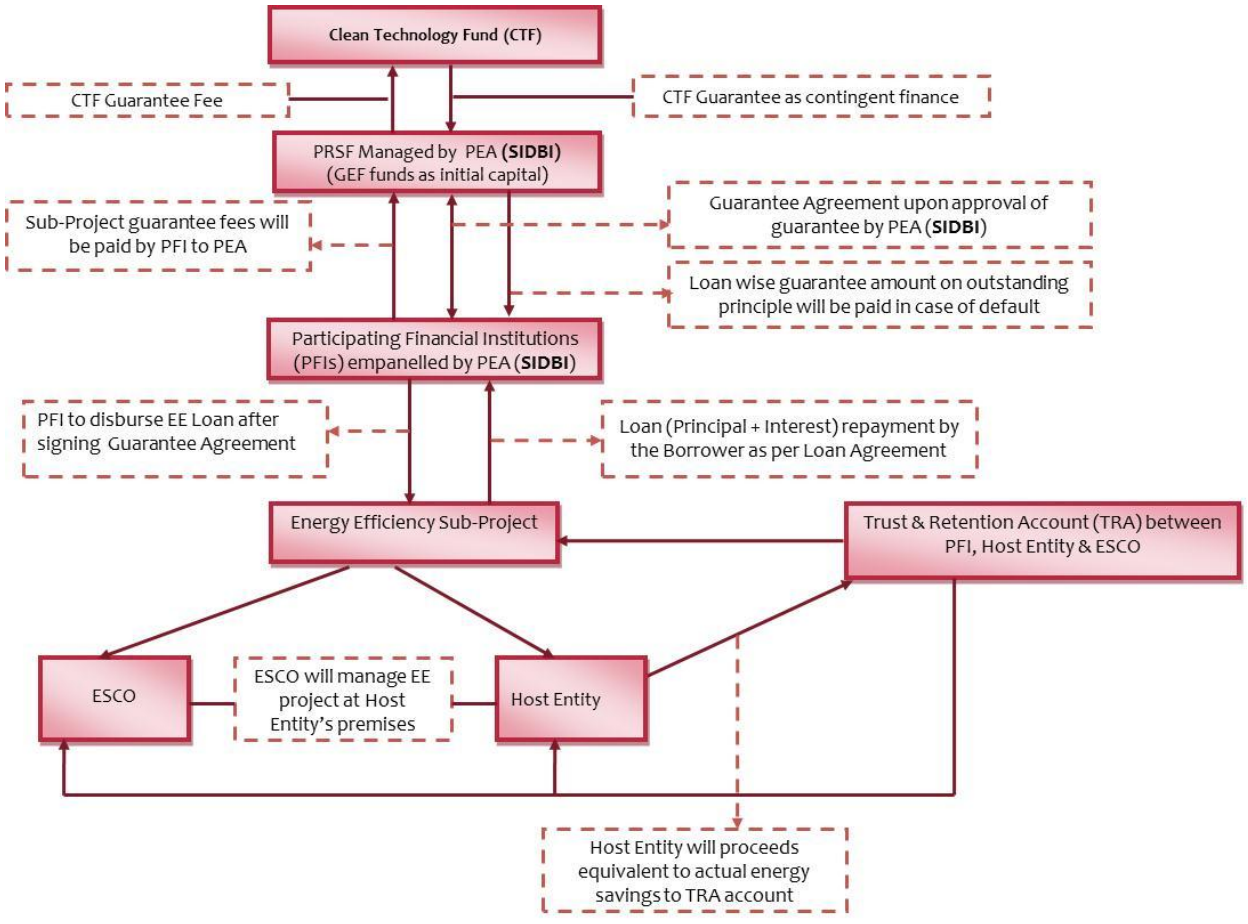
37. Empanelment criteria for PFIs under PRSF: Any Scheduled Commercial Bank or Non-Banking Financial Company (NBFC) registered with Reserve Bank of India (RBI) would be eligible to get empaneled with SIDBI for the project. Only the empaneled financial institutions – called the PFIs – will be allowed to access the PRSF fund corpus in the PFI sub-account and lend to ESCOs or hosts implementing ESPC-based EE projects. SIDBI will empanel suitable financial institutions across the duration of the project. To ensure a robust participation under PRSF, PFIs would need to fulfill appropriate empanelment criteria laid out in the Operations Manual and applicable guarantee policy requirements. At the minimum, the following characteristics would be assessed in determining eligibility: i) size and profitability, ii) experience from energy sector projects, iii) existence of adequate risk management systems, iv) availability of qualified personnel and v) involvement in any litigation or black-listing by a public sector entity.

38. In covered projects, the ESCOs will utilize the ESPC, M&V and other transaction documents (that will become standardized through Component 2 of this project and added to the OM) to implement EE projects in the host entity premises following the guidelines laid out in the OM. The OM can be modified with IBRD consent.

39. The PFIs will appraise the projects using the standardized appraisal documents and OM developed under PRSF before extending EE loans to ESCOs. The repayment of the EE loan will be through a Trust and Retention Account (TRA), a concept developed under PRSF to ensure all parties trust that there will be timely payments.

40. In case a PFI faces default on an EE loan with PRSF risk coverage, the PFI will file a risk claim, which an independent M&V agency will duly confirm. Upon confirmation, SIDBI will compensate the PFI for the share of the outstanding loan principal amount as agreed upon in the risk-sharing agreement. In all cases compensation will be limited to the risk coverage of the outstanding principal at the time of the risk claim. This mechanism is depicted in Figure 7 below.

Figure 7: Operational Mechanism for Component 1 of PRSF[48]



[48] This diagram does not include the modalities of SIDBI lending under PRSF.

41. Following from the Figure 7 above, the various elements for covering the risk for EE lending under PRSF are explained below. These include fund capitalization, PFIs, eligible borrowers and projects, appraisal guidelines, risk coverage limit, risk coverage tenure, sub-project guarantee fee, reporting, loan repayment procedure, risk claim options, risk claim, procedure, etc.

42. Capitalization of the Risk Sharing Facility: The facility corpus will consist of US$12 million of cash from GEF and US$25 million of contingent finance from CTF. The GEF cash in the facility will only be used to pay for sub-guarantee calls divided equally between covered loans from PFIs and SIDBI itself. Management fees to SIDBI, facility operating expenses, and fees to CTF will be covered from interest and sub-guarantee fee income. CTF contingent finance will be made available on a second-loss basis in the event of shortage of funds to meet guarantee claims from PFIs (Table 1) in the event of a shortfall in the PFI sub-account. It is expected that the minimum amount of CTF Guarantee payment will be US$500,000 even if the cash shortfall in the PFI sub-account is less than that. This is to limit the transaction costs associated with a potentially high number of CTF Guarantee claims if losses occur on many of the 570 PRSF sub-guarantees forecast to be issued over 10 years. CTF funds will not be used for any other purpose, including guarantees for SIDBI's own loans.

Table 1: Sources and Uses of Funds in Risk-Sharing Facility

Sources of funds	Uses of funds
US$6.0mn: GEF Grant for risk coverage for SIDBI (not backstopped by CTF)	Guarantee calls from SIDBI *Facility has flexibility to move funds to and from this subaccount without consent from IBRD/CTF/GEF*
US$6.0mn: GEF Grant for risk coverage for PFIs (backstopped by CTF)	Guarantee calls from PFIs *Facility has flexibility to move funds from this subaccount with prior consent from IBRD/CTF/GEF*
Facility Income: All facility fees and expenses covered from interest and sub-guarantee fee income (increases with time)	(i) Front-end fee and guarantees fees to CTF (ii) Fixed and variable management fees for SIDBI (iii) Operating expenses of risk-sharing facility (including M&V) *Facility has flexibility to move funds to and from this subaccount without consent from IBRD/CTF/GEF*
US$25mn: CTF Guarantee for guarantee calls (contingent finance)	Only guarantee calls from PFIs beyond available funds in PFI subaccount

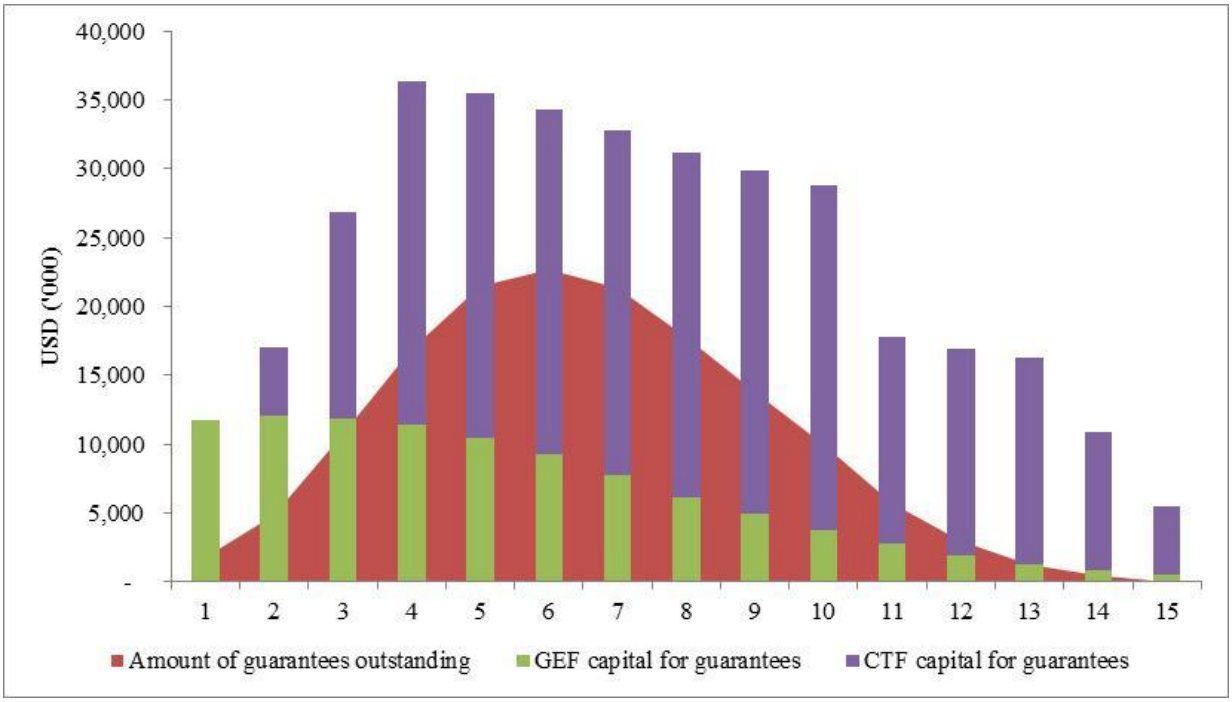
43. The starting capital in the program consists solely of GEF cash. The CTF Guarantee will be committed based on pre-agreed step-up schedule during years 2-4. Stepping up refers to incremental commitment of the CTF Guarantee based on the capital requirement of the facility. The first CTF Guarantee installment will be US$5.0 million in year 2 followed by US$10.0 million in years 3 and 4 for a total Guarantee commitment of US$25.0 million (Table 2). The CTF guarantee charge of 0.1% per annum will be charged only on the annual installment of the CTF Guarantee. After guarantee issuance ends in year 10, SIDBI may request a reduction in the CTF Guarantee commitment in line with sub-guarantee amortization and reduced capital requirement.

Table 2: Sources and Uses of Funds in Risk-Sharing Facility

CTF Commitment		
Year	INR lakh	USD mn
1	-	-
2	3,000	5.0
3	9,000	15.0
4-10	15,000	25.0
11-15	<15,000	<25.0

44. In its capacity as PEA, SIDBI will issue PRSF sub-guarantees to loans to EE projects by PFIs, up to the combined GEF funds and CTF contingent finance available for meeting guarantee calls. This means that all PRSF sub-guarantees will be backed 100 percent by GEF cash or CTF contingent cash (disbursed to the facility, if called) and that no new sub-guarantees can be issued once the amount of outstanding sub-guarantees reaches the capital available to meet sub-guarantee calls, unless SIDBI assumes the residual risk for additional sub-guarantees which exceed the available capital in the program. New sub-guarantees can be issued out of facility reflows as guarantees issued in earlier years amortize and free up guarantee issuing capacity (Figure 8). Guarantees can be issued after facility effectiveness until the end of year 10, subject to facility capacity, so that all guarantees amortize by the end of year 15. The facility could be further extended at SIDBI's request but in any case all issued sub-guarantees will have to be fully amortized by the end of year 20. CTF Guarantee commitment will be reduced at SIDBI's request after it stops issuing new sub-guarantees, unless GOI decides to extend the program with another PEA.

Figure 8: PRSF Guarantee Capacity and Issuance (years 1-15)



**Conservative base case assumption **CTF commitment step-up schedule can be changed with consent from IBRD/CTF*

45. Foreign Exchange Risk Management of Committed Capital: GEF and CTF funds allocated to PRSF are in US dollars, whereas the guaranteed loans and facility management expenses will be denominated in Indian Rupees (INR). Foreign exchange risk arises from this currency mismatch. If the US dollar depreciates against the Rupee, the level of facility capital decreases in INR terms. This becomes a greater concern if the facility is at capacity in terms of the outstanding sub-guarantee issuance and if an exchange rate fluctuation leaves any of the sub-guarantees uncovered by available capital. To partially hedge the risk of dollar depreciation, the GEF funds allocated to PRSF will be converted to rupees up-front.[49] Further hedging is provided by rupee-denominated facility income (interest and guarantee fees). The CTF Guarantee, which represents the balance of facility capital, will remain in US dollars to partially hedge against the risk of rupee depreciation, which would diminish facility capacity in US dollar terms.

46. Project Executing Agency (PEA): SIDBI will be the PEA for managing the implementation of risk sharing facility under the project, acting on behalf of the Government of India. The sub-guarantees issued by PRSF will be made in the name of SIDBI. As a PEA, the Facility manager's role is limited to implementing the risk sharing facility based on the agreed OM and funded solely through the combination of GEF and CTF funds. For the TA component of PRSF, the two implementing agencies are SIDBI and EESL.

[49] Any repayment of GEF funds at the end of the project would be in USD and therefore any remaining INR funds would need to be converted into USD.

47. Project Lenders: Based on suitable criteria, SIDBI will empanel Financial Institutions to participate and lend to EE projects under PRSF. Upon empanelment, SIDBI will sign a Memorandum of Understanding (MoU) with the Participating Financial Institutions (PFIs). Only the PFIs will be eligible to access the risk sharing facility. The details of empanelment of FIs and SIDBI own dedicated lending window are provided in Annexure 3.

48. PEA as Project Lender: For the potential MSME sector beneficiaries of PRSF, SIDBI itself wishes to be the lender and as Facility manager would underwrite SIDBI's own EE sub-project loans in the event of default subject to appropriate conflicts-of-interest arrangements. Out of the total guarantee capacity of PRSF, an initial allocation of US$6 million will be made for indemnifying SIDBI's own loans to eligible sub-projects. The same risk sharing, risk management and eligibility requirements would apply to SIDBI's loans as to those of PFIs under PRSF and SIDBI will be required to separate the lending and facility management functions to prevent the occurrence or perception of a conflict of interest. An independent third party entity will be hired to ensure SIDBI's compliance with all the rules governing PRSF for the dedicated guarantee window. If SIDBI cannot use its dedicated allocation, the capital will be made available to other PFIs.

49. Project Borrowers: The borrowers would be empaneled Energy Service Companies (ESCOs) or the host entities – which could be large industries, municipalities, MSMEs or buildings. BEE empanels ESCOs from time-to-time and the details are put up on BEE's website. The details of empanelment (accreditation) of ESCOs are provided in Annex 3.

50. Eligible Projects: Each eligible project to be covered under the PRSF will be a new stand-alone project, and not refinancing of existing projects or any outstanding obligations of the eligible Borrower. The eligible projects will be appraised under the PRSF guidelines, which are satisfactory and acceptable to the Bank, and seek to achieve demonstrable energy savings & mitigation in emissions of greenhouse gases. A viable technology should be used and be developed with competent energy audit / feasibility studies. Another condition is that one of the parties involved in the execution of the EE sub-project – either the ESCO or the host entity – has to be qualify as an MSME as per the latest MSMED Act of the Government of India.[50] The sub-project level eligibility conditions will be detailed in the Operations Manual.

51. Risk Sharing Agreements: SIDBI will enter into contractual agreement with the PFIs for a particular energy efficiency loan. The agreement, whose terms shall be satisfactory and acceptable to the Bank, will govern the relationship between the parties and specify, inter alia, eligibility conditions, liability limits under the Risk Sharing agreement, and approval, loan appraisal and post-closing reporting guidelines/ procedures, etc. for a particular EE loan.

52. Project Appraisal: The responsibility of the EE project appraisal and submitting the project to be considered under PRSF to SIDBI will the sole responsibility of the PFI. The EE project will be appraised as per the appraisal documentation and requirements of the PRSF, which are satisfactory and acceptable to the World Bank.

[50] As per the current Authorization from the Government of India, SIDBI can issue loans to MSMEs, but issue sub-project guarantees to only micro and small enterprises, and indemnify their own loans to medium enterprises.

53. Appraisal and transaction guidelines: SIDBI will develop the required Appraisal & Transaction documents and Agreements for PRSF whose terms shall be satisfactory and acceptable to the World Bank. The PFIs will be required to appraise energy efficiency projects as per the defined guidelines and templates and submit the same to SIDBI for approval.

54. Risk sharing limit: Under PRSF, the range of risk sharing limit of any energy efficiency loan will be defined in the Operations Manual. This limit is applicable in terms of the maximum amount of risk covered for any individual loan.

55. Risk sharing tenor: The details of the range of maximum tenor of the risk sharing mechanism will be defined in the Operations Manual. Depending upon mutual agreement between the PFI and the Borrower, the EE loan tenure may be less than, equal to, or more than the risk sharing tenure.

56. Sub-project Guarantee Fee: The PFI will have to submit a one-time or annual non-refundable processing fee for each energy efficiency project submitted to BEE. The details of the sub-project guarantee fee will be included in the Operations Manual. The sub-project guarantee fee will be valid from the date of disbursement of the EE Loan till the end of the risk sharing tenor for the EE Loan.

57. Flexibility on PRSF Guarantee Terms: The initial terms of the PRSF Guarantee have been determined based on market soundings with PFIs and analysis of the underlying risk mitigation needs in an untested ESCO market, balanced by the objective to preserve facility capital for maximum private capital mobilization. Given the market-making function of PRSF, SIDBI will have flexibility in setting key sub-guarantees terms such as pricing, coverage and tenor, within pre-specified, sustainable limits based on sub-guarantee take-up and interaction with the market. In case of slower than expected demand for PRSF Guarantees, SIDBI could either increase the coverage offered or reduce the sub-guarantee fee, or change other terms of the program. The reverse could happen if the program exceeds expectations. All changes proposed by SIDBI will undergo a formal review and approval process outlined in the Operational Manual.

58. CTF Fees: Under CTF policy, an up-front MDB fee of US$200,000 will be payable at effectiveness, and a CTF Guarantee charge of 0.10 percent per annum on the committed and undisbursed CTF contingent finance will be due. CTF contingent finance will be committed in steps based on the additional capital requirements of the facility after all GEF funds have been used to back-stop PRSF Guarantees. The CTF capital commitment can also be reduced towards the end of the project as loans supported by sub-guarantees amortize (Figure 8).

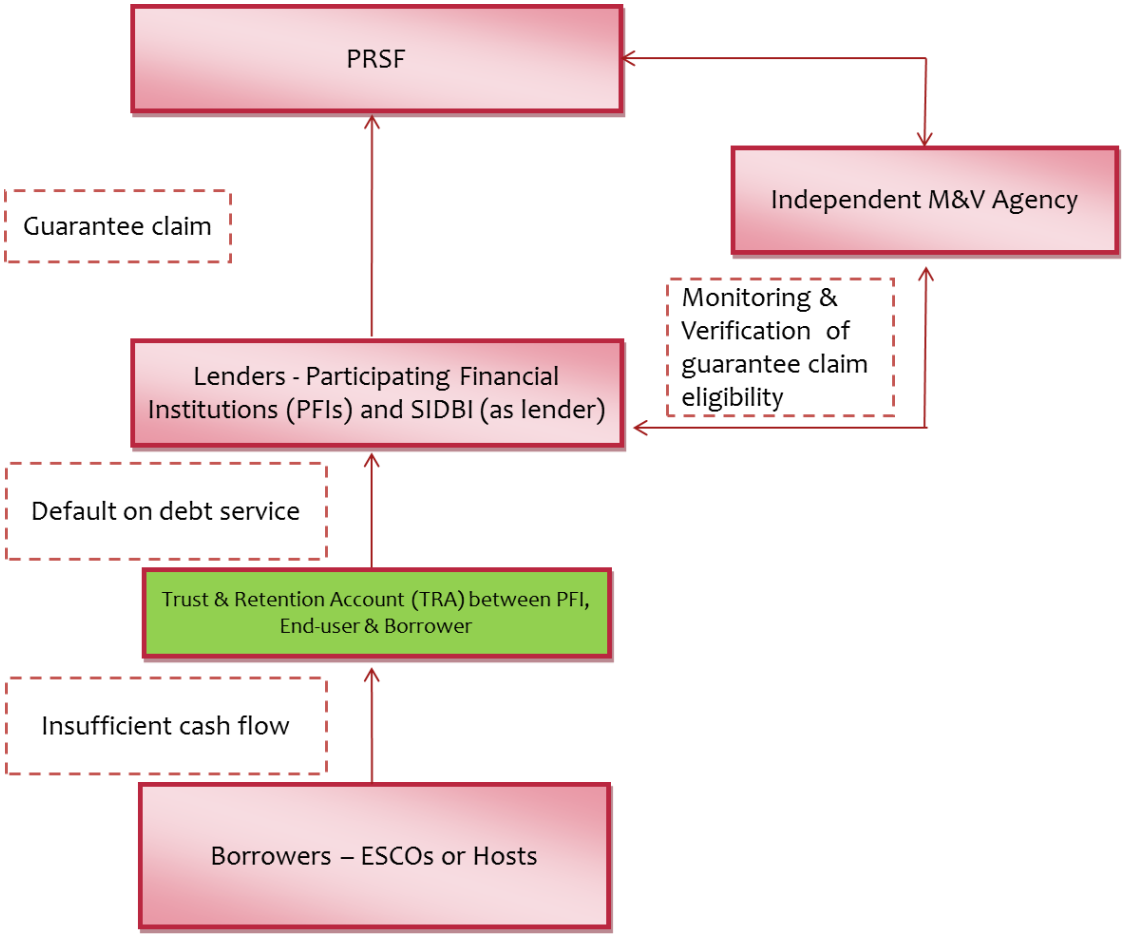
59. PEA Fees: The PEA will be paid a fixed management fee of 0.75 percent of the fund corpus of US$37 million, or US$277,500 per annum for 4 years. As an incentive, it will also receive a variable management fee equivalent to 0.25 percent of the amount of sub-guarantees outstanding. After the first four years (and subject to the PEA requesting an annual extension of the initial fee structure), the fixed management will be lowered to 0.50 percent (US$185,000) and the variable management will fee increase to 0.50 percent on the amount of loans

outstanding (instead of guarantees outstanding). The PEA will also be reimbursed for any additional facility management or operating expenses, which are not covered by the management fees, subject to review by the Executive and Advisory Committees.

60. Loan repayment: The EE loan repayment under PRSF will be through a Trust and Retention Account (TRA). A TRA is established between (i) PFI, (ii) ESCO, (iii) host entity, and (iv) Trustee Bank (if not the same as the PFI). The proceeds from the energy savings from the energy efficiency project will be deposited first in the TRA and the respective shares of all the parties flow subsequently. The details of the functioning of a TRA are provided in Annex 3.

61. Risk Claim: Under PRSF, in case of a default occurring on an energy efficiency loan, the PFI can submit a risk claim to SIDBI for the loan amount covered and outstanding. PRSF Guarantee claims originate from underperformance of the underlying energy efficiency investments and the resulting cash shortfall for debt service (principal and interest). The required cash buffer in the TRA will carry the borrower over temporary liquidity problems but cannot make up for extended, chronic cash shortfalls. In the latter case, insufficient cash to service the debt will lead to a default, which allows the PFI to make a guarantee claim to PRSF, up to the amount of debt covered and provided that the M&V Agency has verified the eligibility of the claim (Figure 5). In the base case, Guarantee claims to SIDBI can be made until the end of year 15 of PRSF, or until the time by which the Facility is extended by SIDBI (or GOI), but no longer than year 20. The risk claim procedure is shown in Figure 9.

Figure 9: PRSF Guarantee Claim Procedure



62. Risk Claim verification: SIDBI will verify the risk claim by the PFI using the empaneled Independent Monitoring and Verification Agency (MVA). Depending on the report of the MVA and if found appropriate, SIDBI will share the relevant risk with the PFI. In case of any dispute, a detailed procedure will followed to resolve the dispute and if the risk claim is found fraudulent, appropriate action may be taken against the PFI.

63. Risk Claim payment: PRSF will pay the claim upon determining its eligibility and after determining that the PFI has undertaken appropriate recovery measures. The payments will be made out of the cash available in the relevant GEF ledger accounts, which consist of the up-front GEF cash allocation as well any interest and guarantee fee income. SIDBI's loans covered by GEF funds will not be backstopped by CTF. Only when the cash in the PFI risk coverage account has been depleted will SIDBI call the CTF Guarantee for an amount equivalent to the shortfall, up to the Maximum CTF Guarantee amount.

64. The overall transactions, in the chronological order, involved in the component 1 of the PRSF are diagrammatically depicted below.

Figure 11: Transactions Involved under Component 1 of PRSF – When ESCO is the Borrower

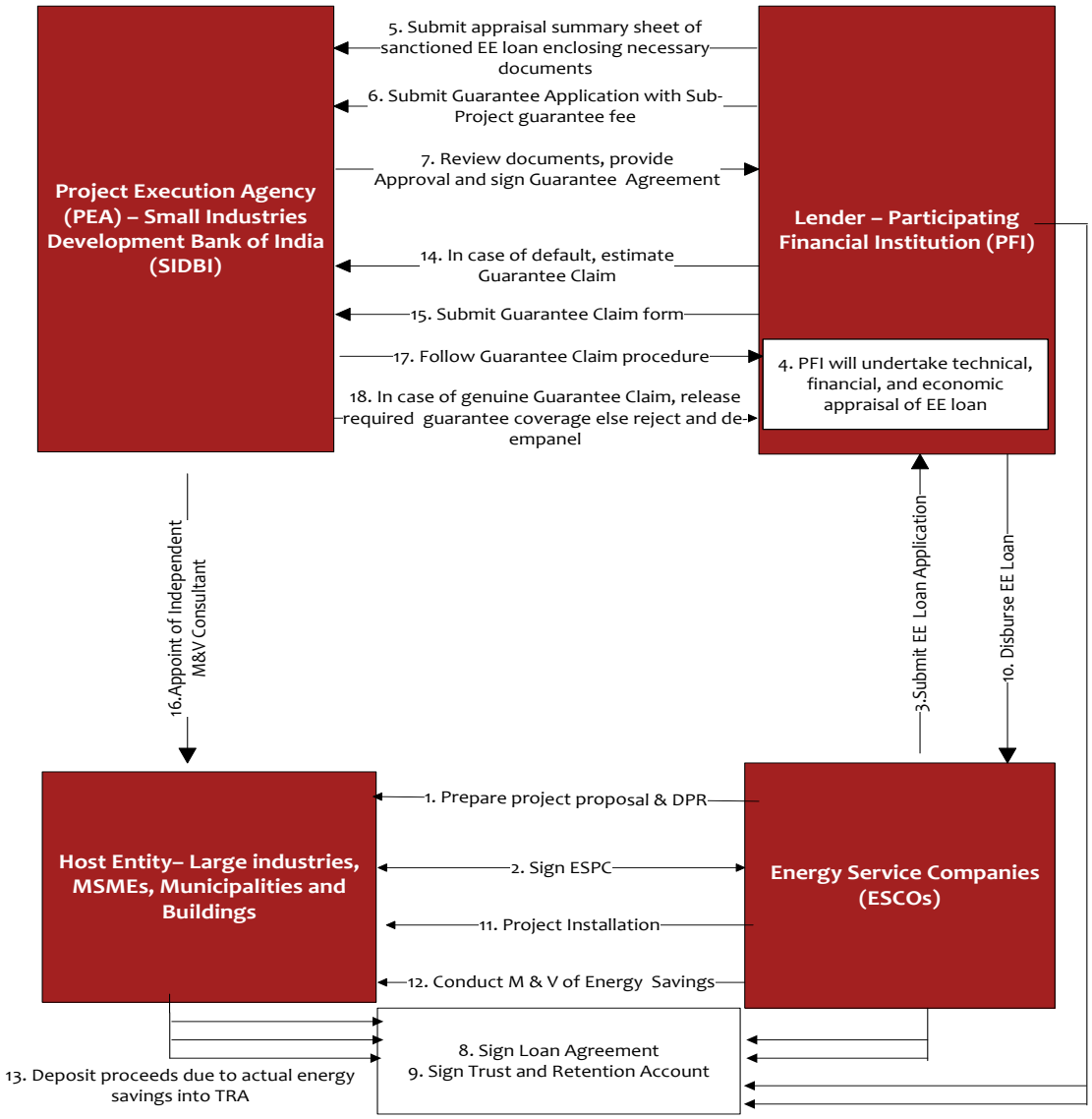
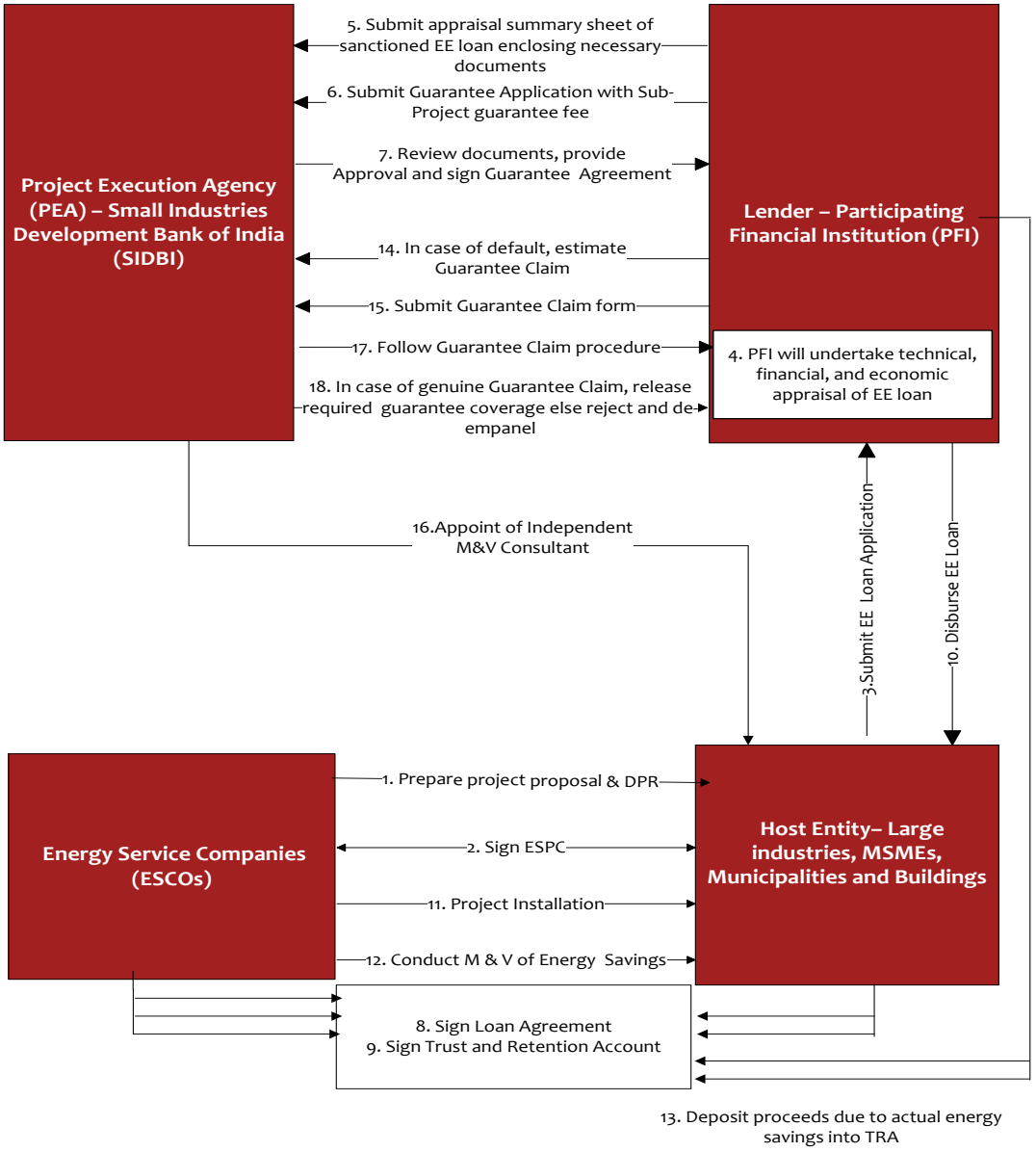


Figure 12: Transactions Involved under Component 1 of PRSF – When Host Entity is the Borrower



Component 2: Technical Assistance and Capacity Building (US$8 million)

65. Component 2 will fund technical assistance and capacity building to ensure that Component 1 is successful and to address other aspects of the energy efficiency ecosystem needed to sustain a strong EE market transformation. Component 2 will be jointly executed by SIDBI (US$4 million) and Energy Efficiency Services Limited (EESL) (US$2 million). It will develop the capacity of PRSF Facility; standardize transaction and appraisal documents for

ESCO projects; provide for monitoring and evaluation of the project; provide marketing and awareness for the project; and develop a pipeline of sub-projects to utilize the PRSF.

66. SIDBI will provide upfront project preparation support and market development and facilitation support to help the implementation of the risk-sharing facility. In addition, it will provide assistance to the PFIs, ESCOs and host entities by bringing them together and facilitating match-making and disseminating information about the PRSF. The SIDBI team operating PRSF will make consultants, standardized tools and templates available to PFIs, ESCOs and beneficiary sectors directly involved in PRSF or working in EE market. It will also provide capacity building and training.

67. EESL will deliver technical support to address broader EE market barriers in India. Its support will be on a broader scale and reach out to a larger set of EE market stakeholders than SIDBI's.[51] BEE has authorized EESL to implement enabling activities for the PRSF. There are synergies in the objectives laid down for EESL and that of PRSF, particularly in enabling access to commercial lending. The value additions that EESL brings to the implementation of the TA and capacity building component of PRSF are: (a) EESL's unique position to develop aggregated EE projects. These projects could then be implemented by ESCOs selected through a competitive process, by EESL, or EESL or by a combination of the two. (b) EESL provides credibility to ESCOs by helping build their capacity and/or financially supporting them with equity, lines of credit etc. (c) EESL could support the participating FIs in training, capacity building which is also important in sustaining commercial lending in the EE sector and (d) EESL provides a platform to the participating FIs, ESCOs and the regulators to work together for the common objective.

68. Component 2 will include the following specific activities to be implemented by SIDBI and /or EESL.

Capacity, Resource Building and institutional Strengthening of SIDBI and EESL

a. Providing manpower for program management, project development and awareness building across various EE market stakeholders, including PRSF Faciliity's potential beneficiaries
b. Legal agency to resolve disputes that arise between the PEA nd PFIs and vetting of contracts and documents developed under PRSF
c. Providing technical staff to administer the PRSF website

Technical Assistance and Capacity Building for ESCOs and PFIs

[51] EESL is a Joint Venture of NTPC Limited, Power Grid Corporation of India Limited (PGCIL), Power Finance Corporation Limited (PFC) and Rural Electrification Corporation Limited (REC) to facilitate implementation of EE projects in India. EESL is leading the market-related actions of the NMEEE and it complements the objectives of BEE, which is the statutory body created by the Energy Conservation Act 2001.

d. Standardization of transaction documents and appraisal guidelines – detailed project reports, energy efficiency M&V guidelines, ESPCs, etc. to be used for PRSF transactions and outside of PRSF in the EE market in India
e. Training programs and workshops for PFIs, ESCOs, and beneficiaries
f. Development and engagement of independent monitoring and verification agencies (MVAs), including for due diligence on appraisal process followed by PFIs and verification of PFIs' risk claim
g. Developing management information system (MIS) and ERP based reporting systems in SIDBI (for PRSF facilty0 and EESL

Other Market Development Elements

h. Marketing campaign to encourage project stakeholders to access PRSF, and beyond in the EE market in India.
i. Engaging with industry associations to build a potential project pipeline, including facilitating industry awareness of the ESCO model and facilitating match-making between industries and PFIs for PRSF and EE market development in general.

69. *Capacity building within SIDBI:* The project component will be utilized to for hiring of Consultants for various activities for smooth implementation of the PRSF within SIDBI throughout the project implementation period. The project component will build internal capacity within SIDBI by specifically hiring (i) manpower for program management, and (ii) Legal agency for dispute resolution in case of any such condition arising between PEA and PFI and vetting of contracts and documents developed under PRSF.

70. *Standardization of transaction documents and appraisal guidelines:* In addition to setting up the risk sharing fund, the PRSF will also assist SIDBI in developing the appraisal guidelines and transaction documents for facilitating the energy efficiency lending. All the standardized documentation will be part of a detailed Operations Manual (OM) which will be used by all stakeholders for day-to-day functioning under PRSF. This will reduce the transaction cost of projects and assist in reducing the perceived risk of PFIs towards undertaking ESPC-based lending to ESCOs. The standardized appraisal formats will also ensure robust appraisal on part of the PFIs and strong tracking of the project KPIs. The details are further explained in Annex 3.

71. It is expected that the once the developed documents are made public, the project stakeholders can utilize them for energy efficiency projects even beyond and outside the purview of PRSF. Annex 3 provides more details on the development of transaction documents.

72. *Marketing campaign and pipeline development:* Efforts will be undertaken by SIDBI and EESL to launch a marketing campaign for generating knowledge and interest of the market players – PFIs, ESCOs and beneficiaries – towards participating in PRSF. EESL will also work with Civil Society Organizations (CSOs) and Industry Associations to identify potential projects and subsequently develop a pipeline for PRSF. SIDBI and/or EESL will hire a suitable marketing agency to facilitate this sub-component.

73. *Training programs and workshops:* SIDBI and/or EESL will organize and facilitate technical workshops and trainings for the personnel involved with the energy efficiency lending

under PRSF. These personnel would belong to the PFIs, ESCOs and beneficiaries. The training programs and workshops would assist build technical capability in appraising EE projects and utilizing the transaction documents developed under PRSF.

74. *Due diligence and verification through the Independent Monitoring and Verification Agency (MVA):* The component will assist SIDBI in hiring an independent MVA which will conduct due diligence on the appraisal process followed by the PFIs. The independent MVA will also assist SIDBI in a non-partial verification of the risk claim submitted by PFIs to SIDBI.

75. *MIS reporting:* Under PRSF, it will be ensured that timely Management Information System (MIS)-based project reposting happens between the PFIs and SIDBI to provide all necessary information to the public and project participants. The Component 2 will specifically assist SIDBI in developing the MIS reporting templates and also hire technical staff, proficient in IT skills, to manage the MIS reporting during the entire project duration. The details are further explained in Annex 3.

Annex 3: Implementation Arrangements

INDIA: Partial Risk Sharing Facility for Energy Efficiency

A. Project Institutional and Implementation Arrangements

80. The implementation of the PRSF involves multiple stakeholders and design processes to govern the close coordination amongst themselves. All the details will also be laid down in the detailed Operations Manual for PRSF. There will be a Cooperation Agreement between India and IBRD as implementing entity of, respectively, the Clean Technology Fund and the Global Environment Facility setting out informational, cooperation and certain implementation undertakings and acknowledgments relating to the project. IBRD as implementing entity of CTF will enter into a Guarantee Agreement with SIDBI. It will include references to other key agreements and documents, including the GEF Grant Agreements, the Cooperation Agreement and the Operations Manual. IBRD as implementing entity of GEF will enter into Grant Agreements with SIDBI and EESL, respectively.

Institutional Arrangements

81. Multiple stakeholders are involved in the project – SIDBI, EESL, Participating Financial Institutions (PFIs), Energy Service Companies (ESCOs), and host entities (large industries, MSMEs, and Buildings, municipalities), and Monitoring and Verification Agencies.

82. SIDBI will oversee the implementation of the risk sharing facility, wherein the PFIs will provide ESPC-backed project loans to implement EE projects in the premises of the host entities through ESCOs. In case the any loan faces default during repayment, the PFI can submit a risk claim to SIDBI.

83. The Technical Assistance component will be run through SIDBI and EESL towards market development and capacity building within market actors.

84. Their interaction between the various stakeholders is also depicted below in Figure 1.

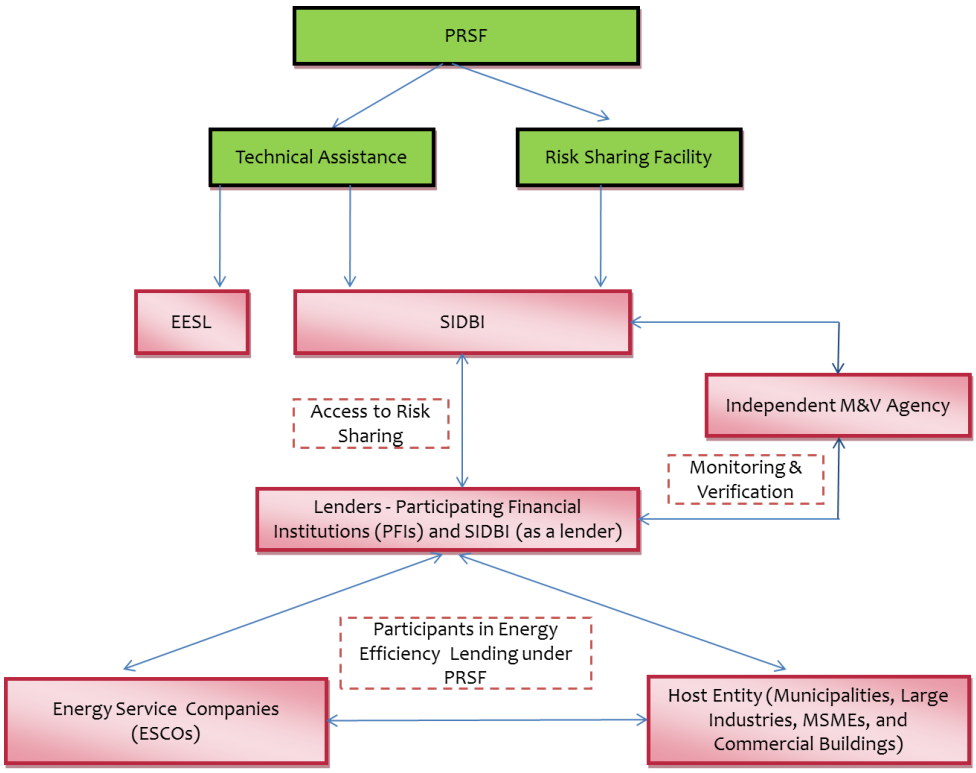
Small Industries Development Bank of India (SIDBI)

85. Small Industries Development Bank of India (SIDBI), set up on April 2, 1990 under an Act of Indian Parliament, is the Principal Financial Institution for the Promotion, Financing and Development of the Micro, Small and Medium Enterprise (MSME) sector and for Co-ordination of the functions of the institutions engaged in similar activities.

86. The Charter establishing SIDBI envisaged it to be "the principal financial institution for the promotion, financing and development of industry in the small scale sector and to co-ordinate the functions of the institutions engaged in the promotion and financing or developing industry in the small scale sector and for matters connected therewith or incidental thereto.

87. The business domain of SIDBI consists of Micro, Small and Medium Enterprises (MSMEs), which contribute significantly to the national economy in terms of production, employment and exports. MSME sector is an important pillar of Indian economy as it contributes greatly to the growth of Indian economy with a vast network of around 3 crore units, creating employment of about 7 crores, manufacturing more than 6,000 products, contributing about 45% to manufacturing output and about 40% of exports, directly and indirectly. In addition, SIDBI's assistance also flows to the service sector including transport, health care, tourism sectors etc.[52]

Figure 1: Institutional Arrangements under PRSF



Energy Efficiency Services Limited (EESL)

88. EESL is promoted by Ministry of Power, Government of India as a Joint Venture of NTPC Limited, Power Grid Corporation of India Limited (PGCIL), Power Finance Corporation Limited (PFC) and Rural Electrification Corporation Limited (REC) to facilitate implementation of energy efficiency projects. It was set up to create and sustain markets for energy efficiency in the country. EESL works closely with the Bureau of Energy Efficiency (BEE) and is leading the market related activities of the National Mission for Enhanced Energy Efficiency (NMEEE), one of the 8 national missions under Prime Minister's National Action Plan on Climate Change.

[52] http://www.sidbi.in

89. It is first such company exclusively for implementation of energy efficiency in South Asia and amongst a very few such instances in the world. It complements the objectives of BEE, which is the statutory body created by the Act focused on EE policies and regulations.

90. The key objectives of EESL are:

a. To facilitate preparation of energy efficiency projects for Demand Side Measures including municipal functions, agriculture, public building, lighting etc.
b. To implement schemes, programme and policies of central and state governments or its agencies
c. Partner with private ESCO's and other companies to promote energy efficiency.
d. To provide consultancy services in the field of energy efficiency, CDM projects, and other related areas
e. To identify and impart training to build the capacity of stakeholders

91. There are synergies in the objectives laid down for EESL and that of PRSF, particularly in enabling access to commercial lending, aggregation, marketing, etc. The value additions that EESL could bring to the implementation of PRSF are:

a. EESL's unique position to tap public sector energy efficiency potential could help develop a portfolio of projects to enhance the scale of investments required. These projects could then be implemented by ESCOs selected through a competitive process or EESL or a combination of both

b. EESL could provide the credibility to ESCOs by handholding them and/ or providing them with resources through equity, line of credit, etc. EESL could also help these projects by securing risk guarantees

c. It could support the participating banks and FIs in training, capacity building which is also important in sustaining commercial lending in the sector

d. EESL could provide a platform to the participating FIs, ESCOs and the Regulators to work together for the common objective. It could also serve the coordination function for the entire project as it is well positioned to scale up its institutional structure. This is an important outreach exercise that would help in promoting PRSF.

Participating Financial Institutions (PFIs)

92. Commercial banks and Non-banking Financial Companies (NBFCs), regulated under the regulations of the RBI, would be the financial institutions eligible to get empaneled with SIDBI for the project. In accordance with World Bank guarantee policy, such institutions would also have to meet World Bank policy requirements relating to eligible guarantee beneficiaries in order to be empaneled and benefit from the PRSF and, ultimately, the CTF guarantee. Only the empaneled financial institutions – called the PFIs – will be allowed to access the US$6 million PFI sub-account of the PRSF fund corpus and lend to ESCOs for implementing ESPC-based EE projects. SIDBI will empanel suitable financial institutions as PFIs across the duration of the

project.[53] To ensure a robust participation under PRSF, PFIs would need to fulfill appropriate empanelment criteria laid out by BEE. The following empanelment criteria under would be assessed in determining PFI eligibility: i) size and profitability, ii) experience from energy sector projects, iii) existence of adequate risk management systems, iv) availability of qualified personnel and v) involvement in any litigation or black-listing by a public sector entity.

Energy Service Companies (ESCOs)

93. The ESCOs will be the implementers of the EE sub-projects under PRSF. BEE accredits ESCOs on an ongoing basis and provides the corresponding list on its website on a regular basis. There are around 130 ESCOs currently accredited by BEE.

94. The ESCOs in India comprise of equipment manufacturers, technology contractors, entrepreneurs, consultancies, etc.

Host Entities

95. In PRSF, the host entities are the owners, represented by authorized representatives, on whose premises the energy efficiency sub-projects would be implemented. The host entities would be (a) Large industries, (b) Micro, Small & Medium Enterprises (MSMEs), (c) municipalities, or (d) Buildings.

96. *Large industries:* PAT-1 cycle, initiated by the Bureau, mandates energy saving targets for eight most energy consuming sectors – Aluminium, Cement, Chlor-alkali, Fertilizer, Iron & Steel, Paper & Pulp, Textiles, and thermal power plants. In PRSF, however, thermal power plants have been excluded. These Other large industries which are not mandated under PAT can also be targeted under PRSF for identification of energy efficiency opportunities. More details on the PAT mandates are covered in the next section.

97. *Micro, Small and Medium Enterprises (MSMEs):* A typical characteristic of MSMEs in India is that usually large number of MSMEs are clustered in one geographical area, thereby, forming number of clusters. BEE has conducted earlier studies in 29 MSME clusters across India and there is huge energy saving potential in these clusters as well as other clusters in the country. Further, as the MSMEs might not be able to garner balance sheet financing, there can be considerable participation on an ESPC-based energy efficiency financing from MSMEs.

98. *Municipalities:* Municipalities are urban areas in India that could implement energy efficiency projects to decrease public electricity usage. Most activity under this project in municipalities would be projects that install more efficient street lights.

[53] Based on stakeholder consultations with a number of financial institutions and analysis of Indian Banking Sector, there are more than 25 FIs which fulfill majority of empanelment criteria being developed by SIDBI. These FIs include large nationalized commercial banks with high net-worth and geographic presence like ICICI, SBI, Bank of Baroda, Yes Bank, and NBFCs like IREDA, PFC, PFS, Tata Capital, etc.

99. *Buildings:* Buildings could cover commercial or government buildings. Commercial buildings are classified as malls, office buildings, hospitals, commercial complexes, hotels, etc. Commercial buildings sector has been active in implementing energy efficiency measures and a substantial participation for the same is expected under PRSF as well. Government buildings could cover government offices, government hospitals, and other set-ups with significant energy consumption and efficiency potential.

Monitoring and Verification Agencies

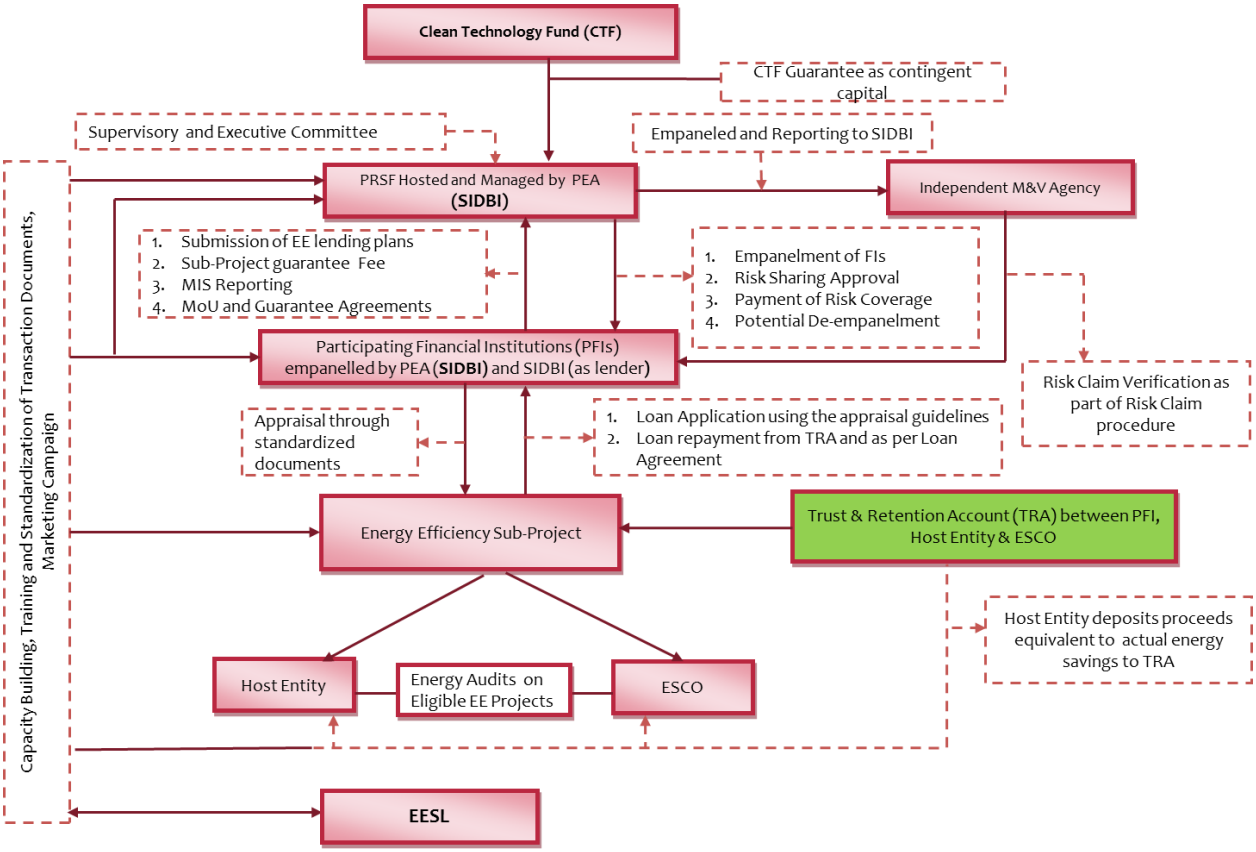
100. *Independent M&V Agency (MVA):* The Independent M&V Agency (MVA) will be empanelled by SIDBI and its responsibility is to verify the risk claim submitted by the PFI. The MVA will also conduct due diligence on the appraisal process followed by PFIs while extending loans to ESCOs for energy efficiency projects under PRSF.

101. *Legal Agencies:* SIDBI will appoint a legal agency for the purpose of settling any arising disputes between the PFI and SIDBI. The dispute might arise when the PFI submits a risk claim to SIDBI and upon verification; the risk claim seems fraudulent and is not resolved amicably with the PFI.

Implementation Arrangements

102. All implementation arrangements will all be documented in the Operations Manual, to manage the clear and leak-proof implementation between various stakeholders as identified above. The implementation arrangements are depicted in the Figure 2 below.

Figure 2: Overall Implementation Arrangements under PRSF



103. *Energy Saving Mandate:* The BEE, under the Perform Achieve Trade (PAT) Scheme, has mandated Designated Consumers (DCs) in select sectors to reduce their specific energy consumption (SEC) to a certain target SEC.

104. For estimation of reduction targets, BEE had earlier conducted sector specific studies for conducting the situation analysis. As per the studies, the wide bandwidth of specific energy consumption (SEC) within an industrial sector is indicative of the large energy-savings potential in the sector. The targets were set for individual industry based on Gate-to-gate concept. The sector-wise savings targets by cumulating the individual energy targets are provided in the Table 1 below.

Table 1: Energy Saving Targets under First PAT Cycle (2012-15)

Industry Sub-Sector	Number of DCs	Energy Saving Target (mtoe)
Aluminum	10	0.456
Cement	85	0.816
Chlor-Alkali	22	0.054
Fertilizer	29	0.478

Industry Sub-Sector	Number of DCs	Energy Saving Target (mtoe)
Iron & Steel	67	1.486
Pulp & Paper	31	0.119
Textile	90	0.066
Thermal Power Plants	144	3.211
Total	**478**	**6.686**

105. The BEE will mandate similar energy saving targets for other large industries, around 15 in total, as well in the forthcoming PAT cycles. This will ensure that the Indian industry has a continuous demand for energy efficiency measures for the foreseeable future.

106. *Setting up of an Advisory Committee:* The *Advisory* Committee will be an advisory committee co-chaired by DMD/CMD, SIDBI; DG, BEE; other members may include MD, EESL; RBI; Ministry of Finance (MoF); CGTMSE, and representatives from other relevant & competent authorities. The *Advisory* Committee will review the lending performance and process compliance of the empanelled PFIs and take decision on potential de-empanelment of a particular PFI from PRSF for any reason whatsoever, and on conflict of interest situations. It will also review decisions approved by the Executive Committee.

107. *Setting up of Executive Committee:* The Executive Committee will be an internal committee of SIDBI chaired by Country Head (CH), SIDBI and MD, EESL. The Executive Committee will provide approvals and take decisions on modification of rules, and PFI compliance as and when they arise. This will ensure that proper guidance, including avoidance of conflict of interests, is provided for smooth functioning of the scheme.[54]

108. *Trainings and Marketing Campaign:* SIDBI and EESL, in coordination with Civil Society Organizations (CSOs), industry associations and international consultants, will provide EE trainings to PFIs, ECSOs and beneficiaries. In addition, a compressive marketing campaign will be undertaken to encourage the access to PRSF by the FIs to lend to ESCOs for ESPC-backed EE projects. The details of the Trainings and Marketing Campaign will be finalized later in mutual consultation with SIDBI and EESL.

109. *Development of Operations Manual:* It is critical all the market participants under PRSF possess a shared understanding of the processes and rules complied with in the project. Towards this objective, a detailed Operations Manual (OM) will be developed for operation of PRSF program by SIDBI. The OM will contain all the information with regards to operation of activities / transactions, institutional structure, fund flow mechanism, energy efficiency loan repayment mechanism, risk sharing details and risk claim, summary of transactions, monitoring and verification guidelines, energy savings performance contract, environmental safeguards,

[54] SIDBI's knowledge on guarantees and EESL's mandate to be market makers for energy efficiency makes them preferred executing partners, but there is a need for better governance mechanisms. Flexibility to SIDBI at executive committee level along with EESL, while Advisory committee with BEE DG and MD/ DMD of SIDBI as joint chairs for quarterly review of the program.

management information system, various formats, their detailing, approvals required, approving authority, etc. The Operations Manual will not be changed without IBRD consent. The OM will be the guiding document for the project stakeholders to operate the PRSF and will contain the following, but not limiting to:

a. Objectives of the project
b. Institutional structure and roles / responsibilities under PRSF
c. Empanelment procedures
d. Rules of the risk sharing fund
e. Lending requirements
f. Eligibility criteria
g. Risk sharing agreements
h. Transaction documents
i. Appraisal guidelines
j. Loan repayment mechanism
k. Risk claim procedure
l. Dispute resolution mechanism
m. Fund flow mechanism
n. Monitoring and verification procedures for energy efficiency projects
o. Details of Energy savings Performance Contract (ESPC)
p. Environmental safeguards compliance
q. Guidelines for MIS reporting
r. MIS reporting templates

110. *Empanelment of PFIs:* SIDBI will empanel the PFIs keeping in mind the sensitivities involved in risk and appraisal capabilities of EE projects. It would be ensured that financial institutions (FIs), only which have the potential and vision for energy efficiency lending, participate under PRSF. Empanelment requirements will include criteria to gauge financial strength, experience in related sectors, requisite in-house appraisal capabilities, and management's energy efficiency lending plans.

111. In order to provide an equal opportunity to all eligible financial institutions, SIDBI will invite applications for empanelment from FIs on an on-going basis. On empanelment, an MoU will be signed between the PFI and SIDBI for empanelment. The empanelled PFIs will, then, be eligible to participate under PRSF till the entire operational period of PRSF or till de-empanelment by SIDBI.

112. *Standardization of transaction documents:* Apart for setting up a risk sharing fund, the PRSF will also involve development of standardized EE lending transaction documents by SIDBI and EESL. It will assist in reducing the transaction cost of the EE projects. Further, it will also and address the barrier of non-standardized transaction documents being used in EE projects, which was by far the reason for failure of most of the projects executed using performance contracting. SIDBI will develop standardized documents for the following:

a. Guarantee Agreement
b. Loan application

c. Detailed Project report (DPR)
d. Appraisal guidelines – technical, financial, and economic
e. Safeguards due diligence
f. Energy Savings Performance Contract
g. Monitoring and Verification (M&V) Protocol
h. Loan agreement
i. MIS reporting templates

113. The above documents are expected to encourage the market to execute the energy efficiency projects backed and financed under an ESPC. Also, since improper transaction documents being a reason for failure of projects, it is expected that with the use of standardized transaction documents, the probability of failure of EE project will reduce provided the EE project performs as envisaged.

114. All the stakeholders under PRSF would operate and report as per the standardized documentation developed as above. This includes appraisal by PFIs, reporting to SIDBI, monitoring of projects with ESCOs and beneficiaries, loan repayment, and risk claim procedures.

115. *Providing guarantee fee and incentive fee to PEA:* The PEA will be paid a fixed management fee of 0.75 percent of the fund corpus of US$37 million, or US$277,500 per annum for 4 years. As an incentive, it will also receive a variable management fee equivalent to 0.25 percent of the amount of sub-guarantees outstanding. After the first four years (and subject to the PEA requesting an annual extension of the initial fee structure), the fixed management will be lowered to 0.50 percent (US$185,000) and the variable management will fee increase to 0.50 percent on the amount of loans outstanding (instead of guarantees outstanding). The PEA will also be reimbursed for any additional facility management or operating expenses, which are not covered by the management fees, subject to review by the Executive and Advisory Committees.

116. *Charging of sub-project guarantee fee:* For each energy efficiency project covered under PRSF, SIDBI will charge a non-refundable sub-project guarantee fee to the PFI. This sub-project guarantee fee will be over the entire risk sharing tenure for that project. The sub-project guarantee fee envisaged for this program is lower than the other commercially-priced risk sharing programs in the India. This sub-project guarantee fee will be utilized by SIDBI towards augmenting the administration cost for PRSF. In case of any unutilized amount, the same will be ploughed back into the PRSF fund.

117. *Setting-up of Trust and Retention Account (TRA):* A Trust and Retention Account is a mechanism to protect PFIs against the credit risk in an energy efficiency project and to ensure that timely repayment to the PFI. TRA is set up by signing of an agreement between following four parties:

a. Participating Financial Institution
b. ESCO
c. Host Entity
d. Trustee Bank (if not the same as the PFI)

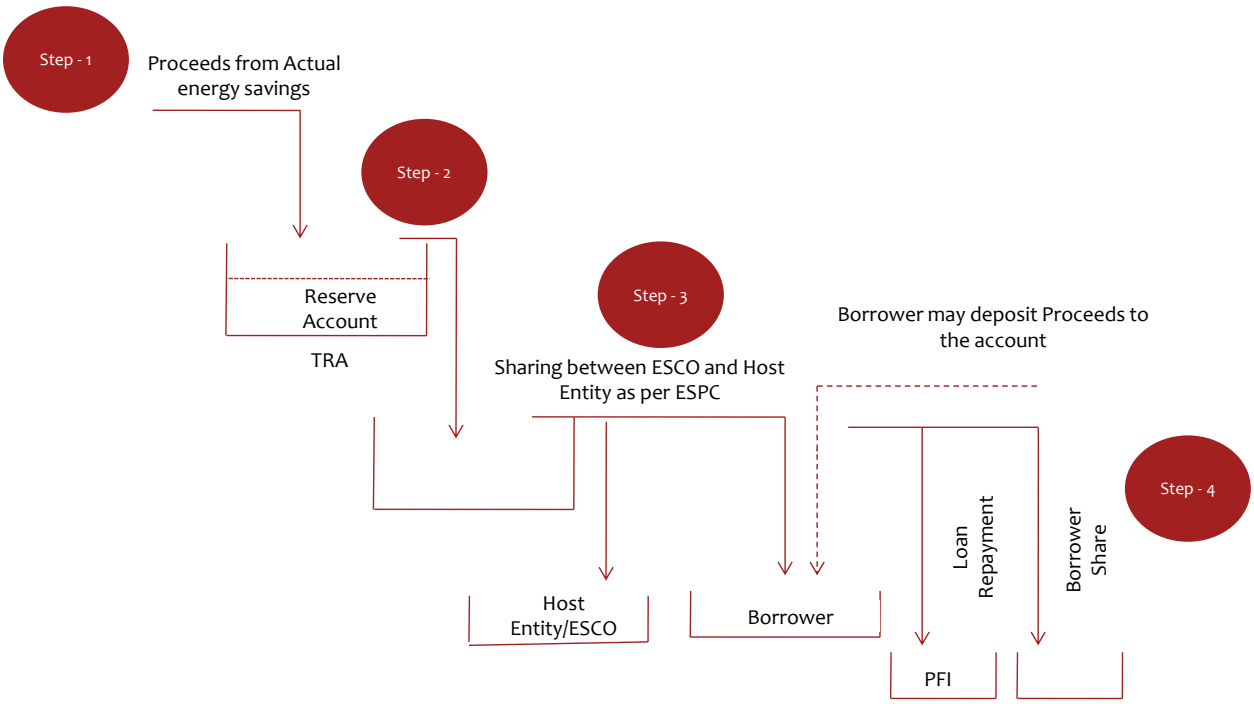
118. In the TRA mechanism, the cash flows of the EE Project is insulated by shifting the control over future cash flows from the Beneficiary industry to an independent agent, called Trustee Bank, duly mandated by the PFI. TRA account also has a provision of a Reserve Account which acts as a buffer against any potential future fluctuations in the energy savings during the EE Loan repayment period.

119. Difference with an ESCROW account: There is another repayment arrangement, Escrow Account, which is similar to TRA mechanism which protects the Borrower against the payment risk for the goods or services sold by the Borrower to its customer. This is achieved by removing the control over the cash flows from the hands of the customer to the ESCROW agent, who in turn could ensure appropriation of cash flows as per the its mandate. The ESCROW arrangement provides for directing a pre-determined payment stream from the customers of the borrower to a special account maintained with a designated agent.

120. Though, a TRA mechanism is similar to an Escrow Account arrangement but the latter safeguards the Borrower whereas the former safeguards the PFI or the lender. Hence, TRA is preferred in the PRSF program. The TRA arrangement will ensure timely deposition of proceeds from energy savings by the host entity, which is not ensured in any other arrangement, and its subsequent sharing, etc.

121. The working of a typical TRA, amongst its parties, is diagrammatically explained below.

Figure 3: Operation of a Trust and Retention Account



122. From the figure above, the various steps involved in the operation of a TRA are as follows:

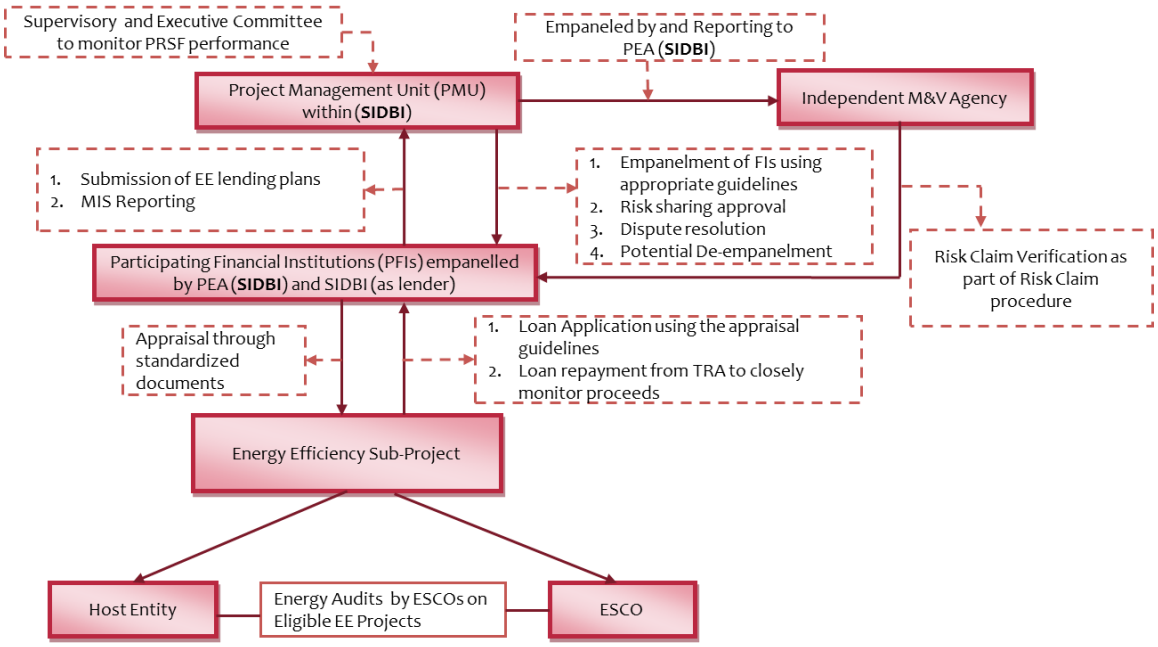
a. *Step 1:* The Beneficiary will deposit the Proceeds from the actual energy savings every month due to the implemented EE project into the TRA
b. *Step 2:* Within the TRA, the proceeds for the duration between the start of operation of the EE Project to the end of moratorium period will be deposited in the Reserve account. When the proceeds in any month exceed that envisaged in the ESPC, then the proceeds above the ESPC level will be deposited in the Reserve Account, or when the proceeds are below than that envisaged in ESPC, then the deficit will be replenished from the Reserve Account
c. *Step 3:* The Proceeds, exceeding the level of Reserve Account, will be shared between the ESCO and the host entity as per the signed ESPC.
d. *Step 4:* The Borrower from its share will repay the EE Loan first and then get its remaining share. However, there is a provision that the Borrower may deposit proceeds for repayment of the EE Loan to avoid the possibility of the account becoming NPA.

123. *Dispute Resolution (to be confirmed):* The dispute resolution is expected to be conducted in line with the provisions of the Energy Conservation Act, 2001 which includes discussion with the Adjudicating Officer, appeal in the Appellate Tribunal, whose decision shall be final and binding on both the parties.

Monitoring and Verification to ensure project operates according to specified principles

124. The PRSF design will ensure that there is appropriate monitoring and verification at different stages and between various implementing institutions. The various levels of monitoring and verification envisioned in PRSF is depicted and explained below.

Figure 4: Monitoring and Verification Arrangements under PRSF



125. *Monitoring of the PRSF performance:* The *Advisory* Committee will oversee the progress and performance of the PRSF. It will take appropriate corrective measures, if required, during the implementation phase to ensure that PRSF meets its objectives.

126. *PRSF Portal:* A dedicated PRSF website will track and provide access to information on the financial and operational performance of PFI. The stakeholders will be able to track the progress of loans and their performance from the website hosted on SIDBI's data servers.

127. *Evaluation of PFIs' performance:* The PFIs will be required to have dedicated personnel to appraise EE projects under PRSF. The *Advisory* Committee will evaluate the performance of the PFIs against the EE sub-projects undertaken and the process compliance followed. Depending on this regular evaluation, SIDBI might take a decision to de-empanel a particular PFI.

128. *Agreement on EE sub-projects from SIDBI:* For each EE loan, a separate risk sharing agreement will be signed, before the disbursement of the EE loan, after approval from SIDBI. This agreement shall define the terms and conditions specific to each EE Loan – the risk coverage amount, EE loan amount, etc. All the details of that particular EE Loan can be accessed at any point of time with reference to this Risk sharing agreement.

129. *Standardized appraisal and project monitoring:* The PFIs will be required to appraise the projects using the standardized transactions documents built under PRSF. They will ensure that the risk, traditionally encountered in measuring and verifying energy efficient savings in such projects, is minimized. Further, the ESCOs will also be required to submit the loan applications using standardized templates. This will ensure that there is a common understanding between all parties – PFI, ESCO, and beneficiary – for an EE loan.

130. *Ensuring technical viability of projects:* Under PRSF, it will be required that the ESCOs conduct an energy audit in the beneficiary premises and utilize the same in the loan submission to the PFIs.

131. *Transparency on proceeds from energy savings:* The Trust and Retention Account (TRA), as explained in the section above, will ensure that proceeds from energy saving projects are transparently monitored and payment to the PFIs happens regularly. In case an EE loan is not perming well, the TRA will ensure visibility on the non-performance with enough lead time to allow for any corrective action to be taken.

132. *Transparent MIS reporting:* In an effort towards better management of information, an MIS system will be developed under this assignment with proper access rights so that correct information reaches the correct stakeholder at correct time. Also, this will make the whole process paper-less. The PFIs will submit the project progress through MIS reporting under PRSF. The expenses and usage of the PRSF corpus will also be managed through MIS reporting. This will also ensure that information with regard to every EE Loan is available in the MIS system and can be retrieved in short time, thereby, reducing the time for retrieving the

information. This will also ensure that monitoring of the PRSF program is done on a real-time basis.

133. *Due diligence on PFIs' appraisal:* In order to ensure proper appraisal of EE loan applications by the PFI, there is a provision of conducting random due diligence of appraisal documents submitted by the PFI. SIDBI will empanel an Independent M&V Agency (MVA) for conducting random due diligence on sample selected EE loans under PRSF. The MVA will conduct due diligence, on the adherence to mandated appraisal guidelines, technical & financial appraisal, robustness of the Detailed project reports (DPRs), functioning of the project, and adherence to reporting guidelines, etc. In case, the selected EE project is found to be appraised in a sub-standard manner by the PFI then that PFI will be de-empanelled from the program, including any other strict action against the PFI.

134. *Monitoring and Verification of the risk claim:* In case of a risk claim submitted by a PFI, SIDBI will verify the claim through an empanelled Independent M&V Agency (MVA). The MVA will be a non-partial party to carry out the verifications of the risk claim, including the reasons for default, any possible collusion between the project stakeholders, and energy savings at the beneficiary premises. The MVA will submit an M&V report comprising of its findings on field and based on this report, SIDBI will gauge the genuineness of the risk claim. Only in case of a genuine risk claim, SIDBI will release the required risk coverage; else it will take strict action against the PFI.

B. Financial Management, Disbursement and Procurement

Overall project and funding

135. The project (US$43 million) will be implemented by SIDBI in collaboration with EESL. While SIDBI will be responsible for operation of the guarantee facilities as well as related technical assistance activities, EESL will complement SIDBI by building a credible pipeline of ESCO projects. SIDBI would manage a US$37 million risk sharing facility funded from GEF grant of US$12 million and backstopped by a CTF guarantee of US$25 million. In addition GEF grant of US$6 million would go towards TA activities of SIDBI (US$4 million) and EESL (US$2 million). The risk sharing facility would have the ability to issue over US$51 million in sub-guarantee coverage and assuming 54% coverage ratio, total commercial debt supported would be around US$95 million.

136. The project will be funded by GEF grant to the tune of US$ 18 million. An amount of US$12 million would be disbursed up-front to SIDBI as seed capital for two risk sharing accounts: (i) US$6 million for guarantee calls from SIDBI and (ii) US$6 million for guarantee calls from PFIs. In addition US$6 million would be allocated for TA component to be disbursed to SIDBI (US$4 million) and EESL (US$2 million) against expenditures incurred against prescribed TA activities such as capacity building, standardized documentation and developing end to end market solutions. GOI will determine how to use any unused balance of GEF funds in risk sharing facility at the end of the program, consistent with the original development objectives of PRSF.

137. CTF guarantee of US$25 million (contingent finance) would essentially cover capital shortfall to meet sub-guarantee calls from PFI loans only. CTF guarantee will be committed according to a step up schedule agreed between SIDBI, CTF and IBRD.

Amount in USD/ million

Particulars	SIDBI	EESL	Total	GEF	CTF
GEF: Seed capital for risk sharing facility	12	0	12	12	
GEF: Technical Assistance	4	2	6	6	
CTF: Guarantee (backstop)	25	0	25		25
Total	**41**	**2**	**43**	**18**	**25**

138. The risk sharing facility will generate income (interest and sub-guarantee fee). Specific facility expenses comprising various fees and operating expenses will be met out of the facility income. The annual surplus (excess of income over expenses) would be transferred to the risk facility or carried forward to meet future expenses. This would be discussed and agreed between SIDBI and IBRD.

139. The PRSF guarantee term would be 2-5 years and the guarantee coverage would be 40-75%. The PRSF guarantee issuance period would be up to year 10. An Operations Manual (OM) would be prepared by SIDBI, acceptable to the Bank containing appropriate guidelines for implementing the project.

Funds Flow and Disbursement Arrangements

140. As per GoI Circular[55], GEF funds need to be mandatorily routed through GOI's budgetary channel. However, direct transfer from Bank to SIDBI and EESL is being explored by SIDBI in consultation with DEA. The arrangements on fund flow will be firmed up by negotiations.

D. GEF Guarantee fund US$12 million: The funds for the two guarantee facilities of US$ 6 million each will be released immediately on signing of the grant agreement and will be considered as eligible expenditure. SIDBI will receive the funds into their common pool bank account and utilize them towards guarantee calls in the manner specified in the OM.

E. CTF Guarantee (contingent finance) US$25 million: CTF guarantee would flow to SIDBI to cover capital shortfall to meet sub-guarantee calls from PFIs in the manner specified in the OM up to the amount committed each year subject to a maximum of US$25 million.

F. GEF TA US$6 million: The TA amount would flow to SIDBI (US$4 million) and EESL (US$2 million) as reimbursement on the basis of quarterly Interim Unaudited Financial Report submitted to the Bank within 45 days from the end of each quarter.

[55] Letter F. No.1(15)B(Ac)-2012 dated September 14 2012 of MoF, DEA, Budget division.

Small Industries Development Bank of India (SIDBI) – Implementing Agency (US$41 million)

141. SIDBI, set up on April 2, 1990 under an Act of Indian Parliament, is the Principal Financial Institution for the promotion, financing and development of the Micro, Small and Medium Enterprise (MSME) sector and for co-ordination of the functions of the institutions engaged in similar activities.[56] Overall management of SIDBI is vested in the Board of Directors and for focused discussions 10 committees of the Board have been constituted including Executive Committee, Audit Committee, Risk Management Committee and Special Committee to Monitor Large Value Frauds.

142. SIDBI along-with Government of India set up the Credit Guarantee Trust for Micro and Small Enterprises (CGTMSE) in 2000-01. It operates the Credit Guarantee Scheme for Micro and Small Enterprises (MSEs) which guarantees credit facilities up to Rs.100 lakh extended by Member Lending Institutions (MLIs) to those loans which are not backed by collateral security and/ or third party guarantees. SIDBI is subject to RBI rules and regulations including disclosure norms for Non Productive Assets (NPA). SIDBI intends to capitalize on their experience and capacity in the lending and guarantee operations under PRSF.

143. SIDBI has a well-defined management structure and financial management comprising budgeting/ estimations, accounting and reporting and audit processes. SIDBI is adequately exposed to the Bank's financial management procedures having successfully implemented Bank funded SME financing projects and with the ongoing 'financing energy efficiency at MSME' operations[57]. Hence it is proposed to use the current mainstream FM capacity[58] and systems of SIDBI for the project.

Project FM Arrangements

144. The PRSF Executive Committee comprising operational teams of SIDBI and EESL would set/ alter guarantee product parameters; IBRD/ CTF would provide consent for material changes to guarantee products and the PRSF Advisory Committee co-chaired by MD/ Dy MD, SIDBI and DG, BEE would provide advice and review PRSF operations.

145. SIDBI-PMU would be responsible for the day to day operations of the Project and report to the Executive Committee. The PMU will house energy specialists, a legal firm, office executives and monitoring and verification (M&V) agents. PMU officials will be hired using Bank procurement procedures. The OM would specify the fund management arrangements; controls and processes for changing the modalities; delegation of powers for discharging various responsibilities; detailed procedures for planning/ budgeting, receipts and payments, accounting

[56] The inclusion of extending the guarantee facility to medium enterprises is under deliberation by SIDBI with DFS.
[57] The implementation performance is rated as satisfactory.
[58] Currently SIDBI staff are deputed in the CGTMSE for managing their credit guarantee operations. Further, PMD which is now a part of the International Consultancy & Central Co-ordination Vertical, and Energy Efficiency Centre (EEC), both based at New Delhi, are acting as Project Management Units (PMUs) for managing the existing World Bank projects. These personnel are well versed with the record maintenance and reporting requirement of World Bank and will support the project where appropriate.

and reporting and audits etc. (Refer to Annexure I for a brief description of implementation modalities and due diligence by SIDBI).

146. Annually PMU with the assistance of SIDBI and EESL would prepare business/ implementation plan cum budget covering proposed activities and financial layout relating to the guarantee facility, TA activities and PRSF operating expenses and submit to the Executive Committee for its review. Following this the Executive Committee would present the annual plan cum budget to the Advisory Committee, IBRD and GOI. The approved business/ implementation plan cum budget would provide the authorization to SIDBI/ EESL/ PMU to carry out the planned activities and incur expenditure on the project. SIDBI's management fees, PMU operating expenses and expenses relating to TA activities would be covered by the plan cum budget. Sufficient powers would be delegated to the Advisory Committee to pre-approve such expenditure including any excess expenditure over budget.

147. The Advisory Committee would also receive and review quarterly IUFRs, internal audit reports and annual PRSF Financial Statements and audit reports prior to their submission to the Bank.

148. *Project Accounting and Controls*. Control over the guarantee funds and its utilization would be exercised through the maintenance of dedicated Ledger Accounts in the books of accounts of SIDBI and timely reporting in the prescribed format. These accounts and the related supporting documents/ records will be subject to both internal and external audit arrangements of SIDBI satisfactory to the Bank.

149. SIDBI would maintain dedicated General Ledger Accounts as mentioned below to record all related transactions (receipts and payments). The facility corpus (USD 12 million and contingent financing by CTF) and all incomes arising therefrom will be utilized only for agreed activities including treasury operations of SIDBI. Quarterly interest on the facility balance, including any balance in the CTF ledger account, will be calculated on mutually agreed formulae (RBI policy repo rate net of 'treasury charges of 2%' agreed for the initial four years to be reviewed thereafter) would be utilized for meeting expenses for running facility operations.

Separate GL accounts will be opened for:
(a) GEF Guarantee Facility – SIDBI (corpus US$6 million);
(b) GEF Guarantee Facility – PFI (corpus US$6 million);
(c) CTF Guarantee - backstop arrangement for PFI Guarantee Facility (US$25 million); and
(d) Facility Operations – (income and expenditure account for operating the facilities).

150. There will be no drawdown of the Guarantee Facility Corpuses except in the event of guarantee payouts. It is expected that the Facility Operations Account would generate surplus. However there could be instances of shortfall in the availability of operational funds. Although the project's intent is to route the surplus in the Facility Operations Account back into the PFI Guarantee Facility Account annually, which will increase the size of the corpus available for issuing guarantees, the facility management, in consultation with the Bank may agree on setting aside a percentage of the surplus to meet future contingencies. The amounts thus set aside would be in the form of a contingency reserve which would be carried forward in the Facility

Operations Account. Any balance in the corpus accounts at the end of the project together with the balance in the Facility Operations Account would be refunded to GEF/ CTF/ GOI as appropriate.

The Facility Operations Account will record the following incomes
(i) quarterly notional interest on the facility as agreed and
(ii) guarantee fees collected from PFI's

Expenses charged to the Facility Operations Account would be
(i) fixed and variable management fees of SIDBI (this will be based on agreed formulae);
(ii) CTF front-end and guarantee fees paid by SIDBI;
(iii) M&V fees based on agreed cap of 10% of guarantees called; and
(iv) Other program and capacity building expenses of PMU.

151. The project operating expenses would be controlled through annual budget estimates as part of the annual business/ implementation plan that would be prepared and agreed with the Bank. Any deficit in the Facility Operations Account will be met out of the contingency reserve built up over the project period. The free surplus will be transferred to the PFI Guarantee Facility Account.

152. The total of the balances in the GL accounts mentioned above would be compared with the balances of free cash and cash equivalents reflected in SIDBI's statements of accounts on regular basis for fiduciary assurance and indicated in the quarterly IUFRs.

153. SIDBI will maintain detailed Loans and Guarantee Registers/ Records to track individual loans, guarantees, defaults/ payouts, claims and recoveries/ write-offs separately for own loans and loans advanced by PFIs. The documents and registers will be audited and also reviewed by the Bank during implementation supervision missions. SIDBI will follow all relevant regulations and reporting requirements issued by RBI particularly those relating to non-productive assets.

154. The GL accounts summaries with notes will be reflected in the quarterly IUFRs, along with summaries of loans, guarantees issued and called, status of NPAs, claims etc. and shared with the Bank. The format of the IUFR will be mutually agreed before negotiations.

155. The Balance Sheet of SIDBI would disclose the total of the balances in the facilities' accounts and facility operations account as a 'Trust Fund' under Liabilities. This will be represented by SIDBI's cash and cash equivalents under Assets.

156. *Financial Reporting*. PMU will be responsible for preparation and submission of the monthly/ quarterly progress reports on the project as specified in the OM. PMU will monitor and record project activities and reports, covering both SIDBI and PFIs. A dedicated web-based MIS for quarterly reports on PFI achievements is proposed which would be linked to a dedicated PRSF website operated by SIDBI.

157. Under Bank's legal covenant quarterly IUFR in the prescribed format will be due to the Bank within 45 days of the end of each quarter. The details for sources and application of funds will be taken from the PRSF-specific general ledger accounts. The physical progress details will be available from project MIS reports. Budget details will be available from annual plans/budgets. The annual sources and application of funds reported in the fourth quarter IUFR will be subject to annual audit and certification by the project auditors. Ineligible expenditures are recoverable by the Bank.

The IUFR would include at a minimum

- Sources and application of funds (actuals), classified by project components and sub components, compared with annual budgets to highlight variances
- PFI wise (including SIDBI) list of loans, guarantees issued, guarantee payouts, recoveries/ write offs
- Appropriate physical progress details compared with annual plans.

158. *Project Annual Financial Statements*: The formats of balance sheet and the profit and loss account of SIDBI are prescribed by the SIDBI Regulations, issued under the SIDBI Act. SIDBI has implemented accrual system of accounting and is required to follow the accounting standards as issued by the Institute of Chartered Accountants of India mandated under clause No. 23 of the listing agreement that SIDBI has signed. SIDBI's accounting is computerized. All PRSF related inflows and outflows (other than EESL) will be accounted for under PRSF (Trust Fund) in the books of SIDBI as per the established policies and procedures. Details of PRSF will be disclosed in the Notes to Accounts in SIDBI's Balance Sheet.

159. Separately SIDBI will prepare annual PRSF Financial Statements in the Bank prescribed format disclosing the sources and application of funds with notes and Reconciliation of Claims. Under Bank's legal covenant, annual audited Project Financial Statements along with audit report will be due to the Bank within six months from the end of the year (ie by 30 September) each year during the currency of the project.

160. SIDBI will engage a firm of Chartered Accountants, acceptable to the Bank to audit and certify the annual financial statements of the project. The auditor could be SIDBI's statutory auditor or separately hired CA firm. The terms of reference for the annual audit will be agreed by negotiation and will include at minimum:

a) Audit of the guarantee facilities, operational expenditure and TA activities.
b) Adherence to Bank's legal agreements, project appraisal document and the OM for all aspects of project execution (not confined to financial aspects alone) such as empanelment of PFI, guarantee issuance, guarantee calls, recovery efforts, due diligence/ monitoring and evaluation etc.
c) Certification of actual expenditure incurred on TA activities.

161. Since SIDBI is acting in a fiduciary capacity in managing the PRSF facility including the seed capital the Bank would need to consider the entity audited accounts and audit report of SIDBI for fiduciary assurance purposes. Therefore, SIDBI's annual entity accounts and audit report would be due to the Bank within six months from the end of the financial year. Therefore the following will be tracked in the Bank's system:

Audit Report	Audited By	Due By	Agency
Project (PRSF) (including audit of IUFRs submitted for disbursement)	Chartered Accountant	September 30	SIDBI
Entity (SIDBI)	Chartered Accountant	September 30	SIDBI

162. *Internal Control.* Internal Audit in SIDBI is an independent appraisal function established within the organization to examine and evaluate the identified business risks and the organization's control environment. The internal auditors reports are periodically placed before the audit committee constituted by three independent members of the Board. The project activities will also be subject to internal audit by this department at agreed intervals and based on an agreed TOR and its reports would be made available to the Bank. Periodicity of reports will be agreed by appraisal.

163. *Web Disclosure.* SIDBI is already hosting its annual reports on its website. The project audit report will also be made available on SIDBI's website. The Bank, under its policy will publish the project financial statements of accounts and audit reports on its website.

For Energy Efficiency Service Limited (EESL) - (USD 2 million-GEF):

164. EESL was set up as the lead implementing arm of Ministry of Power and Bureau of Energy Efficiency in December 2009. It is a public sector entity under the administrative control of Ministry of Power and is promoted by NTPC Limited, Power Grid Corporation of India Limited, Rural Electrification Corporation and Power Finance Corporation. The Board of Directors of EESL consists of one representative each from the four promoter companies, one representative from Ministry of Power and one representative from Bureau of Energy Efficiency. It is registered under the Companies Act, 1956 (on 10th December 2009) and obtained Certificate for Commencement of Business on 11th February 2010. EESL provides consultancy in energy saving appliances, buildings, turnkey projects and also acts as a Resource Center for capacity building of state designated agencies, utilities, financial institutions, etc.

165. Under the Bank funded project, EESL will be entrusted with the execution of technical assistance activities as per the agreed Procurement plan. EESL has adequate financial management mechanisms covering expenditure approvals, budgeting, accounting, reporting and audit.

166. *Fund flow arrangements*: as per GoI Circular[59], GEF funds need to be routed through the budgetary channel. In case of EESL, presently no funds are being accessed through the budgetary channel from MoP.

167. The method of disbursement by Bank will be reimbursement on the basis of quarterly IUFRs which will report the actual expenditure on project related activities. These IUFRs will be subject to both internal and annual statutory audit of EESL.

[59] Letter F. No.1(15)B(Ac)-2012 dated September 14 2012 of MoF, DEA, Budget division.

168. *Accounting.* EESL uses accounting software (TALLY) which will be used for PRSF. Separate project specific heads of accounts will be used to suitably segregate EESL's regular and PSRF expenditures. These PRSF specific accounts will be the basis of claiming disbursements from the Bank through quarterly IUFRs. The IUFRs will be maintained on cash basis. The format of the IUFR will be mutually agreed.

169. *Internal Controls*. The internal audit function at EESL is carried out by a firm of Chartered Accountants. These reports are reviewed and responded to by the Finance Department of EESL and further placed before the Audit Committee chaired by a promoter Director and two other members from the Board of Directors (excluding the Managing Director). The project related activities will be subject to this internal audit of the entity with a suitably expanded scope of work, agreed with the Bank.

170. *Audit*. The statutory auditor of EESL is appointed by The Principal Director of Commercial Audit (CAG) as per Section 619(B) of Companies Act with supplementary audit by CAG. These along with the audit report are forwarded annually to the Board after recommendation of the Audit Committee. The audit reports are clean. The project related transactions will be appropriately depicted in the annual audited accounts of EESL and the same will be furnished to the Bank along with the audited IUFRs within 6 months from the end of financial year.

Audit Report	Audited By	Due By	Agency
(i) Entity audit report (ii) Audited IUFRs submitted for disbursement	EESL auditors: Independent firm of CA appointed by CAG.	September 30	EESL

171. *Web Disclosure.* The EESL has hosted their annual reports till FY 2012-2013 on its website. In line with Banks 'access to information policy', the project audit report will also be made available on EESL's website.

Project FM Risk Assessment

172. SIDBI is adequately exposed to the Bank's financial management procedures having successfully implemented Bank funded SME financing projects and with the ongoing GEF-financed 'Financing EE at MSMEs' operation. However, given the background of the innovative project design of the operation involving ESCOs and due to the multiplicity of agencies (PFIs, ESCO, end user companies/host entities and its related M&V structure), there are risks, which needed to be mitigated through certain special arrangements listed in the table below.

173. Overall SIDBI financial management systems including accounting, financial reporting and auditing systems along with the recommended mitigation measures are adequate to meet Banks requirements under OP BP 10.00. EESL systems were appraised and they are adequate to meet the requirements under OP 10.00.

Risk Identified	Mitigation measures	Open Issues
Management of upfront GEF grant of USD 12 million towards Guarantee Facility in the absence of a dedicated bank account. (The entire guarantee amount would be deposited by SIDBI in its 'common pool account' thereby comingling SDBI and project funds.)	Control over the guarantee funds and its utilization would be exercised through the maintenance of four dedicated Ledger Accounts in the books of accounts of SIDBI and timely reporting in the prescribed format. These accounts and the related supporting documents/ records will be subject to both internal and external audit arrangements of SIDBI satisfactory to the Bank and reviewed by the Bank during implementation support missions. SIDBI will follow the project OM, and all relevant regulations including those issued by RBI. There will be no drawdown of the Guarantee Facility Corpuses (GEF USD 12 million and CTF USD 25 million including net surpluses generated through treasury operations) except in the event of guarantee payouts. Any balance in the corpus accounts at the end of the project together with the balance of net surpluses would be refunded to GEF/ CTF/ GOI as appropriate. The total of the balances in the GL accounts mentioned above would be compared with the balances of free cash and cash equivalents reflected in SIDBI's statements of accounts on regular basis to ensure ready availability of funds and for fiduciary assurance. SIDBI will maintain detailed Loans and Guarantee Registers/ Records to track individual loans, guarantees, defaults/ payouts, claims and recoveries/ write-offs separately for own loans and loans advanced by PFIs. The GL accounts summaries with notes will be reflected in the quarterly IUFRs, along with summaries of loans, guarantees issued and called, status of NPAs, claims etc. and shared with the Bank. The format of the IUFR will be mutually agreed before negotiations. The Operations Manual being prepared by SIDBI will capture in detail the project FM structure, policies and procedures for maintenance of the facility accounts, reporting, budgetary controls, progress monitoring and audits. The OM will be subject to the Bank's review and acceptance.	Operations of the General Ledger Accounts to be clearly spelt out in the OM and accepted by the Bank
Fund flow direct to SIDBI	As per GoI Circular[60], GEF monies from donor agencies need to be mandatorily routed through GOI's budgetary channel. For routing the funds directly from Bank to SIDBI and EESL, approval of DEA needs to be sought.	Agreement needs to be reached by SIDBI and EESL with DEA and notified to the Bank.
Assurance on use of funds at SIDBI level	• Annual audit by independent auditors acceptable to Bank under agreed terms of reference. • Regular M&V as prescribed • Reflection of guarantee facility and income and expenditure under the project in annual accounts of SIDBI. • Hoisting the information on guarantee issued and its invocation through a dedicated link in its project website.	The details to be finalized and included in OM.

[60] Letter F. No.1(15)B(Ac)-2012 dated September 14 2012 of MoF, DEA, Budget division.

Assurance on sub project level (PFI)	• Monitoring and verification agent (under PMU hired by SIDBI) to conduct random checks on related PFI, ESCO, end beneficiary along with detailed monitoring in case of defaults. Capping on guarantee for each PFI. • Audit arrangements of PFI given due weightage during selection and subsequent monitoring. • Guarantee product being devised by SIDBI with focus on assurance. • Proposed web based format for monitoring progress on PFI and related transaction. • Proposed concept of 'trust and retention account' for ensuring repayments of loans.	The details to be finalized and included in OM.
Legal restriction on SIDBI for issuance of guarantees to PFIs in support of loans to medium enterprises.	The legal mandate allows SIDBI for lending to medium enterprise but is not flexible on issuance of guarantee to medium enterprises. While project may begin with small and micro enterprises, SIDBI needs to finalize their discussion with DFS on broadening the scope for inclusion of medium enterprises.	Needs to be resolved.

174. Financial Management assessments of SIDBI and EESL conclude that the overall risk of the project is 'High' before mitigation and 'Substantial' post mitigation.

Procurement

175. The proposed financing of US$ 43 Million will finance the Component 1 (a risk sharing facility, managed by SIDBI) of US$37 million (consisting of US$12 million in GEF grant funds and a US$25 million CTF guarantee), and Component 2 (a technical assistance and capacity building component of US$6 million, out of which US$4 million managed by SIDBI and US$2 million managed by EESL).

176. Procurement for the project will be carried out in accordance with the World Bank's "Guidelines: Procurement of goods, works and non-consulting services under IBRD loans and IDA credits & grants by World Bank borrowers" dated January 2011 ("Procurement Guidelines") and "Guidelines: Selection and employment of consultants under IBRD loans and IDA credits & grants by World Bank borrowers" dated January 2011 "(Consultant Guidelines)" and the additional provisions mentioned in legal agreement.

177. Procurement capacity of SIDBI: Established in April 2, 1990, SIDBI is the principal development financial institution for promotion, financing and development of Industries in the small scale sector and coordinating the functions of other institutions engaged in similar activities. SIDBI is already involved in execution of Bank-funded "Financing Energy Efficiency in MSMEs" Project. An Energy Efficiency Centre exists within SIDBI at New Delhi, which will also be used to set up the PMU to implement the current project. This Centre contains a procurement consultant, who has experience of handling Bank-funded procurement. Even though SIDBI has adequate capacity to handle procurement of services based on the experience of the previous Bank-financed project, delays in procurement decision-making is an area of concern.

178. Procurement capacity of EESL: Energy Efficiency Services Limited (EESL), a Joint Venture of NTPC Limited, PFC, REC and POWERGRID to facilitate implementation of energy efficiency projects. It is registered under the companies Act, 1956 on 10th December 2009 and the commencement of business certificate is obtained on 11th February 2010. EESL has never handled Bank-financed procurement and will require extensive guidance and support from the Bank side. EESL will designate an existing staff to handle procurement under the current project.

179. Procurement risk assessment. The table below describes major procurement-related risks and the mitigation plan. The risk ratings have been decided based on both the probability of occurrence of various events as well as their likely impact. Based on the risk factors and mitigation measures, the overall residual procurement risk rating for the project is determined as "Moderate." The residual rating on procurement will be reviewed and updated periodically by the World Bank.

Assessed Procurement Risks and Mitigation Measures

Risk Factor	*Initial Risk*	*Mitigation Measure*	*Completion Date*	*Residual Risk*
Limited capacity and inefficiencies resulting in delays in procurement processes	Substantial	Use of skilled procurement staff for handling procurement Monitoring through procurement plan and quarterly reports Handholding and guidance by the Bank Adequate delegation for procurement related decision making Use of e-communication for communication with the Bank Advance contracting for the critical assignments	Continuous from year 1	Moderate
Non-compliance with agreed procurement arrangements	Moderate	Prior and post reviews by the World Bank Use of standard RFP/bid documents Prior and post reviews	Continuous from year 1	Low
Overall Risk	**Substantial**			**Moderate**

180. Procurement methods. Following Section 3.18 of the Procurement Guidelines for the Procurement under component 1 of the project, goods, works and services procured by the borrower of the loans guaranteed by risk sharing facility shall be procured with due attention to economy and efficiency (this will be checked and certified by the auditor engaged by SIDBI). The below table describes the various procurement methods to be used for activities under component 2 of the Project. These along with agreed thresholds will be reproduced in the procurement plan. The thresholds indicated in the following table apply to the initial 18 month implementation period and are based on the procurement performance of the project; these

thresholds will be modified as required. Domestic preference will be applicable for International Competitive Bidding (ICB) procurement of goods as per Appendix 2 of the Procurement Guidelines.

Procurement Methods

Category	*Method of Procurement*	*Threshold (US$ Equivalent)*
Goods and non-consultant services	International Competitive Bidding (ICB)	> 3,000,000
	Limited International Bidding (LIB)	wherever agreed by Bank
	National Competitive Bidding (NCB)	Up to 3,000,000 (with NCB conditions)
	Shopping	Up to 100,000
	Direct Contracting (DC)	As per paragraph 3.7 of Guidelines
	Public-Private Partnership (PPP) Services	As per paragraph 3.14 of Guidelines
	Force Account	As per paragraph 3.9 of Guidelines
	Framework Agreement (FA)	As per paragraph 3.6 of Guidelines
	Procurement from United Nations (UN) Agencies	As per paragraph 3.10 of Guidelines
	Performance Based Procurement	As per paragraph 3.16 of Guidelines
Consultants' Services	Selection Based on Consultants' Qualifications (CQS)/Least-Cost Selection (LCS)	Up to 300,000
	Single-Source Selection (SSS)	As per paragraphs 3.9-3.11 of Guidelines
	Individuals	As per Section V of Guidelines
	Particular Types of Consultants	As per paragraphs 3.15-3.21 of Guidelines
	Quality- and Cost-Based Selection (QCBS)/ Quality-Based Selection (QBS)/ Selection under a Fixed Budget (FBS)	for all other cases
	(i) International shortlist (ii) Shortlist may comprise national consultants only	> 800,000 Up to 800,000

181. World Bank review of procurement. The World Bank will prior review the following contracts:

a. Goods: All contracts more than US$ 3.0 million equivalent;
b. Services (other than consultancies) and IT system: All contracts more than US$ 1.0 million equivalent;

c. Consultancy services: > US$ 500,000 (for EESL) and >US$ 1.0 Million (for SIDBI) equivalent for firms; and
d. Consultancy services: > US$ 200,000 (for EESL) and >US$300,000 (SIDBI) equivalent for individuals.

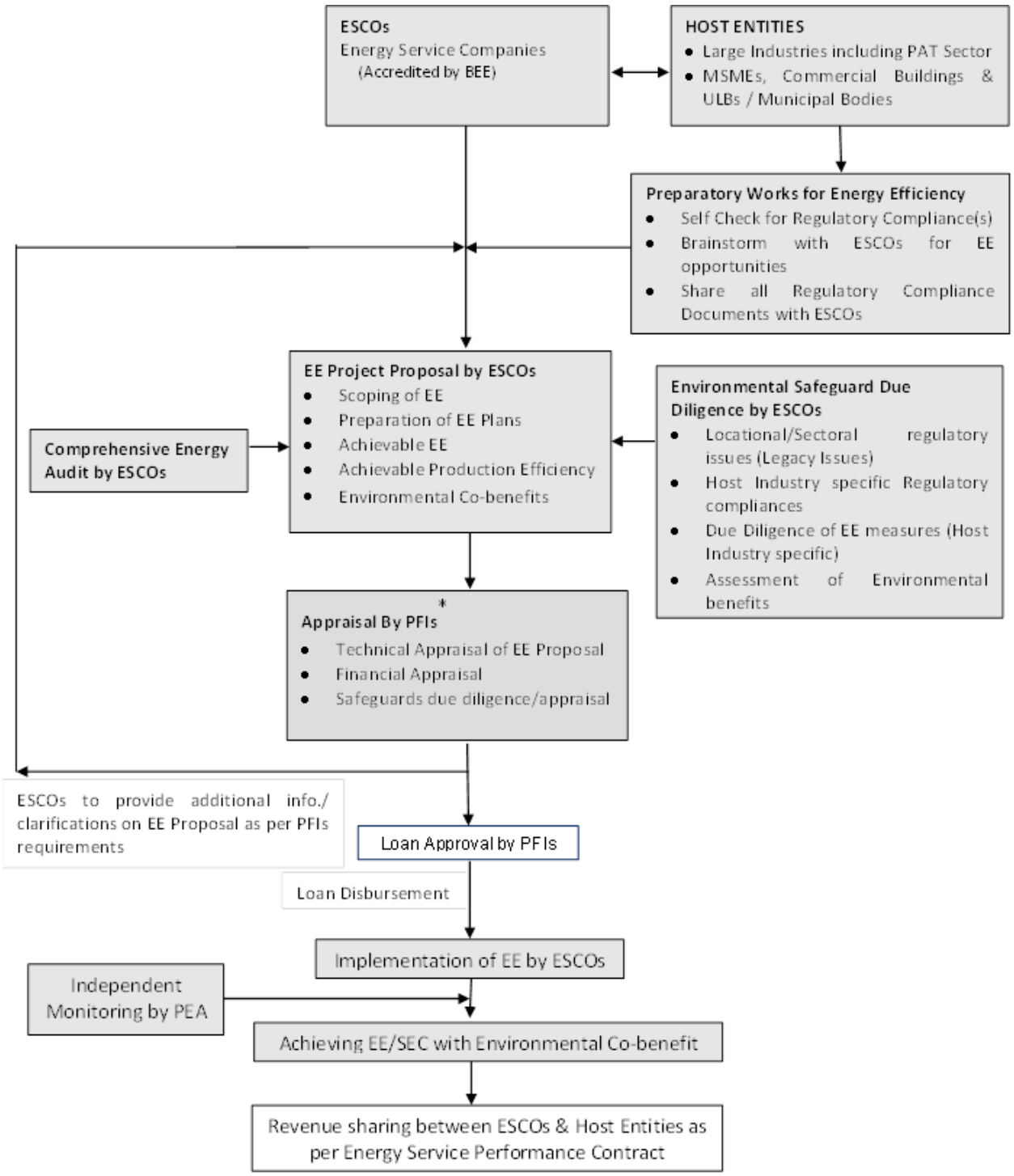
182. In addition, the justifications for all contracts to be issued on the basis of LIB, single-source or direct contracting (except for contracts less than US$ 30,000 in value) will be subject to prior review. The above thresholds are for the initial 18 month implementation period; based on the procurement performance of the project these thresholds may be subsequently modified. The prior review thresholds will also be indicated in the procurement plan. The procurement plan will be subsequently updated annually (or at any other time if required) and will reflect any change in prior review thresholds. The World Bank will carry out an annual ex-post procurement review of the procurement falling below the prior review thresholds provided above. The format for the consolidated report on prior review contracts (which will be submitted to the Bank on quarterly basis as part of IUFR) will be agreed with the World Bank.

183. Implementation support. The World Bank will normally carry out implementation support missions, including review and support on procurement, on a semi-annual basis. Mission frequency may be increased or decreased based on the procurement performance of the project.

184. Use of government institutions and enterprises. Government-owned enterprises or institutions in India may be hired for activities of a unique and exceptional nature if their participation is considered critical to achievement of project objectives. In such cases the conditions provided in clause 1.13 of the Consultant Guidelines will be satisfied and each case will be subject to prior review by the World Bank.

C. Environmental and Social (including Safeguards)

185. The safeguards management for the PRSF transactions are mainly relates to minimizing environmental risks and is governed by Environmental Risk Management Framework (ERMF). ERMF defines the roles and responsibilities of all stakeholders under PRSF to address issues such as current environmental performance relating to regulatory compliance, or environmental legacy issues, or negative environmental impacts resulting from technology upgrades due to EE measures, if any. The ERMF also define the environmental safeguard requirements to be followed while preparing the EE projects, to enable due diligence during appraisal process and identify environmental risk profile of each transaction to ensure safeguard risk are mitigated as part of disbursement mechanisms. Third party checks on appraisal procedures to ensure the fiduciary and environmental safeguard management framework are also included under ERMF. The summary of role and requirements to be followed by all the stakeholders under PRSF comprising host entities, ESCOs, PFIs and PEA include the following, which is also depicted below**.**



186. *Responsibilities of ESCOs*: ESCOs will require to carry out Environmental Safeguards Due Diligence (ESDD) of host entities (DCs) as part of preparing EE proposals. ESCOs are also expected to explore and include EE measures, which can lead to clean technologies, emission reduction and improvement in operational efficiencies, thus transform into an environmental co-benefits. ESCOs shall ensure and confirm that all technological interventions as part of EE

proposals do not lead to violation/non-conformance to regulatory norms or result in increased emissions than the previously known or recorded levels. In case of occurrence of violations, a credible and implementable mitigation plan, complying with regulatory requirement shall be costed and included in EE proposals. The EE proposals will also determine re-validation requirements of consents, if any required from SPCB, in view of proposed technological improvements and accordingly advise host entities to initiate revalidation of consent at an appropriate time. All the EE proposals shall comply with industry specific occupational health and safety standards.

187. *Responsibilities of Host Entities***:** Host entities are expected to be fully compliant to all the National and State Pollution Regulatory requirements, hold valid consent to operate and comply with all consent conditions including implementation of any specific emission reduction or pollution prevention measure(s) as a consequence of industry or commercial buildings being located in critically polluted areas conditions, if any stipulated by the State or Central Pollution Control Board. The compliance requirement shall include applicable provisions of the CREP charter for large scale units only.

188. *Roles and Responsibilities of PFIs and SIDBI as lender under PRSF:* The PFIs and SIDBI as lender under PRSF, responsible for technical and financial appraisal of the EE project proposals prepared by the ESCOs, will also be required to undertake environmental safeguards appraisal comprising the following key aspects: They shall (i) ensure that EE project reports submitted by ESCOs confirm status of regulatory compliance of respective Host Entities; (ii) ensure EE proposals are compliant with the provisions under ERMF; (iii) seek periodic (bi-annual / annual) progress reports from ESCOs, which shall include a dedicated section for indicating the environmental regulatory compliance status and environmental co-benefits; and (iv) The environmental safeguards scrutiny alongside of technical and financial scrutiny of EE project proposals and periodical monitoring during implementation stage by the PFIs and SIDBI as lender is a mandatory requirement of PRSF.

189. *Roles and Responsibilities of PEA (SIDBI):* The PEA, mandated to facilitate implementation of PRSF, will also a monitor compliance with the environmental safeguards requirements of the EE proposals under PRSF as follows: (i) Conduct random check on safeguards appraisal procedures, carried out by PFIs, in addition to the checks on technical and financial appraisal procedures; (ii) Commission independent third party checks at DCs / host industries / institutions, in order to verify EE project proposals either during the appraisal process or during implementation phase of EE project proposals with specific objective of meeting ERMF requirements; and (iii) Commission independent third party agencies to independently monitor and document the environmental co-benefits as an outcome of implementation of EE project proposals either periodically or on a need basis.

D. Monitoring & Evaluation

190. Monitoring and evaluation is an important pillar of the project. The importance not only lies in the fact that effective M&V would ensure appropriate appraisal by the PFI, along with the ESCO and beneficiary, of the EE projects and robust participation by the financial institutions.

The project design has therefore incorporated various levels of M&V to ensure successful project implementation, details of which are provided in the beginning of this Annex.

Annex 4: Operational Risk Assessment Framework (ORAF)

INDIA: Partial Risk Sharing Facility for Energy Efficiency

Stage: Decision Meeting/ROC

1. Project Stakeholder Risks	**Rating**	**Moderate**
Description : **Market Risks** In order to catalyze the scale-up of ESCO and ESPC market, the proposed PRSF project will employ a package of measures designed to complement one another. The project design addresses both demand and supply side issues in this regard. Market risks associated with this project thus can arise from a mismatch of demand and supply. While there is a policy push that has created an inevitable market pull or demand for EE adoption amongst large industries, MSMEs, buildings, municipalities, there are EE market barriers and lack of market-based mechanisms , such as through ESCOs in this regard – leading to lack of adequate demand for ESCO services. The commercial banks might not have adequate capacity to review EE projects and the ESCOs might be unable to prepare financially viable and bankable EE projects that would help them get bank financing.	**Risk Management:** Since its inception the project preparation has involved multiple rounds of stakeholder consultation that has revealed significant interest from the banks, ESCOs and participating large and small industries and other potential host entities. The consultations aimed at creating a shared understanding on the importance of the alliance between the banking sector, ESCOs and potential host entities (industries, MSMEs, municipalities, buildings) to achieve the objectives of NMEEE in India in an integrated and sustainable manner The PRSF project has a complementary TA component where it will engage with existing banks which lend to some clean energy sectors to expand credit delivery to EE sectors, to promote the market. The project's TA component will also include support to banks to develop understanding about EE projects with ESCOs and ESPC modalities, with bank credit officers. The project will also engage with ESCOs and help enhance their marketing, business development and financial aspects of project development	

	Resp:	**Stage:**	**Due Date :**	**Status:**
2. Operating Environment Risks (Note for information: this section is not disclosed at negotiation and Board presentation stages)				
2.1. Country (Note for information: this section is not disclosed at negotiation and Board presentation stages)	**Rating:**	**Low**		
Description: The Indian economy registered a robust GDP growth rate of 8 percent during the Eleventh Plan Period (2007-2012), despite a slowdown in 2011-2012. Economic growth is likely to accelerate to over 6.0% during the current financial year (April 2013-March 2014) and is expected to increase further to 6.7% in 2015.[61] Fiscal consolidation in the medium-term fiscal framework has been adopted by GoI and fiscal deficit is expected to be 4.8% of GDP during 2013/14. By 2016-17 fiscal deficit to expected to be brought down to 3 per cent. In recent months, both inflation as measured by the wholesale price index and the trade deficit have declined. Inflation fell below 6% and is expected to fall further. The country's forex reserves has also been rising and stands at 14228.40 Rs. Billion in May of 2013 India has a wealth of accountability mechanisms and institutions, at the Union, state and local level, which still need be consistently mobilized.	**Risk Management :** India has a wealth of accountability mechanisms and institutions, at the Union, state and local level, which will need to be consistently mobilized.			
	Resp:	**Stage:**	**Due Date :**	**Status:**
2.2. Sector/multi-sector (Note for information:	**Rating:**	**Moderate**		

[61] World Bank, India Development Update, April 2013

this section is not disclosed at negotiation and Board presentation stages)				
Description: The risk that the current institutional framework for energy efficiency in India is unable to deliver this program and/or sustain its impacts.	**Risk Management :** The project is complementary to GoI's own PRGFEE program that gives an added impetus to the program. Further the overall NMEEE mandate and the Energy Conservation Act of 2001 of the GoI provides the policy push and enabling environment for scaling up EE market and investments. The Project's TA Implementation Agencies – SIDBI and EESL will also utilize the TA amount for capacity building and engage in marketing awareness and business development of relevant stakeholders that would include FIs, ESCOs, etc.			
	Resp:	**Stage:**	**Due Date :**	**Status:**
3. Implementing Agency Risks (including fiduciary)				
4.1. Capacity	**Rating:**	**Moderate**		
Description: **(a)** Adequate capacity and experience with energy efficiency and guarantees	**Risk Management :** The PRSF has engaged in rigorous discussions with SIDBI, making it conversant with the rationale and concepts of the project. SIDBI has experience with both guarantees and with EE sector. However, its experience with ESCOs is limited. The Operations Manual being developed under PRSF will lay out the ground rules of implementing and operating the program and as a guidance for SIDBI to operate effectively as a PEA. Although SIDBI is adequately exposed to the Bank's system given its implementation of previous Bank funded projects, however, given the background of the innovative project design of the operation involving ESCO and due to involvement of multiplicity of agencies (PFI's, ESCO, end user companies and its related M&V structure), there is a need of devising an exhaustive 'operational manual' which will address governance issues at downstream level. This would involve mechanism to			

<table>
<tr><td></td><td colspan="4">address potential risk arising at level of PFI, end user and ESCO which are participant to the project but are outside the accountability domain of SIDBI.

Further, the Technical Assistance component of the project will provide capacity building support</td></tr>
<tr><td></td><td>Resp:</td><td>Stage:</td><td>Due Date :</td><td>Status:</td></tr>
<tr><td>4.2. Governance</td><td colspan="4">Rating: Moderate</td></tr>
<tr><td>Description:
(a) The implementing agency has to work with multiple stakeholders. The PFIs may still not lend to EE projects or to the ESCOs on the basis of an Energy Savings Performance Contract (ESPC) and undertake Balance Sheet financing under PRSF

(b) TA provided to EESL and SIDBI for enhancing the ESCO market will be underutilized for designated purposes.

(c) There will be conflict of interest within SIDBI’s own lending to MSMEs and PRSF, rendering lending activities hard to track</td><td colspan="4">Risk Management:
(a) The empaneled PFIs will be signing MoU with SIDBI to lend to ESCOs or industries on an ESPC. The projects in which PFIs lend on a balance sheet will not be covered under PRSF. It will be ensured that, through appropriate criteria, the empaneled PFIs possess appropriate project financing experience and appraisal experience. Further, since the participating PFIs are all RBI regulated, they will have inherent reputation risk if called out for non-adherence to stipulated guidelines of PRSF

(b) The TA program will be monitored through the annual Business and Implementation Plan and corrective actions would be taken at the Executive and Advisory Committee levels.

(c) The World Bank Team through discussion and mutual agreement with SIDBI ensured adequate ring-fencing within SIDBI to avoid the conflict of interest.</td></tr>
<tr><td></td><td>Resp:</td><td>Stage:</td><td>Due Date :</td><td>Status:</td></tr>
</table>

<table>
<tr><td rowspan="2">Description:
(a) The stakeholders – PFIs, ECSOs and beneficiaries – could collude and may over-cost the EE projects under PRSF</td><td colspan="4">Risk Management:

(a) The appraisal guidelines and operational guidelines in the PRSF Operations Manual, which will operationally bind the participants of the ESPC based transaction.
(b) Risk of losing market reputation will be inherent for the PFIs, which will all be RBI regulated, will also deter colluding behavior</td></tr>
<tr><td>Resp:</td><td>Stage:</td><td>Due Date :</td><td>Status:</td></tr>
<tr><td rowspan="2">Description:
(a) The PFIs may utilize PRSF to lend out to EE projects which are weaker on financial viability and which the PFIs wouldn’t have otherwise lent out to</td><td colspan="4">Risk Management:

(a) The PFIs are required to submit Risk Claims to SIDBI who will conduct independent verification of claimed energy savings. The review of Risk Claim will involve scrutiny of initial documents as well as actual savings achieved.</td></tr>
<tr><td>Resp:</td><td>Stage:</td><td>Due Date :</td><td>Status:</td></tr>
<tr><td rowspan="2">Description:
(a) The PFIs may get empanelled but undertake no lending activity under PRSF</td><td colspan="4">Risk Management:

(a) The PFIs, before getting empaneled, will have to submit past EE experience, EE technical/ appraisal experience and capacity, and future energy efficiency plans under its participation in PRSF to SIDBI.
(b) The Advisory Committee will regularly monitor the lending performance, amongst other parameters, of each empanelled PFIs against these plans. It will provide feedback, and recommend corrective actions if necessary. These would also be facilitated through technical assistance and capacity building activities available for PFIs and other PRSF stakeholders.</td></tr>
<tr><td>Resp:</td><td>Stage:</td><td>Due Date :</td><td>Status:</td></tr>
<tr><td>Fraud & Corruption (sub-category of Governance risk)
(Note for information: this section is not disclosed at negotiation and Board presentation stages, except the risk Management measures which will</td><td>Rating:</td><td colspan="3">Low</td></tr>
</table>

be merged with those on 3.2 Governance)				
Description: The risk that fraud and corruption issues will hamper project implementation.	**Risk Management:** Funds will be managed by SIDBI – who have their own dedicated window for lending to SMEs and ESCOs, thus having adequate expertise and institutional capacity to manage PRSF.			
	Resp:	**Stage:**	**Due Date :**	**Status:**
5. Project Risks				
5.1. Design	**Rating:**	**Moderate**		
Description : (a) The projects will not reach credit quality requirements for commercial banks, negating the need for risk-sharing and reducing disbursement of loans backed by the risk sharing fund. (b) Due to the poor contracting and contract enforcements systems in the country, the ESCO market is unable to overcome the initial barrier of a portfolio of reliable projects (c) Inadequate pipeline of EE investment projects that can be provided financing (d) PRSF may lead to an increased lending to EE Performance Contracting while PRSF is present in the market and drop considerably after the program, thus questioning the sustainability of the market	**Risk Management:** (a) The risk of poor perception of credit quality by commercial banks is one of the barriers to wider financing of smaller EE projects, and particularly those implemented by ESCOs. This project aims to share default risks with banks and build their appraisal capacity on performance contracting mechanism, thereby assisting the market to be developed over the project implementation. (b) The World Bank and other donor agencies have undertaken several pilot programs for demonstrating viability of energy efficiency investments. Several of these programs (listed in Annex XXX) are currently underway and are expected to increase the demand for such projects. (c) The World Bank has worked extensively with ESCos, EESL, SIDBI and other stakeholders during the preparation phase to develop a robust pipeline. In the short-term, the street lighting pipeline of US$70 million appears firm. In addition, there is a pipeline of over US$100 million for MSMEs, buildings, and large industry EE projects (this includes some 500 investment grade project reports prepared by SIDBI under the GEF-financed World Ban project on “Financing EE in MSMEs Project (P100530)”. In addition, capacity building and pipeline development initiatives will be undertaken by SIDBI and EESL using the TA component (d) The project will create EE project appraisal capacity in PFIs through			

	training and real project appraisal experience as well as create standardized transaction documents/templates that will be available in the public domain and utilized later. These technical capacity building aspects will ensure that the EE financing market is not distorted by PRSF's presence and can continue on a stronger note when the project ends.			
	Resp:	**Stage:**	**Due Date :**	**Status:**
5.2. Social & Environmental	**Rating:**	**Low**		
Description :	**Risk Management :** **Given FI nature of engagement, social and environmental risks are expected to be low.**			
	Resp:	**Stage:**	**Due Date :**	**Status:**
5.3. Program & Donor	**Rating:**	**Low**		
Description : (a) Poor governmental policies to push energy efficiency leads to inadequate off take	**Risk Management :** (a) The project implementation agency – SIDBI has a mandate to develop the MSME sector, scale up innovative financing and supporting clean energy development. They have a dedicated window for lending to MSMEs and ESCOs and are actively involved in market development and capacity enhancement activities. In addition, GoI's NMEEE, Energy Conservation Act of 2001 and actions such as the notification of PAT in April 2012 and introducing EE building codes has shown the government's strong support for enhancing EE, as a way of improving the country's energy security. This policy push is expected to sustain, given the positive results it has already shown.			
	Resp:	**Stage:**	**Due Date :**	**Status:**
5.4. Delivery Monitoring & Sustainability	**Rating:**	**Substantial**		
Description : **(a)** The commercial banks pass on the higher risk projects to the PRSF, creating moral hazard. **(b)** Projects which do not account for energy	**Risk Management :** Monitoring the portfolio of risk sharing projects being delivered by participating financial institutions is critical. The project would seek to institutionalize an operations manual that streamlines process of due diligence of energy efficiency companies by participating financial			

savings get protected by the PRSF	institutions. The review of annual Business and Implementation Plan would also help in monitoring these aspects of PRSF.			
	Resp:	**Stage:**	**Due Date :**	**Status:**
5.5. Other	**Rating:**			
Description :	**Risk Management :**			
	Resp:	**Stage:**	**Due Date :**	**Status:**
Non-disclosable Information for Management Attention (Optional) (Note for information: this section is not disclosed at negotiation and Board presentation stages)				
Comments:				
5. Project Team Proposed Rating Before Review Substantial				
5.1. Preparation Risk Rating: Moderate	**5.2 Implementation Risk Rating: Substantial**			
Comments:	**Comments:** Due to mixed experience with previous PRSF interventions in other regions of the World Bank and with multiple stakeholders involved, implementation risk is rated as Substantial.			
6. Risk Team				
6.1. Preparation Risk Rating	**6.2 Implementation Risk Rating**			
Comments:	**Comments:**			
7. Overall Risk Following Review				
7.1. Preparation Risk Rating:	**7.2 Implementation Risk Rating:**			
Comments:	**Comments:**			

Annex 5: Implementation Support Plan

INDIA: Partial Risk Sharing Facility for Energy Efficiency

1. The project will be executed through SIDBI and EESL.

2. The Implementation Support plan (ISP) for SIDBI and EESL has been developed taking into account the following factors:

a. The project is meant to reduce the risk perception of commercial banks towards lending to EE market and catalyze the scale-up of performance contracting market in India. However, the market awareness towards Performance Contracting and capability of ESCOs is low.
b. The financial capability of ESCOs is low and thus, the PFIs might tend to lend towards balance sheet financing, other than ESPC-based financing
c. EE projects are fundamentally different from other asset-based projects. The FIs in India possess less capacity to appraise EE projects and understand the requisite nuances.
d. There is need for a concerted effort on a marketing campaign and technical assistance to PFIs, ESCOs, and the beneficiaries will be necessary.
e. The ESCOs need technical support to step-up, in terms of services offered, to access finance from FIs.
f. SIDBI, being a Financial Institution has been operating dedicated Energy Efficiency Lines of Credit and has channelized financial assistance of over USD 800 Mn to the EE projects in MSME sector. Further, SIDBI has been successfully operating a similar Guarantee program, viz. Credit Guarantee Fund Trust for Micro & Small Enterprises (CGTMSE), under which, as at March 31, 2013, a total of 10,76,479 accounts have been accorded guarantee approval for Rs. 52,600.07 crore. Additionally, SIDBI has also been involved in implementation of the two World Bank Projects, viz. "SME Financing & Development Project" and "Financing Energy Efficiency at MSMEs Project". SIDBI has, therefore, the required experience, expertise and the capacity to manage the PRSF program.
g. The program is the first of its kind in India and is expected face to some teething issues when it hits the ground.
h. It is necessary to ensure that the PFIs, ESCOs and the beneficiaries do not collude in over-costing of EE projects and submitting risk claim to SIDBI.
i. All the project-level data should be accessible to stakeholders and general public through web disclosure in the project.
j. The energy efficiency sub-project appraisal by FIs should include the relevant environment safeguards appraisal as per the PRSF guidelines.

3. Based on the factors mentioned above, the ISP for SIDBI and EESL will focus on:

a. Ensuring that appropriate PFIs get empanelled under PRSF and lending through PFIs happens during project implementation

b. Developing and implementing a comprehensive market campaign to connect the PFIs, ESCOs and beneficiaries in the project
c. Developing and modifying sound transaction and appraisal documents in consultation with key stakeholders and experts, based on the practical on-the-ground experience of PRSF
d. Hiring of an M&V agency that would assist SIDBI in project implementation, in terms of conducting due diligence of PFIs' appraisal and verification of the risk claim by the PFIs
e. Continued consultation with relevant stakeholders
f. Incorporating any major changes in the project design due to any major Financial and Regulatory environment affecting PRSF in India
g. Strict action against the concerned PFI and cancellation of the risk cover for that the particular EE Loan if found non-adhering,
h. Ensuring that the web disclosure of data happens seamlessly throughout the project implementation

Implementation Support Plan

4. The ISP is provided in the following table

Table A5.1. Implementation Support Plan - SIDBI

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First twelve months	Finalization of Operations Manual	Management, documentation, legal, technical, treasury	<<To be provided>>	BEE, EESL, WB
	Develop standardized transaction and appraisal documents	Financial, EE proposal appraisal		
	Developing and implementing a comprehensive market campaign to connect the PFIs, ESCOs and beneficiaries in the project	Technical, Marketing, Procurement		BEE, EESL
	Empanelment of PFIs	Financial, Technical		BEE, WB
	Hiring of M&V Agency	Technical, Procurement		BEE, EESL
	Hiring of Legal Agency	Legal, Procurement		BEE, EESL

Table A5.2. Implementation Support Plan

Time	**Focus**	**Skills Needed**	**Resource Estimate**	**Partner Role**
First twelve months	Finalization of Operations Manual	Project management, technical & commercial knowledge	One Manager – Technical & One Manager – Commercial * 4 months	Consultancy incl. guidance on best practices & vetting of manual/ documents
	Develop standardized transaction and appraisal documents			
	Developing and implementing a comprehensive market campaign to connect the PFIs, ESCOs and beneficiaries in the	Communication and marketing skills, incl. engaging with different stakeholders	One Manager – Marketing & One Manager – Commercial * 4 months	Consultancy in developing a publicity roadmap, identifying different

Time	Focus	Skills Needed	Resource Estimate	Partner Role
	project Empanelment of PFIs Hiring of M&V Agency Hiring of Legal Agency	 Financial & Commercial Technical & Commercial Legal & Commercial	 One Mgr. Fin, One Mgr. Comm. * 6 months One Mgr. Tech, One Mgr. Comm. * 3 months One Mgr. Tech, One Mgr. Comm. * 3 months	marketing channels and execution Consultancy in bidding/ identification & selection of potential parties

Table A5.2. Partners

Name	Role	Institution/Country
Bureau of Energy Efficiency, BEE	*Advisory* Committee (member)	Government of India
SIDBI	Project Executing Agency (PEA) and TA Executing agency	
EESL	TA Executing agency, market aggregator, and super-ESCO	
Participating Financial Institutions	Lenders	
ESCOs	Service Provider / Borrower	
Beneficiaries	Host Entities / Borrower	
Civil Society Organizations	Support Partner	
M&V Agency	Consultant	
Legal Agency	Consultant	

Annex 6: CTF Guarantee

INDIA: Partial Risk Sharing Facility for Energy Efficiency

CTF Guarantee

1. The indicative terms of the CTF Guarantee are provided in Table A6:1. The guiding principles behind the provision of CTF support consist of the following risk management features:

(i) *Risk sharing with the private sector:* The ultimate credit risk for CTF lies in the underlying loans covered by sub-guarantees extended by PRSF to PFIs. Any losses incurred will be shared with PFIs by limiting sub-guarantee coverage to 40-75 percent of the underlying loan amount.

(ii) *Use of CTF Guarantee as a back-up, second-loss reserve:* Unlike the GEF Grant, which is provided up-front as cash, the CTF Guarantee is not called, or disbursed, unless the amount of sub-guarantee calls on the PRSF PFI sub-account exceeds the amounts available in that sub-account, which initially will be US$6.0 million. Any calls on the CTF Guarantee will be limited to the amount of that shortfall. Amounts recovered in respect of losses giving rise to a CTF Guarantee payout would be transferred to the CTF sub-account and be reimbursed to CTF if the program manages to recover any losses.

(iii) *Proactive risk management:* Strong monitoring and supervision mechanisms will be established from sub-project and PFI level to program level to ensure that both GEF and CTF funds are used for the intended purpose and that progress is monitored on a regular basis. Corrective action will be taken if the risk profile of the facility fundamentally changes. SIDBI will have flexibility on altering the initial sub-guarantee design within sustainable parameters which do not adversely affect the acceptable risk profile of PRSF. Any changes would still be subject to review and approval by the PRSF Executive Committee, Advisory Committee and/or IBRD/CTF if and when required.

(iv) *Financial sustainability:* SIDBI's fixed and variable management fees as well as facility operating expenses will be met out of interest and sub-guarantee fee income. If facility income is insufficient to meet the expenses, SIDBI can transfer additional funds to meet the shortfall from its own risk coverage sub-account. The CTF Guarantee cannot be called to cover any losses in that SIDBI sub-account. The PFI sub-account, backstopped by CTF, can only be used to meet sub-guarantee calls from PFIs. In order to lower the risk of a call on the CTF Guarantee, amounts cannot be transferred out of the PFI sub-account without prior IBRD/CTF consent, except to pay eligible sub-guarantee claims. Separating the funding of the facility manager, including risk coverage for its own loans, from the capital required for PFI guarantee calls ensures continuing operation of PRSF even if actual guarantee calls exceed those expected in the base case and corrective action is required by the facility manager to limit or recover any losses.

2. This draft term sheet contains a summary of indicative terms and conditions of the proposed IBRD/CTF Commitment with respect to which the Government of the Republic of India (GOI) and Small Industries Development Bank of India (SIDBI) are in discussion with IBRD/CTF. This draft term sheet, therefore, does not constitute an offer from IBRD/CTF to provide such Commitment. The provision of the IBRD/CTF Commitment is generally subject, inter alia, to satisfactory appraisal of the Project, compliance with all applicable policies of IBRD/CTF, including those related to environmental and social safeguards, review and acceptance of the ownership, management, financing structure, and transaction documentation for the Project, and the approval of the management and Executive Directors of IBRD and the CTF Trust Fund Committee, respectively, in their sole discretion. All terms and conditions herein may, therefore be subject to changes.

Table A6.1: Indicative Terms and Conditions of IBRD/CTF Commitment

CTF Guarantee Provider:	IBRD as an implementing entity of the CTF (hereinafter referred to as the IBRD/CTF)
Beneficiary:	SIDBI as the Guarantee Facility Manager of the Partial Risk Sharing Facility of the Government of the Republic of India (hereinafter referred to as SIDBI)
PRSF:	The Partial Risk Sharing Facility for Energy Efficiency (hereinafter referred to as PRSF) is established by the Republic of India (India) through funding support from the Global Environment Facility (GEF) through its grant and the Clean Technology Fund (CTF) through its guarantee, for the purpose of guaranteeing commercial loans from participating financial institutions (PFIs) to Energy Service Companies (ESCOs), large industries, MSMEs and buildings for energy efficiency investments that use an Energy Service Performance Contracting (ESPC) approach. PRSF is managed by SIDBI, whereby SIDBI may issue the guarantees under PRSF (hereinafter referred to as PRSF Guarantees) up to the capital outstanding in the facility.
Purpose:	To support the issuance of PRSF Guarantees to eligible PFIs lending for ESPC-based investments by providing contingent finance (hereinafter referred to as CTF Guarantee) for the benefit of PRSF and made available in the event of a shortfall of available funds in the PFI Sub-account for SIDBI to meet eligible claims under the PRSF Guarantees issued (*see further Covered Event below).*

CTF Guarantee:	The IBRD/CTF agrees to pay up to the Maximum IBRD/CTF Commitment Amount (covering any payments for eligible claims under any PRSF Guarantees in respect of principal and/or interest payments defaults), following receipt of any conforming demand notice by SIDBI (herein after referred to as Demand Notice) following the occurrence of any Covered Event.[62]
Use of Proceeds:	Proceeds from the IBRD/CTF Guarantee will be used solely for the purpose of meeting eligible claims submitted by eligible PFIs on the PRSF Guarantees. Under no circumstance may they be used for covering operating expenses of SIDBI, losses on SIDBI's own lending activities or any other costs or expenses.
Currency:	US Dollars
Maximum IBRD/CTF Commitment Amount:	$25-million SIDBI may also request a reduction of the Maximum IBRD/CTF Commitment Amount by notice to the IBRD/CTF pursuant to the terms of the CTF Guarantee Agreement.
Covered Event:	SIDBI may submit a Demand Notice for payment, in the event that the balance in the PFI sub-account (*see Sub-account below*) is not sufficient to meet any eligible claim submitted by an eligible PFI under the PRSF Guarantee.
IBRD/CTF Guarantee Period:	IBRD/CTF Guarantee will be available for a payment where a Demand Notice is submitted to IBRD/CTF no later than the twentieth (20^{th}) anniversary of the effective date of the IBRD/CTF Guarantee (herein after referred to as the IBRD/CTF Guarantee Effective Date).
PFI Sub-account and CTF Sub-account[63]:	A ledger account (the PFI sub-account) for $6-million of GEF funds will be created and maintained by SIDBI for the sole purpose of meeting eligible claims by PFIs (not to include SIDBI as lender) under PRSF Guarantees. In addition to the PFI sub-account to be held at SIDBI, a CTF sub-account will be established for the purpose of receiving CTF Guarantee payments from the IBRD/CTF and making payments to the relevant PFIs for eligible claims under the PRSF Guarantees.

[62] Consistent with CTF policy, IBRD/CTF will retain CTF funds in an account held at IBRD/CTF, in an amount equal to the IBRD/CTF committed amount, and they will not be disbursed until the occurrence of a Covered Event and receipt of a conforming Demand Notice.

[63] Amounts in sub-accounts to be subject to protections against set-off, attachment and seizure. Facility Manager to provide quarterly unaudited financial reports, annual audited financial statements, reports of expenditures and other information with respect to each sub-account.

Funds recovered by SIDBI:	If any amount is recovered by SIDBI from ESCOs or other eligible borrowers, PFIs as lenders or any third parties on their behalf[64], in respect of any CTF Guarantee payouts for eligible claims under the PRSF Guarantees, such amount will be remitted first to the CTF sub-account, up to the amount paid by IBRD/CTF. Unless otherwise requested by IBRD/CTF to return such funds to IBRD/CTF, any such remitted amount may be used for meeting any further eligible claims on the PFI sub-account under PRSF if insufficient funds are available in the PFI sub-account.
Claim process:	SIDBI may submit a Demand Notice to the IBRD/CTF following any Covered Event, certifying, together with relevant documentary evidence, *inter alia* that an eligible claim by the relevant PFI under the PRSF Guarantee is made in compliance with all relevant conditions under PRSF, and that the amount in the PFI sub-account is insufficient. IBRD/CTF will pay within [*to be determined*] days after IBRD/CTF's receipt of a conforming Demand Notice in accordance with the terms of the CTF Guarantee Agreement.
Reimbursement by the Beneficiary:	If, at the expiry of the IBRD/CTF Guarantee Period, any amount is remaining in the CTF sub-account, SIDBI will return any such funds to the IBRD/CTF no later than [*to be determined*] days of the expiry of the IBRD/CTF Guarantee Period.
Exclusions:	The IBRD/CTF will not be liable for payment of any amount if: (a) A non-conforming Demand Notice is made by SIDBI; (b) the call on the PRSF Guarantee, in relation to which SIDBI has submitted a Demand Notice, is made otherwise than in accordance with the relevant terms of the PRSF Guarantee [and the Operations Manual]; (c) SIDBI makes any changes without IBRD/CTF's consent in those provisions of relevant PRSF documents in respect of which IBRD/CTF's consent is required to effect changes, and such breach is not cured within the relevant cure period; or (d) the call on the PRSF Guarantee, in relation to which SIDBI has submitted a Withdrawal Request, is connected to any act that constitutes Sanctionable Practices in connection with the Project engaged in by; (i) SIDBI; or (ii) any person acting on its behalf, eligible lenders or borrowers and known to SIDBI or that could reasonably be expected to be discoverable by SIDBI.

[64] Security arrangements for receipt or recovery of funds to be determined and reflected in appropriate documentation.

Limitation of Coverage:	If any of the following events occurs and is continuing, the IBRD/CTF may notify SIDBI (with a copy to India) that any further PRSF Guarantee issued by SIDBI [*to be determined*] days after such IBRD/CTF's notice may not be covered by the IBRD/CTF Guarantee until the IBRD/CTF issues a revocation notice: (a) The regulatory authority has taken any action, which affect materially and adversely the operations or financial conditions of SIDBI; (b) Suspension or lapse of India from membership in IBRD, IDA, or the International Monetary Fund; (c) Suspension of lending by IBRD or IDA to India; (d) Breach by SIDBI of its material obligations under the CTF Guarantee Agreement, which breach has not been remedied within the applicable cure period; or (e) Breach by India of any of its material obligations under the Cooperation Agreement.
Termination of Coverage:	The IBRD/CTF Guarantee may be terminated if: (a) SIDBI has failed to pay the CTF Guarantee Charge; (b) SIDBI intentionally makes an untrue statement in, or intentionally omits material information or evidence from, a Demand Notice; (c) SIDBI makes any material change without IBRD's consent to those provisions of the relevant PRSF documents for which IDA's consent is required for changes, and fails to remedy such breach within the relevant cure period; (d) SIDBI has engaged in Sanctionable Practices in connection with the Project; or (e) the CTF Guarantee Effective Date does not occur within [nine (9)][*to be determined*] months from the date of signature of the Agreement
Counter-Guarantee:	Sovereign government counter-guarantee is not required for the IBRD/CTF Guarantee, consistent with CTF policy.
MDB Fee:	One-time front-end charge of $200,000, to be payable by SIDBI, to cover IBRD/CTF's appraisal, negotiation, supervision, disbursement and reporting costs.
CTF Guarantee Charge:	0.1% per annum of the committed and undisbursed balance of the IBRD/CTF Commitment (accrued to the CTF trust fund), payable semi-annually in advance by SIDBI from the IBRD/CTF Guarantee Effective Date.

Conditions Precedent:	IBRD/CTF Guarantee's effectiveness conditions would include *inter alia* the following: (a) Payment of the MDB Fee and the first installment of CTF Guarantee Charge (if any); (b) Finalization in agreed form of models/templates of M&V Protocol, Energy Savings Performance Contract, Loan Agreement, Trust & Valuation Account Agreement and other PRSF documents, all in form and substance satisfactory to IBRD/CTF; (c) Execution, delivery and effectiveness of the Cooperation Agreement, and all other relevant agreements or amendments related to PRSF, all in form and substance satisfactory to IBRD/CTF; (d) Delivery of all legal opinions, satisfactory to IBRD/CTF, including legal opinions from: (i) the appropriate representative of India relating to the Cooperation Agreement (ii) counsel to SIDBI relating to the IBRD/CTF Guarantee Agreement and the GEF Grant Agreement.

IBRD/CTF Documentation

CTF Guarantee Agreement:	The terms and conditions of the CTF Guarantee will be set out in the CTF Guarantee Agreement to be entered into between the IBRD/CTF and SIDBI. The CTF Guarantee Agreement also sets out certain warranties, representations and covenanted undertakings by SIDBI in connection with the Project, including, but not limited to, provision of relevant Project information, compliance with applicable World Bank environmental and social safeguard requirements, World Bank requirements relating to Sanctionable Practices and the PRSF operations manual in form and substance satisfactory to IBRD.
Cooperation Agreement:	The Cooperation Agreement will be entered into between the IBRD/CTF, IBRD/GEF and India, under which India *inter alia* 1) agrees that the IBRD/CTF Guarantee will be made available to SIDBI for the benefit of PRSF and the CTF sub-account will be used for this purpose, and 2) provides Project related covenants, including provision of relevant information.

Annex 7: Economic and Financial Analyses

INDIA: Partial Risk Sharing Facility for Energy Efficiency

A. Summary

1. As the PRSF will provide financial risk coverage for a variety of sub-projects, this annex examines both specific sub-projects and the overall expected portfolio. Specifically, it performs:

a. A financial and economic analysis of representative sub-projects to confirm that sub-projects that PRSF would likely support are financially viable and generate sufficient economic benefits for the country to justify their costs

b. A portfolio-level economic analysis of the aggregate benefits of all sub-projects guaranteed by PRSF relative to the Bank's total expenditure on this project.

c. A portfolio-level financial analysis to calculate the PRSF's expected guarantee payout over time.

2. While it is impossible to know exactly the sub-projects whose loans will receive guarantees under PRSF until the facility is operational, the team worked with industry and ESCO stakeholder groups, as well as EESL (who will be implementing part of the project's TA component) to create a pipeline of sub-projects that could potentially receive PRSF support or that represent other future sub-projects that could receive PRSF support. This annex analyzes seven representative sub-projects from that pipeline.[65] The final section in this annex describes the full set of sub-projects in the project pipeline.

3. The economic and financial analysis draws the following overall conclusions:

a. The representative sub-projects are individually financially viable and provide strong economic returns to the country. Their financial internal rates of return (IRRs) range from 16 to 197 percent, with payback periods ranging from 0.56 to 7.01 years, and their economic rates of return (EIRRs) range from 35 to 427 percent.

b. In aggregate, a representative portfolio of sub-projects likely to be supported by PRSF would provide significant economic returns to the $43 million of funding provided for this project. Depending on the portfolio composition (see Section B of this annex for more discussion on this), the EIRR for the PRSF will likely be between 19 and 54 percent, with an accompanying NPV of between US$25.29 million and US$378.36 million, respectively. In addition, the portfolio would likely avoid between 0.08 and 0.41 million tons of CO2 over the cumulative 19-year lifetime of supported projects.

[65] The number seven was chosen to allow illustration of a wide range of sub-projects.

B. Sub-Project Analysis

Approach

4. The economic and financial analysis of a sub-project considers the sub-project's discounted lifetime costs and benefits. For costs, it considers the upfront capital cost (for equipment, materials, and installation), and the annual EE-related costs (for maintenance and M&V of the energy savings). For benefits, it considers avoided energy use, avoided new generation investment, avoided CO2 emissions, avoided emission of local pollutants.

5. The financial analysis calculates the project's IRR from the investors' perspective. For costs, it considers all of the costs listed in the previous paragraph, as well as any taxes paid on those costs. It only considers the benefit from avoided energy usage, as the other benefits are negligible from the perspective of a single firm.[66] It values avoided energy usage at the price the firm pays for the energy.

6. The economic analysis calculates the project's EIRR from the country's perspective. For costs, it considers all of the costs listed in paragraph 4 but does not include taxes. For benefits, it considers all of the benefits listed in paragraph 4. It values avoided energy usage at the average economy-wide cost of that energy (a proxy for the value the economy places on having an additional unit of energy available). The rationale for valuing reductions in energy usage in this manner is that, given India's demand-constrained energy environment, a reduction in energy usage by one player in the economy will free up energy, and that energy will be immediately consumed by another player. For example, with electricity, a reduction in an industrial firm's electricity usage could enable additional hours of supply to a household that typically suffers lengthy power outages.

Assumptions

7. The economic discount rate is assumed to be 12 percent. The financial discount rate is assumed to be each firm's weighted average cost of capital, which is 11 percent in all of the sub-projects considered here (as they all use the same assumptions about financial parameters; see below). For comparison, the benchmark interest rate in India was 7.25 percent as of May 2013; the real cost of money for investors would likely be higher than that. The assumed alternative to each sub-project is that the firm continues business as usual and so faces none of the costs and none of the benefits considered here.

8. Where possible, actual project-specific data was used for the sub-project analysis; where actual data was unavailable, conservative assumptions (relative to the typical range for the firms and projects considered) made based on consultations and India-specific research were used instead. Assumptions used in the financial and/or economic analysis are described below.

[66] For firms that generate (or plan to generate) all of their own energy, the cost of avoided generation investments would be substantial; however, no such firms are considered here.

a. Energy-efficiency parameters[67]: We assume that annual EE-related maintenance and M&V expenses will be 5 and 3.5 percent, respectively, of the value of energy savings and that they will grow by 5 percent per year. As the projects will all be implemented by ESCOs through ESPCs, we assume the ESCO will receive 70 percent of the savings from reduced energy usage and the firm 30 percent. We conservatively assume the project lifetimes are between five and ten years, depending on the EE initiatives taken.

b. Financing parameters[68]: We assume all projects will be financed 70 percent with debt and 30 percent with equity (except "Hotel 1", below, which is financed at a 80:20 ratio and "Industry - Steel" which is financed at a 75:25 ratio). We assume the loan interest rate will be 12 percent, moratorium period 6 months, repayment period 7 years, and loan tenure 7.5 years.

c. Tax parameters[69]: We use the 2013 tax rates of 20.01 percent for the minimum alternate tax rate and 32.45 for the corporate tax rate.

d. Depreciation parameters[70]: Depreciation per the Companies Act/Income Tax Act (13 percent/15 percent); salvage value per the Companies Act/Income Tax Act (10 percent/5 percent). Firms choose to use the Companies Act or Income Tax Act parameters depending on a variety of balance sheet considerations.

e. Rebound effect: Estimating the "rebound effect" (the degree to which a firm increases production in response to a decrease in per-unit energy costs) is complicated, particularly given a paucity of data on the size of rebound effects in industrial firms or buildings. In this case, the rebound effect is likely to be small because firms only retain about 30 percent of the savings from an energy reduction under an ESPC model (with the other 70 percent used to repay the ESCO for the project costs). To be conservative, however, a 10 percent rebound is assumed for all projects (i.e., it is assumed that production will rise enough to negate 10 percent of the projected energy savings). This is only factored into the economic analysis, as the impact of profits on the rebound effect is likely neutral or even positive (otherwise the firm would not increase production, and there would therefore be no rebound effect).

f. Grid Electricity System Parameters[71]: We conservatively assume the transmission and distribution (T&D) loss rate, which is positively related to the impact of the projects' energy savings on avoided generation capacity investment and on avoided CO2

[67] Source: Discussions with ESCOs.
[68] Parameters used are standard for these types of borrowers.
[69] Source: GoI Income Tax Department, 2013.
[70] GoI Companies Act, GoI Income Tax Act.
[71] Boegle, Alexander, Daljit Singh, and Girish Sant (Prayas Energy Group) (2010). "Estimating Technical Energy Saving Potential from Improved Appliance Efficiency in Indian Households." ACEEE Summer Study on Energy Efficiency in Buildings. These assumptions are highly conservative, as India's aggregate technical and commercial loss rate was 26.15 in 2011 and its average plant load factor was 74 percent in 2012.

emissions, is 15 percent. We conservatively assume the plant load factor, which is negatively related to avoided generation capacity investment, is 90 percent.

g. Generation Investments Parameters: We value a MW of avoided generation capacity investment at the average cost per MW of investment for additions in the 12th plan, US$0.805 million per MW. We assume the benefits from avoided generation capacity are not realized until FY25, as India likely will not downwardly adjust its investment plans until generation capacity is closer to meeting demand.

h. Value of avoided CO_2 and local pollutant emissions[72]: We value avoided CO2 emissions at the carbon credit value, estimated at US$12 per ton of CO2 emissions as a conservative proxy for the social cost of CO_2. We value the co-benefit of avoided local pollutants using research on the benefits from the local pollutant avoidance that tends to accompany a reduction in CO_2 emissions in India. This research suggests that every ton of CO_2 emissions avoided is associated with a benefit of US$42 from local pollutants that are avoided at the same time.

i. Average Cost and CO_2 emissions factors: Assumptions used are presented in Table 1. Average costs are conservatively assumed to grow at the same rate as inflation. CO_2 emissions factors are taken from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories unless specified otherwise.

Table 1: Average Costs and CO_2 Emissions Factors used in Economic Analysis

Energy Type	Average Cost	CO_2 Emissions Factor
Grid Electricity	US$65.4 per MWh[73]	0.73 tons of CO_2 per MWh[74]
Coal	US$100 per ton[75]	2.05 tons of CO_2 per ton of coal
Furnace Oil	US$753 per kilo liter (KL)[76]	3.02 tons of CO_2 per KL
Diesel Oil	US$1071 per KL[77]	3.01 tons of CO_2 per KL
Natural Gas	US$0.41 per cubic meter (CM)[78]	0.002 tons of CO_2 per CM

[72] CO_2 source: WB Chiller Energy Efficiency Project (P100584) in the Republic of India, Project Appraisal Document; local pollutants source: Markandya, Anil, Ben Armstrong, Simon Hales, Aline Chiabai, Patrick Criqui, Silvana Mimi, Cathryn Tonne, and Paul Wilkinson (2006). "Public health benefits of strategies to reduce greenhouse-gas emissions." Lancet 2009; 374: 2006-15.
[73] Power Finance Corporate, 2011.
[74] CO_2 Baseline Database for the Indian Power Sector User Guide Versions 2 and 7. 10-year average of future expected emissions factors, the emissions factor declines at the same rate it has for the previous five years until leveling out at 0.72 in 2020.
[75] A conservative estimate given by the coal team at a consultant for the World Bank.
[76] Petroleum Bazzar as of March 16, 2013, assuming a density of 0.93 kilograms per liter.
[77] Average of Indian Oil Corporation Limited price in four metro Indian cities as of April 2013.
[78] Report of the Working Group on Petroleum and Natural Gas Sector for the 12th Five-Year Plan, assuming consumption is of 30 percent domestic gas and 70 percent liquid natural gas.

Results

9. ***Sub-Project 1 (SME Cold Rolling)***: Installation of turbo roof exhausters for ventilation pickling plant sheds at a small cold-rolling steel factory, saving the industry 92400 kWh of grid electricity annually over 10 years. The project is financially viable and economically sounds (Table 2). It has an IRR of 95 percent, with a payback period of 1.58years. The financial NPV over the lifetime of the project is US$21 thousand. The project has an EIRR of 147 percent and an economic NPV over its lifetime of US$41 thousand.

Table 2: Financial and Economic Flows and Summary Measures, Sub-Project 1 (US$ thousands)

	0	1	2	3	4	5	6	7	8	9	10
Financial Cash Flows											
- Upfront Investment	-7	0	0	0	0	0	0	0	0	0	0
- EE-Related Costs	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
+ Value of Energy Saved	0	7	7	7	7	7	7	7	7	7	7
- Taxes	0	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
Net Benefits	-7	5	5	5	5	5	5	5	4	4	4
NPV	-6.8	5	4	4	3	3	2	2	2	2	1
Economic Cash Flows											
- Upfront Investment	-7	0	0	0	0	0	0	0	0	0	0
- EE-related Costs	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
+ Avoided Grid Electricity Usage	0	7	7	7	7	7	7	7	7	7	7
+ Avoided Generation Capacity	0	0	0	0	0	0	10	0	0	0	0
+ Avoided CO_2	0	1	1	1	1	1	1	1	1	1	1
+ Avoided Local Pollutants	0	3	3	3	3	3	3	3	3	3	3
Net Benefits	-7	10	10	10	10	10	20	10	10	10	10
NPV	-7	8	7	6	5	4	7	3	3	2	2

Financial Summary Measures		**Economic Summary Measures**	
Total Financial NPV	21	**Total Economic NPV**	41
IRR	71%	**EIRR**	147%
Payback period	1.58		

10. ***Sub-Project 2 (SME Chemical)***: Installation of variable frequency drive for the water pumping system in a small chemical industry, reducing electricity consumption by 148,920 kWh annually for 10 years. The project is financially viable and economically sound (Table 3). It has an IRR of 72 percent, with a payback period of 1.57 years. The financial NPV over the lifetime of the project is US$36 thousand. The project has an EIRR of 142 percent and an economic NPV over its lifetime of US$73 thousand.

Table 3: Financial and Economic Flows and Summary Measures, Sub-Project 2 (US$ thousand)

	0	1	2	3	4	5	6	7	8	9	10
Financial Cash Flows											
- Upfront Investment	-13	0	0	0	0	0	0	0	0	0	0
- EE-Related Costs	0	-1	-1	-1	-1	-1	-1	-2	-2	-2	-2
+ Value of Energy Saved	0	14	14	14	14	14	14	14	14	14	14
- Taxes	0	-3	-3	-3	-3	-4	-4	-4	-4	-4	-4
Net Benefits	-13	9	9	9	9	9	9	8	8	8	8
NPV	-13	8	7	7	6	5	5	4	4	2	2
Economic Cash Flows											
- Upfront Investment	-13	0	0	0	0	0	0	0	0	0	0
- EE-related Costs	0	-1	-1	-1	-1	-1	-1	-2	-2	-2	-2
+ Avoided Grid Electricity Usage	0	14	14	14	14	14	14	14	14	14	14
+ Avoided Generation Capacity	0	0	0	0	0	0	16	0	0	0	0
+ Avoided CO_2	0	1	1	1	1	1	1	1	1	1	1
+ Avoided Local Pollutants	0	4	4	4	4	4	4	4	4	4	4
Net Benefits	-13	18	18	18	18	18	34	17	17	17	17
NPV	-13	15	13	11	9	8	13	5	5	4	3

Financial Summary Measures		**Economic Summary Measures**	
Total Financial NPV	36	**Total Economic NPV**	73
IRR	72%	**EIRR**	142%
Payback period	1.57		

11. ***Sub-Project 3 (Industrial - Steel)***: Installation of a waste heat recovery system, such as recuperator for the existing reheating furnace to recover heat from the waste flue gases, at a large steel factory. The captured waste heat can be used to preheat the combustion air that is utilized for combusting the fuel. The installation of the recuperator will reduce coal consumption by 150 tonnes per year. The project is financially viable and economically sound (Table 4). It has an IRR of 41 percent, with a payback period of 2.73 years. The financial NPV over the lifetime of the project is US$29 thousand. The project has an EIRR of 115 percent and an economic NPV over its lifetime of US$86 thousand.

Table 4: Financial and Economic Flows and Summary Measures, Sub-Project 3 (US$ thousand)

	0	1	2	3	4	5	6	7	8	9	10
Financial Cash Flows											
- Upfront Investment	-21	0	0	0	0	0	0	0	0	0	0
- EE-Related Costs	0	-2	-2	-2	-2	-3	-3	-3	-3	-3	-3
+ Value of Energy Saved	0	14	14	14	14	14	14	14	14	14	14
- Taxes	0	-2	-2	-3	-3	-3	-3	-3	-3	-3	-3
Net Benefits	-21	9	9	9	9	8	8	8	8	7	7
NPV	-21	9	7	7	6	5	4	4	3	3	3
Economic Cash Flows											
- Upfront Investment	-21	0	0	0	0	0	0	0	0	0	0
- EE-related Costs	0	-2	-2	-2	-2	-3	-3	-3	-3	-3	-3
+ Avoided Grid Electricity Usage	0	14	14	14	14	14	14	14	14	14	14
+ Avoided Generation Capacity	0	0	0	0	0	0	0	0	0	0	0
+ Avoided CO_2	0	3	3	3	3	3	3	3	3	3	3
+ Avoided Local Pollutants	0	10	10	10	10	10	10	10	10	10	10
Net Benefits	-21	24	24	24	24	24	24	23	23	23	23
NPV	-21	20	17	15	12	10	9	7	6	5	4

Financial Summary Measures		**Economic Summary Measures**	
Total Financial NPV	29	**Total Economic NPV**	86
IRR	41%	**EIRR**	115%
Payback period	2.73		

12. ***Sub-Project 4 (Street Lighting)***: Installation of LEDs for street lighting, replacing existing street lighting lamps are such as FTLs, HPSV, CFLs, metal halide etc., in a large metropolitan area. The initiative will reduce electricity consumption by 32,450.01 MWh per year for annual operating hours of 4,015. The expected life of this measure is 10 years. The project is financially viable and economically sound (Table 5). It has an IRR of 16 percent, with a payback period of 7.01 years. The financial NPV over the lifetime of the project is US$2324 thousand. The project has an EIRR of 35 percent and an economic NPV over its lifetime of US$8518 thousand.

Table 5: Financial and Economic Flows and Summary Measures, Sub-Project 4 (US$ thousand)

	0	1	2	3	4	5	6	7	8	9	10
Financial Cash Flows											
- Upfront Investment	-12185	0	0	0	0	0	0	0	0	0	0
- EE-Related Costs	0	0	0	0	0	0	0	0	0	0	0
+ Value of Energy Saved	0	2975	2975	2975	2975	2975	2975	2975	2975	2975	2975
- Taxes	0	-91	-182	-316	-425	-525	-618	-704	-911	-965	-965
Net Benefits	-12185	2884	2793	2658	2550	2450	2357	2270	2064	2009	2009
NPV	-12185	2591	2254	1928	1661	1434	1239	1072	876	766	688
Economic Cash Flows											
- Upfront Investment	-12185	0	0	0	0	0	0	0	0	0	0
- EE-related Costs	0	0	0	0	0	0	0	0	0	0	0
+ Avoided Grid Electricity Usage	0	2975	2975	2975	2975	2975	2975	2975	2975	2975	2975
+ Avoided Generation Capacity	0	0	0	0	0	0	5358	0	0	0	0
+ Avoided CO_2	0	265	265	265	265	265	265	265	265	265	265
+ Avoided Local Pollutants	0	926	926	926	926	926	926	926	926	926	926
Net Benefits	-12185	4165	4165	4165	4165	4165	9523	4165	4165	4165	4165
NPV	-12185	3530	2991	2535	2148	1821	3528	1308	1108	939	796
Financial Summary Measures			**Economic Summary Measures**								
Total Financial NPV		2324	**Total Economic NPV**				8518				
IRR		16%	**EIRR**				35%				
Payback period		7.01									

13. ***Sub-Project 5 (Industry - Paper)***: Installation of micro turbine in a large paper industry and avoid usage of Pressure reducing desuperheating (PRDS) Valve[79], reducing electricity consumption by 3,000 MWh per year. The project is financially viable and economically sound (Table 6). It has an IRR of 197 percent, with a payback period of 0.56 years. The financial NPV over the lifetime of the project is US$755 thousand. The project has an EIRR of 427 percent and an economic NPV over its lifetime of US$26447 thousand.

Table 6: Financial and Economic Flows and Summary Measures, Sub-Project 5 (US$ thousand)

[79] In any Paper industry, low pressure steam is needed for drying of paper. This pressure reduction can be achieved by two ways: (a) Passing steam through steam turbine and generating power and low pressure steam simultaneously or (b) Passing steam though Pressure reduction desuperheating (PRDS) Valves and reduction of pressure with no generation of power. The PRDS usage does not leads to any loss however opportunity to generate extra power is lost and the same needs to be generated using fuel or imported from the grid.

	0	1	2	3	4	5	6	7	8	9	10
Financial Cash Flows											
- Upfront Investment	-75	0	0	0	0	0	0	0	0	0	0
- EE-Related Costs	0	-38	-39	-41	-43	-46	-48	-50	-53	-55	-58
+ Value of Energy Saved	0	250	250	250	250	250	250	250	250	250	250
- Taxes	0	-64	-64	-64	-64	-64	-63	-63	-63	-63	-62
Net Benefits	-75	149	147	145	143	141	139	137	134	131	130
NPV	-75	134	119	106	94	83	74	65	58	51	45
Economic Cash Flows											
- Upfront Investment	-75	0	0	0	0	0	0	0	0	0	0
- EE-related Costs	0	-38	-39	-41	-43	-46	-48	-50	-53	-55	-58
+ Avoided Grid Electricity Usage	0	250	250	250	250	250	250	250	250	250	250
+ Avoided Generation Capacity	0	0	0	0	0	0	3551	0	0	0	0
+ Avoided CO2	0	24	24	24	24	24	24	24	24	24	24
+ Avoided Local Pollutants	0	83	83	83	83	83	83	83	83	83	83
Net Benefits	-75	320	318	316	314	312	3861	307	304	302	299
NPV	-75	271	228	192	162	136	1430	96	81	68	57

Financial Summary Measures		**Economic Summary Measures**	
Total Financial NPV	755	**Total Economic NPV**	2647
IRR	197%	**EIRR**	427%
Payback period	0.56		

14. ***Sub-Project 6 (Hotel I)***: Installation of a voltage stabilizer on the "load panel" in a hotel will reduce electricity consumption by 198.315 MWh per year. The project is financially viable and economically sound (Table 7). It has an IRR of 95 percent, with a payback period of 1.15 years. The financial NPV over the lifetime of the project is US$112 thousand. The project has an EIRR of 160 percent and an economic NPV over its lifetime of US$156 thousand.

Table 7: Financial and Economic Flows and Summary Measures, Sub-Project 6 (US$ thousand)

	0	1	2	3	4	5	6	7	8	9	10
Financial Cash Flows											
- Upfront Investment	-25	0	0	0	0	0	0	0	0	0	0
- EE-Related Costs	0	-7	-7	-7	-8	-8	-9	-9	-9	-10	-10
+ Value of Energy Saved	0	40	40	40	40	40	40	40	40	40	40
- Taxes	0	-9	-9	-9	-9	-9	-9	-9	-10	-10	-9
Net Benefits	-25	24	24	23	23	22	22	21	21	20	20
NPV	-25	22	20	17	15	14	12	11	10	8	8
Economic Cash Flows											
- Upfront Investment	-25	0	0	0	0	0	0	0	0	0	0
- EE-related Costs	0	-7	-7	-7	-8	-8	-9	-9	-9	-10	-10
+ Avoided Grid Electricity Usage	0	40	40	40	40	40	40	40	40	40	40
+ Avoided Generation Capacity	0	0	0	0	0	0	18	0	0	0	0
+ Avoided CO2	0	2	2	2	2	2	2	2	2	2	2
+ Avoided Local Pollutants	0	6	6	6	6	6	6	6	6	6	6
Net Benefits	-25	40	40	39	39	39	56	38	37	37	36
NPV	-25	34	28	24	20	17	21	12	10	8	7

Financial Summary Measures		**Economic Summary Measures**	
Total Financial NPV	112	**Total Economic NPV**	156
IRR	95%	**EIRR**	160%
Payback period	1.15		

15. ***Sub-Project 7 (Hotel II)***: Installation of LED lighting in place of conventional lighting at a hotel will reduce electricity consumption by 52 MWh per year. The project is financially viable and economically sound (Table 8). It has an IRR of 28 percent, with a payback period of 4.14

years. The financial NPV over the lifetime of the project is US$12 thousand. The project has an EIRR of50 percent and an economic NPV over its lifetime of US$22 thousand.

Table 8: Financial and Economic Flows and Summary Measures, Sub-Project 7 (US$ thousand)

	0	1	2	3	4	5	6	7	8	9	10
Financial Cash Flows											
- Upfront Investment	-17	0	0	0	0	0	0	0	0	0	0
- EE-Related Costs	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
+ Value of Energy Saved	0	7	7	7	7	7	7	7	7	7	7
- Taxes	0	-1	-1	-1	-1	-1	-2	-2	-2	-2	-2
Net Benefits	-17	5	5	5	5	5	5	5	4	4	4
NPV	-17	5	4	4	3	3	2	2	2	2	1
Economic Cash Flows											
- Upfront Investment	-17	0	0	0	0	0	0	0	0	0	0
- EE-related Costs	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
+ Avoided Grid Electricity Usage	0	7	7	7	7	7	7	7	7	7	7
+ Avoided Generation Capacity	0	0	0	0	0	0	5	0	0	0	0
+ Avoided CO_2	0	0	0	0	0	0	0	0	0	0	0
+ Avoided Local Pollutants	0	1	1	1	1	1	1	1	1	1	1
Net Benefits	-17	8	8	8	8	8	13	8	8	8	8
NPV	-17	7	6	5	4	4	5	3	2	2	2

Financial Summary Measures		**Economic Summary Measures**	
Total Financial NPV	12	**Total Economic NPV**	22
IRR	28%	**EIRR**	50%
Payback period	4.14		

C. PRSF Economic Analysis

Approach

16. To analyze the overall PRSF project, given that it is not possible to know the exact sub-projects that PRSF will support, we must make assumptions about the likely portfolio composition. We assume the sub-projects in the PRSF portfolio will be some mix of sub-projects that share the characteristics of the seven representative pipeline sub-projects analyzed in the previous section. The same data and assumptions described in the previous sub-section are used here unless indicated otherwise.

17. To aggregate to the overall PRSF portfolio from the sub-project level, we first calculate the risk coverage that each representative sub-project would receive. We assume each sub-project requires a loan to cover the full amount of the debt-funded portion of its capital cost. Further, the commercial bank issuing the loan is assumed to apply for PRSF risk coverage for 50 percent of the loan amount. Table 9 shows this calculation for the representative sub-projects.

Table 9: Risk Coverage Required for Each Sub-Project

SI	Sub-Project	Capital Cost (US$mn)	Debt Share	Loan Size (US$mn)	Risk Coverage (US$mn)

SI	Sub-Project	Capital Cost (US$mn)	Debt Share	Loan Size (US$mn)	Risk Coverage (US$mn)
1	SME Cold Rolling	0.01	70%	0.005	0.002
2	SME Chemical	0.01	70%	0.009	0.004
3	Industry Steel	0.02	75%	0.016	0.008
4	Street Lighting I	12.19	70%	8.530	4.265
5	Industry Paper	0.08	70%	0.053	0.026
6	Hotel I	0.02	80%	0.020	0.010
7	Hotel II	0.02	70%	0.012	0.006

18. The PRSF will be able to issue up to US$37 million of risk coverage. The project tenor is fifteen years, and each risk coverage agreement can last for five years (or until the end of the project tenure, whichever is earlier). We assume that in the base case, as a conservative estimate, the PRSF issues US$37 million for risk coverage with reflows. This total US$37 million could be allocated across sub-project types in a variety of ways. For example, all of the risk coverage could be given to projects that are similar to "Street Lighting" – the project with the worst EIRR. In this case, 9 projects would each receive US$4.265 million in risk coverage (the reason we would, in this hypothetical case, only be able to cover 9 projects is the apparent high cost for implementing one such project). Or, the PRSF could give an equal guarantee amount to each sub-project type, giving 2210 "SME Cold Rolling" projects US$0.002 million in risk coverage each, 1192 "SME Chemical" projects US$0.004 million in risk coverage each, 1 "Street Lighting" projects US$4.265 million in risk coverage each etc. Table 10 illustrates the PRSF portfolio composition under these scenarios.

Table 10: Possible Scenarios for PRSF Portfolio Composition

Sector	Scenario 1: Portfolio with only worst performing sub-project		Scenario 2: Portfolio with Equal Risk Coverage for all types of Projects	
Sub-Project (SP)	**# of SPs**	**Risk Coverage (USD mn)**	**# of SPs**	**Risk Coverage (USD mn)**
SME Cold Rolling	0	0	2210	5.29
SME Chemical	0	0	1192	5.29
Industry Steel	0	0	677	5.29
Street Lighting I	9	37	1	5.29
Industry Paper	0	0	201	5.29
Hotel I	0	0	530	5.29
Hotel II	0	0	906	5.29
PRSF Total	9	37	5718	37.00

19. It is impossible to know which of these scenarios reality will represent; thus, we model a range of possibilities. To define the lowest end of the range, we use scenario 1 (above), which assumes all projects in the portfolio exhibit the characteristics of the worst-performing

representative sub-project ("worst scenario"). To define the highest end of the range, we use scenario 3 (above), which assumes the representative sub-project types receive equal shares of the total risk coverage given by the PRSF ("average scenario").[80]

20. We assume that the capital available for guarantees will be committed gradually over the first few years of the program and guarantees will be issued right up till year 10. The annual guarantee issuance from year 1 through year 10 follows directly from the Financial Analysis assumptions and is shown in Table 11.

Table 11: Annual Guarantee Issuance

	YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	YR10
Annual Guarantee Issuance (in USD million)	1.8	3.6	7.2	9.0	9.0	7.2	5.4	3.6	2.7	1.8

21. *Additionality*: When calculating the benefits generated by a project such as this, it is important to consider how many of the sub-projects that the PRSF funds only happen because the PRSF exists and how many would have happened anyway. We can only credit to the project the benefits generated by those sub-projects that only happened because of PRSF. It is impossible to know what would happen in the world without the PRSF; as such, this analysis employs the conservative assumption that 50 percent of the benefits generated by projects in the PRSF portfolio would not have been generated without the PRSF.[81] Later in this sub-section, sensitivity analysis considers how low that parameter can be set and still achieve an acceptable EIRR.

Detailed Analysis

22. *Costs*: The costs of overall PRSF are the $43 million in GEF and CTF funding for this project. All other costs are considered to be internal transfers within the economy and therefore not costs that result from the injection of outside funds. For simplicity, it is assumed that all of the funds are released at the beginning of the project.

23. *Benefits*: The benefits from the overall PRSF are the summation of the benefits produced by all of the sub-projects in the PRSF portfolio. This summation is scaled down by the "additionality" factor of 50 percent, to give the share of benefits that can be attributed to the

[80] There are potential better scenarios – for example, all projects could exhibit the characteristics of the best-performing representative sub-project. For this analysis, however, we have chosen to be conservative and use the more likely scenario that the portfolio will comprise a wide variety of projects, in terms of performance.

[81] As the PRSF is specifically targeting micro, small and medium ESCOs and pure-play EE projects, all of which currently have very limited access to financing, it is possible that all of the sub-projects in the PRSF portfolio would not have happened without the PRSF. In that case, all of the benefits produced by all of the sub-projects supported by PRSF could be attributed to PRSF. The 50 percent additionality assumption is therefore very conservative.

PRSF. As discussed in the previous sub-section, the benefits are avoided energy use, avoided new generation investment, avoided CO2 emissions, and avoided emissions of local pollutants. A detailed description of the assumptions underlying the calculation of these benefits is in the previous sub-section.

24. *Follow-on Benefits*: The ultimate goal of the PRSF is to catalyze the ESCO and ESPC market. If the PRSF is successful, there will likely be many future projects whose existence can be attributed to PRSF. All of the benefits produced by these projects should also be valued in this analysis (along with any costs they produce, such as an increase in energy demand in other sectors resulting from the decrease in energy prices that may follow from a widespread increase in energy efficiency). However, the magnitude of these benefits is extremely uncertain, so they are not accounted for in this analysis.

25. *Results:* The PRSF produces significant economic returns for the cost of the project (Table 12). The monetary value of guarantee issued increases gradually and guarantees are rolled out till year 10. With this assumption in place, PRSF will likely have an EIRR between 19 percent (worst scenario) and 54 percent (average scenario), with associated NPVs of US$25.29 million and US$378.36 million, respectively with accompanying CO2 emissions avoidance of 0.08 million tons and 0.41 million tons, respectively per year, over 19 years.

Table 12: Economic Costs and Benefits of Overall PRSF Project, under Worst and Average Scenarios

Year	Guarantee TA		(1) Energy Savings	(2) Avoided Generation Investment	(3) Avoided CO2 Emissions	(4) Avoided Local Pollutants	(1) Energy Savings	(2) Avoided Generation Investment	(3) Avoided CO2 Emissions	(4) Avoided Local Pollutants
0	37	6	0	0	0	0	0	0	0	0
1			0.34	0	0.06	0.20	1.59	0	0.27	0.96
2			1.01	0	0.17	0.59	4.77	0	0.82	2.88
3			2.35	0	0.39	1.37	11.14	0	1.92	6.71
4			4.03	0	0.67	2.34	19.09	0	3.29	11.51
5			5.71	0	0.95	3.32	27.05	0	4.66	16.30
6			7.05	0	1.17	4.10	33.41	0	5.75	20.14
7			8.06	0	1.34	4.69	38.18	0	6.58	23.01
8			8.73	0	1.45	5.08	41.36	0	7.12	24.93
9			9.24	0	1.54	5.37	43.75	0	7.53	26.37
10			9.57	32.22	1.59	5.57	45.34	539.283124	7.81	27.33
11			9.24	0	1.54	5.37	43.75	0	7.53	26.37
12			8.57	0	1.42	4.98	40.57	0	6.99	24.45
13			7.22	0	1.20	4.20	34.21	0	5.89	20.62
14			5.54	0	0.92	3.22	26.25	0	4.52	15.82
15			3.86	0	0.64	2.25	18.30	0	3.15	11.03
16			2.52	0	0.42	1.47	11.93	0	2.05	7.19
17			1.51	0	0.25	0.88	7.16	0	1.23	4.32
18			0.84	0	0.14	0.49	3.98	0	0.68	2.40
19			0.34	0	0.06	0.20	1.59	0	0.27	0.96
Total	37	6	96	32	16	56	453	539	78	273

Worst Scenario	
NPV incl. 3 and 4 (US$ mn)	$25.29
NPV ex. 3 and 4 (US$ mn)	$2.00
EIRR	19%
Average Scenario	
NPV incl. 3 and 4 (US$ mn)	$378.36
NPV ex. 3 and 4 (US$ mn)	$264.09
EIRR	54%

Sensitivity

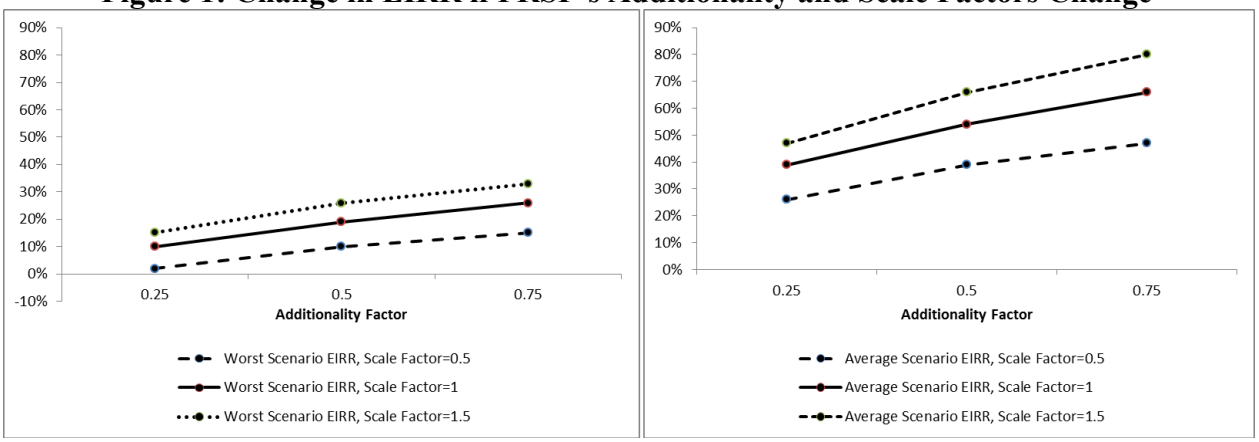
25. We analyze the sensitivity of the economic benefits we calculate for PRSF with respect to two factors: the share of benefits that happen only due to PRSF ("Additionality") and the extent to which PRSF will leverage its capital base ("Scale"). We vary these two factors and record their impact on the PRSF's aggregate EIRR. Table 13 captures the result:

Table 13: Sensitivity of Aggregate EIRR w.r.t Changes in Additionality and Scale Factor

EIRR (Worst Scenario)				EIRR (Average Scenario)			
	Additionality Factor				Additionality Factor		
Scale Factor	0.25	0.5	0.75	Scale Factor	0.25	0.5	0.75
0.5	2%	10%	15%	0.5	26%	39%	47%
1	10%	19%	26%	1	39%	54%	66%
1.5	15%	26%	33%	1.5	47%	66%	80%

26. The base case (when the additionality of PRSF is 50% and the scale is assumed to be 1) in the worst and average scenarios are highlighted. In the 'worst scenario', where we assume to only be relying on projects with the worst EIRR, keeping the scale constant at 1, an increase in PRSF's additionality increases the aggregate EIRR. Similarly, keeping the additionality constant, a decrease in the scale reduces the project EIRR, while increasing the scale increases the EIRR. In the 'worst scenario', with the scale constant at 1, reducing additionality from 50% to 25% reduces the EIRR from 19% to 10% - rendering the project unviable. Similarly, with a constant additionality at 50%, reducing the scale from 1 to 0.5 (i.e. not using the full $37 million Guarantee) reduces the EIRR to 10% - making the project unviable. The sensitivity analysis is further explained by the graphical illustration below.

Figure 1: Change in EIRR if PRSF's Additionality and Scale Factors Change



27. For further testing the EIRR's sensitivity to various assumptions in the model, alterations in the values of certain key assumptions were considered. Of the various factors that were considered for structuring the PRSF level economic analysis model, *projected energy savings*, *reduction in fuel price*, *plant availability factor (PLF)* and *T&D los rate* are envisaged to affect the Economic IRR of PRSF.

28. A rise in PLF to 95% (w.r.t base case of 90%) and reduction of T&D losses to 10% (w.r.t base case of 15%) reduced the Worst Scenario EIRR from 19% to 18%. Hence, for the EIRR to be less than 12% (the assumed discount rate) the PLF needs to be more than 100% and the T&D loss rate to be negligible – both of which are improbable.

29. We also test a reduction in projected energy savings by 20% from those assumed above and reduction in fuel price by 3%. In this scenario, the EIRR for the Worst Scenario is 17%.

30. To further test the sensitivity of the model, to the assumptions reflected in "paragraph 29", we add the assumptions of "paragraph 28" (PLF of 95% and T&D Loss of 10%). Even in this extreme case, the Worst Scenario EIRR stands at 13% while the Average Scenario EIRR stands at 41%.

31. It should further be noted that the energy costs assumed in this model are conservative and are unlikely to reduce. This is especially true given the weakening Rupee and such escalations in energy costs would only enhance the project's EIRR.

32. Sensitivity analysis has also been conducted on the guarantee coverage. In the base case analysis, 50% guarantee coverage has been considered. The project design allows for a range between 40-75%. Accordingly, if we consider the case of 40% guarantee coverage, the Worst Scenario EIRR becomes 23% and the Average Scenario EIRR becomes 61%. Similarly, if we consider the case of 75% guarantee coverage, the Worst Scenario EIRR becomes 13% and the Average Scenario EIRR becomes 45%.

33. The other assumptions do not have a significant enough impact on the final result for even large variations to jeopardize the economic viability of the project.

D. PRSF Financial Analysis

34. Financial analysis and a 15-year cash flow forecast were prepared to determine the financial viability of the risk-sharing facility. The analysis was prepared on a blended basis for the shared savings and guaranteed savings models. The conclusion from the base case analysis is that the facility will have sufficient cash over a 15-year period to cover all expenses and sub-guarantee calls without having to call the CTF Guarantee. Sensitivity analysis was conducted to determine how results change when underlying assumptions are changed.

35. Assumptions used in the base case for the risk sharing facility are presented in Table 13. The assumptions for the default and recovery probabilities, as well as for collateral availability, are conservative to account for the uncertainties surrounding the creation of a new ESCO-based financing market for energy efficiency investments and the actual savings generated.

Table 13: Assumptions for PRSF Financial Analysis

Capitalization	
GEF capital	USD 12 million (6mn to guarantee SIDBI

	loans, 6mn to guarantee PFI loans)
CTF capital	USD 25 million
Exchange rate	USD 1= INR 60
Interest Earned and Expenses	
Interest earned on program cash, including any amounts paid into the CTF account under the CTF Guarantee	RBI Policy Repo Rate – 2.0% up to year 4, RBI Policy Repo Rate from year 5 (to be confirmed in 4th year)
Fixed management fee to SIDBI	0.75% p.a. of total capital up to year 4, 0.50% p.a. from year 5
Variable management fee to SIDBI	0.25% p.a. of outstanding guarantees up to year 4, 0.50% on outstanding loans from year 5
Reimbursable program expenses and capacity building for end-to-end EE market solutions	Paid out of interest and sub-guarantee fee income
Monitoring and verification costs	10% of amount of guarantees called, paid out of interest and sub-guarantee fee income
CTF Guarantee Terms and Fees	
Availability period	Up to 20 years
Commitment step-up period	Years 2-4
CTF front-end fee (MDB fee)	USD 200,000
Guarantee fee to CTF	0.10% p.a. on committed amount

PRSF Guarantee Terms	
Term	2-5 years
Guarantee coverage	40-75%
PRSF Guarantee fee annual (first installment up-front)	1.0%

Average loan amount	INR 100 lakh / USD 167k
Average guarantee amount	INR 40-75 lakh/ USD 67-125k
PRSF Guarantee issuance period	Up to year 10
Shared Savings Model	
Borrower	ESCO
Share of all guarantees issued	40%
Average coverage ratio	75%
Probability of default	20%
Loss given default	90%
Guaranteed Savings Model	
Borrower	Host
Share of all guarantees issued	60%
Average coverage ratio	40%
Probability of default	15%
Loss given default	75%

36. Results from the base case for the risk sharing facility are presented in Table 14. The facility is financially viable throughout the 15-year period and, when combined with the core GEF capital, generates sufficient income to account for all guarantee claims, SIDBI's fees, CTF fees and other program expenses. In the base case, CTF capital is committed but not called during the 15-year period as GEF funds are sufficient to meet the average portfolio payout rate of 15%, i.e. payments under PRSF sub-guarantees would equal 15% of the total amount of guarantees issued. The total expected guarantee issuance of USD 51 million mobilizes over USD 135 million of commercial financing. The cash remaining in the program at the end of year 15, essentially GEF capital, is USD 0.15 million.

Table 14: Financial Analysis Results for Base Case (15-year period)

Portfolio Turnover	
Total guarantees issued	INR 30,780 lakh / USD 51.3 mn

Commercial debt issued	INR 57,000 lakh / USD 95 mn
Equity mobilized	INR 24,429 lakh / USD 40.7 mn
Leverage ratio	3.7x
Cumulative no. of guarantees issued - shared savings	228
Cumulative no. of guarantees issued - guaranteed savings	342
Guarantee calls (amount)	INR 4,617 lakh / USD 7.70 mn
Guarantee calls (% share)	15%
GEF capital used for calls	INR 4,617 lakh / USD 7.70 mn
CTF capital used for calls	0
Income and expenses	
Guarantee income	INR 911 lakh / USD 1.52 mn
Interest income	INR 3,911 lakh / USD 6.52 mn
Reimbursable program expenses	INR 2,678 lakh / USD4.46 mn
CTF Guarantee fees paid	INR 153 lakh / USD 0.26 mn
Management fee – fixed	INR 1,887 lakh / USD 3.15 mn
Management fee – variable	INR 705 lakh / USD 1.17 mn
M&V expenses	INR 593 lakh / USD 0.99 mn
Cash remaining in the end	INR 69 lakh / USD 0.12 mn

37. Results from the sensitivity analysis for the risk sharing facility are presented in Table 15. Analysis of the individual variables and their impact on the financial results is described below.

38. ***Loss scenarios.*** The analysis shows that the facility is highly sensitive to the actual losses incurred. Although no CTF capital is called in the base case, an actual average guarantee call rate exceeding the 15 percent expected in the base case requires CTF capital to be called, unless

guarantee issuance is limited. PRSF guarantee terms can me modified or changes can be made to program administration, if actual losses deviate greatly from expectations, to prevent the CTF Guarantee from being called. One third of the available CTF commitment, or USD 8.3 million, will be called if the average guarantee call rate reaches as high as 28 percent. Such high default rate would be extremely unlikely and suggest fundamental shortcomings in program administration or underlying investments.

39. ***Combination scenarios.*** The actual volume of guarantees issued can be higher with an optimal default rate of 5%. Higher volume allows guarantee issuance which is over double that in the base case and mobilizes almost USD 290 million in debt and equity. No amount of CTF Guarantee is expected to be called. With a high default rate (20% for shared savings and 30% for guarantees savings), only USD 37 million of guarantees can be issued, which mobilizes around USD 100 million of commercial financing. Such low volume scenario would also reduce the leveraging of commercial funds to support the underlying investments and limit the attainment of the Project Development Objective (leverage ratio would fall from 3.7 in the base case to 2.6).

40. ***Coverage scenarios.*** If average coverage is raised to 75 percent, fewer guarantees can be issued to accommodate the higher average guarantee size. Absolute losses would be higher than in the base case but CTF capital would still be preserved. Leverage of commercial financing would fall to 3.1x from 3.7x in the base case. In a scenario where average coverage is reduced to 25 percent, the average call amount per guarantee decreases, holding volume constant, which results in USD 8 million of GEF cash remaining at the end of the program. That cash could be used to issue considerably more guarantees during program life if market demand exceeds expectations.

41. ***Pricing scenarios.*** The likelihood of CTF capital being called is sensitive to the pricing of the PRSF sub-guarantee. If the guarantee fee of 1.0% is charged only one time instead of annually, USD 1.3 million of CTF capital will need to be called, holding everything else constant. With an annual fee that is half of the base case level, or 0.5%, the CTF Guarantee will need to be called for USD 1.0 million. SIDBI will have flexibility to adjust the guarantee pricing as long as the changes are based on market conditions and take into account the financial sustainability of the program.

42. ***Foreign exchange risk.*** Assuming that GEF capital is converted into INR up-front, the CTF portion will still bear the risk of US dollar depreciation. The impact would be felt more on guarantee volume in an upside scenario rather than the likelihood of CTF capital being called. Lower INR equivalent amount of CTF capital due to USD depreciation would restrict potential guarantee issuance – the greater the depreciation, the greater the reduction in guarantee issuance capacity. However, the analysis suggests that in the base case, the facility would be financially able to withstand a major USD depreciation (from 1:60 to 1:40 against INR) without a reduction in the number of guarantees issued.

Table 15: Sensitivity Analysis (15-year period)

USD ('000)	Base case	Loss Scenarios				Combination Scenarios		Coverage Scenarios		Pricing Scenarios		Foreign Exchange Risk
		Optimal default rate	High default rate	CTF first loss	CTF one-third loss	Optimal default and high issuance	High default and low issuance	High coverage	Low coverage	One-time only	Low annual fee	Major USD Depreciation
Volume												
Total guarantees issued	51,300	51,300	51,300	51,300	51,300	109,350	36,900	60,000	23,750	51,300	51,300	51,300
Commercial debt issued	95,000	95,000	95,000	95,000	95,000	202,500	68,333	80,000	95,000	95,000	95,000	95,000
Equity mobilized	40,714	40,714	40,714	40,714	40,714	86,786	29,286	34,286	40,714	40,714	40,714	40,714
Capital leverage ratio	3.7	3.7	3.7	3.7	3.7	7.8	2.6	3.1	3.7	3.7	3.7	3.7
Cumulative no. of guarantees issued - total	570	570	570	570	570	1,215	410	480	570	570	570	570
Losses												
Guarantee calls (amount)	7,695	2,138	11,115	7,694	14,333	4,556	7,995	8,370	3,313	7,695	7,695	7,695
Guarantee calls (% share of outstanding)	15%	4%	22%	15%	28%	4%	22%	14%	14%	15%	15%	15%
GEF capital used for calls (net of income)	7,695	2,138	11,115	7,694	14,333	4,556	7,995	8,370	3,313	7,695	7,695	7,695
CTF capital used for calls	-	-	2,559	2	8,333	-	-	-	-	1,310	1,079	-
Income and expenses												
Guarantee income	1,518	1,533	1,509	1,519	1,500	3,266	1,090	1,782	704	513	759	1,518
Interest income	6,518	12,161	4,873	6,495	5,366	10,513	5,896	5,828	10,362	6,240	6,242	6,518
SIDBI expenses	4,320	4,327	4,316	4,320	4,312	5,648	3,965	4,134	4,274	4,320	4,320	4,320
Reimbursable program expenses	4,464	4,464	4,464	4,464	4,464	4,464	3,379	2,894	4,464	4,464	4,464	4,464
M&V expenses	988	282	1,412	1,010	1,720	598	1,024	1,181	451	928	938	988
Cash remaining in the end	115	12,029	(2,820)	72	(85)	8,058	169	576	8,109	201	208	115
Notes	SS default rate 20%, GS default rate 15%	SS default rate 20%, GS default rate 15%	SS default rate 20%, GS default rate 15%	Scenario where all GEF capital has been used for calls	One third of CTF Guarantee paid for calls			75% average coverage for SS and GS, no issuance in yrs 8-10	25% average coverage for SS and GS	1% one-time fee	0.5% per annum fee	USD falls to 1:40 for CTF portion

E. PRSF Project Pipeline

43. There is a robust market of potential ESCO-implemented energy efficiency projects for PRSF support, and there are several potential candidates to receive initial PRSF support. Initial PRSF support will focus on projects under development with EESL, as they will play an active role in ensuring the identified projects obtain financing and will be eligible for PRSF support. The initial projects would likely be ten municipal street lighting projects, requiring a total of US$ 70 million in investment, which EESL has identified as the best candidates. These are projects that would be eligible for PRSF and which EESL believes are likely to receive financing and are moving forward at a pace that matches the PRSF implementation timeline. Six of the projects are small street lighting projects that EESL believes would be implemented by small ESCOs.

44. The six small street lighting projects are:

- Alappuza: Alappuza is a municipality in Kerala that has 8,051 street lights eligible for replacement. The project would replace all of them with LED lights to reduce each light's energy consumption and install centralized control and monitoring systems to improve operational efficiency. The project would also provide a five-year warranty, including maintenance support, and ensure the technical performance of the lights. This project is expected to reduce Alappuza's annual energy consumption from 3.5 million kWh to 1.2 million kWh, thereby saving the municipality Rs. 46 lakh annually in electricity costs. The total capital cost of the projected is estimated to be Rs. 6.47 crore.

- Anantapur: Anantapur is a municipality in Andhra Pradesh with approximately 8,872 street lights eligible for replacement. The project would replace all of these lights with LED lights to reduce each light's energy consumption and install centralized control and monitoring systems to improve operational efficiency. This would save the municipality Rs 137.35 lakh per year in energy costs and require an upfront investment of Rs 367.52 lakh.

- Bhimavaram: Bhimavaram is a municipality in Andhra Pradesh with approximately 4,460 street lights eligible for replacement. The project would replace all of these lights with LED lights to reduce each light's energy consumption and install centralized control and monitoring systems to improve operational efficiency. This would save the municipality Rs 89.6 lakh per year in energy costs and require an upfront investment of Rs 297.3 lakh.

- Chirala: Chirala is a municipality in Andhra Pradesh with approximately 3,237 street lights eligible for replacement. The project would replace all of these lights with LED lights to reduce each light's energy consumption and install centralized control and monitoring systems to improve operational efficiency. This would save the municipality Rs 52.4 lakh per year in energy costs and require an upfront investment of Rs 160.7 lakh.

- Mallapuram: Mallapuram is a municipality in Kerala that has 2,613 street lights eligible for replacement. The project would replace all of them with LED lights to reduce each light's energy consumption This project is expected to reduce Alappuza's annual electricity bills by Rs. 27.6 lakh. The total capital cost of the projected is estimated to be Rs. 74.06 lakh.

- Perithalama: Perithalama is a municipality in Kerala that has 2,799 street lights eligible for replacement. The project would replace all of them with LED lights to reduce each light's energy consumption This project is expected to reduce Alappuza's annual electricity bills by Rs. 26.7 lakh. The total capital cost of the projected is estimated to be Rs. 152.49 lakh.

45. The other four larger street lighting projects are:

- Kolkata Municipal Corporation (KMC): This involves replacement of about 281,403 street lights with LED lights in KMC. This program has the potential of annually reducing KMC's energy consumption by 143,314 MWh, which is about 90 percent of its current consumption. The annual savings in terms of recurring costs to KMC is US$ 45 million, and the investment required is about US$ 49 million. The simple payback period for this investment is four years. Currently, implementation of a technology demonstration pilot project is underway, and EESL is reviewing the current baseline of the conventional lighting fixtures.

- Ludhiana Municipal Corporation (LMC): This involves replacement of about 90,009 street lights with LED lights in LMC. This program has the potential of annually reducing LMC's energy consumption by 32,450 MWh, which is about 67 percent of its current consumption. The annual savings in terms of recurring costs to KMC is US$ 4.2 million, and the investment required is about US$ 12 million. The simple payback period for this investment is four years. Currently, implementation of a technology demonstration pilot project is underway, and EESL is reviewing the current baseline of the conventional lighting fixtures.

- Puducherry Municipal Corporate (PMC): This involves replacement of about 41,221 street lights with LED lights in PMC. This program has the potential of annually reducing PMC's energy consumption by 12,563 MWh, which is about 69 percent of its current consumption. The annual savings in terms of recurring costs to KMC is US$ 11 thousand, and the investment required is about US$ 4.3 million. The simple payback period for this investment is four years. EESL has done due diligence and financial analysis for this project.

- Mohali Municipal Corporation (MMC): This involves replacement of about 10,283 street lights with LED lights in MMC. This program has the potential of annually reducing MMC's energy consumption by 3,585 MWh, which is about 68 percent of its current consumption. The annual savings in terms of recurring costs to KMC is US$ 1 million, and the investment required is about US$ 1.1 million. The simple payback period for this investment is four years. Currently, implementation of a

technology demonstration pilot project is underway, and EESL is reviewing the current baseline of the conventional lighting fixtures.

46. In addition, the team has worked with ESCO and industry associations, as well as EESL and SIDBI[82], to develop a larger set of projects that could be eligible for PRSF. This additional set comprises 34 projects from industrial SMEs, large industries, buildings, and municipalities requiring US$108 million in investment. The candidacy of these specific projects for PRSF is less certain than the EESL street lighting ones, as their abilities to receive financing and timelines are uncertain.[83] However, they are representative of the depth of projects in India that would be eligible for PRSF support. This Annex 7 analyzes the economic and financial viability of a selection of the street lighting and other projects.

Table 12: Summary of Tentative Projects for PRSF Pipeline

Sector	# of Projects	Investment		Breakdown	
		Rs mn	*US$ mn*	*By Value*	*By Volume*
SME	8	469	8	7%	24%
Building	6	77	1	1%	18%
Industry	15	2080	35	32%	44%
Municipal	5	3862	64	60%	15%
Total	**34**	**Rs. 6488**	**$ 108**	**100%**	**100%**

Table 13: Detailed List of Tentative Projects for PRSF Pipeline

Host Entity Sector	Project	ESCO Model	Investment Required (Rs.)	Annual Energy or CO2 Savings	Status
MSME/Manufacturing	Equipment retrofit and solar installation	Shared savings	160mn (104 mn loan)	5.74 GWh	Made equity investment, seeking lending
Data Center	Capacitor bank, HVAC performance optimization, voltage and coiling area reduction	Shared savings	16 mn	2.4 GWh	Have contracts in place; ESCO is exploring financing options

[82] Including an investment-grade pipeline of EE projects in MSME sector developed under the ongoing GEF-financed World Bank project with SIDBI, "Financing Energy Efficiency at MSMEs Project" (P100530).

[83] These will not become certain until a financial institution agrees to consider the projects. In addition, in the case of projects collected from industries, the industries would also need to pair up with an ESCO to move their project forward. This matchmaking is challenging in the current market environment and is exactly what this project will address through its combination of TA and financial support.

Host Entity Sector	Project	ESCO Model	Investment Required (Rs.)	Annual Energy or CO2 Savings	Status
Hotel	Capacitor bank, voltage stabilizer, lighting and HVAC improvements	Shared savings	9.4 mn	0.5 GWh	Have contracts in place; ESCO is exploring financing options
Cement (PAT DC)	Cooler replacement	Vendor	238 mn	6700 mtoe	Have talked to 14 cement plants (figures shown here assumes 1 implements); In the process of developing a performance contract with client
MSME/Steel	Replace reheating furnace with waste heat recovery system	Guaranteed savings	1.25 mn per firm (over a few hundred firms)	150 tons of coal per firm (over a few hundred firms)	Talked to some mills in detail
MSME/Rice mills	Equipment replacement	Guaranteed savings	1.5 mn per firm (over a few hundred firms)	0.18 GWh per firm (over a few hundred firms)	Completed DPRs with KfW grant
Restaurant	Energy-use optimization	Guaranteed savings	37.5 mn	4.05 GWh	DPRs done, looking for financing
Paper industry	Installation of VFD	To be determined	17 mn	5.22 GWh	Plant is in vendor finalization mode. Financing will be provided by company
Paper industry	Installation of micro-turbine	To be determined	4.5 mn	3 GWh	Plant team is still carrying out detailed study. Firm has not decided about funding mechanism
Healthcare	Installation of LED lights	To be determined	1 mn	52,000 kWh	Technical and commercial feasibility study has been done. Project will be implemented in FY14

Host Entity Sector	Project	ESCO Model	Investment Required (Rs.)	Annual Energy or CO2 Savings	Status
Buildings	Installation of a VFD for chilled water pumps and AHU fan	To be determined	0.4 mn	72,000 kWh	Feasibility study has been done
Cement industry	Captive power plant: Installation of smart air flow controller in service air network for power savings in compressor	To be determined	1.2 mn	85750 tons of coal	Project is currently being implemented
Paper industry	Captive power plant: installation of HT VFD for condensate extraction pump	To be determined	1.2 mn	120,000 tons of coal	Study of equipment has been completed and project is under implementation
Aluminum industry	Captive power plant: Installation of VFD for FD fan	To be determined	8 mn	1,200,000 tons of coal	Project will be funded by company. Company is going ahead with project implementation
Paper industry	Captive power plant: installation of VFD in boiler feed water pumps	To be determined	0.34 mn	190,000 tons of coal	Basis study of system has been completed
Paper industry	Replacement of GRP blades with FRP blades in cooling tower fan	To be determined	0.216 mn	116,000 tons of coal	Firm will provide financing and has put a priority on implementation soon
Iron & steel	Installation of VFD for centrifugal equipments	To be determined	22.5 mn	5,575,811 kWh	Feasibility study has been done. Firm has its own funds
Iron & steel	Installation of waste heat recovery plant	To be determined	500 mn	72000000 kWh	Projected registered for CDM, but CDM market no longer active, so project at a stand still
Textile industry	Installation of VFD for humidification fans	To be determined	4 mn	400,000 kWh	Firm is seeking funding

Host Entity Sector	Project	ESCO Model	Investment Required (Rs.)	Annual Energy or CO2 Savings	Status
Textile industry	Replacement of old motors with more efficient ones	To be determined	3.182 mn	283,000 kWh	Firm is seeking funding
School building	Building EE	To be determined	13 mn	N/A	N/A
Industrial firm	Industrial EE	To be determined	500 mn	3502 mtoe	Baseline energy audit done; client committed to implementation once DPR done
Steel industry	Replacement of street lights and water pumps	To be determined	250 mn	N/A	N/A
Street lighting, West Bengal	Street lights and water pumping (four cities)	To be determined	2.2 bn	109 GWh	DPR needed; client committed to implementation; on EESL's list of ready for implementation
Street lighting, Madhya Pradesh	Street lights and water pumping	To be determined	36.96 mn	3.8 GWh	DPR needed; client committed to implementation; on EESL's list to pursue
Street lighting, Punjab	Street lights and water pumping	To be determined	700 mn	353 kWh	DPR needed; client committed to implementation; on EESL's list to pursue
Street lighting, Maharashtra	Street lights and water pumping	To be determined	175 mn	0.76 GWh	DPR needed; client committed to implementation; on EESL's list to develop
Street lighting, Maharashtra	Street lights	To be determined	800 mn	20 GWh	DPR prepared; on EESL's list of ready for implementation
Metal industry (PAT)	Water heat recovery boiler, recycling char, shed for coal, VFD installation, hot blast tuyere pipe	To be determined	530 mn	66 million kWh and 16,000 tons of coal	Baseline energy audit done

Host Entity Sector	Project	ESCO Model	Investment Required (Rs.)	Annual Energy or CO2 Savings	Status
MSME/Foundry	Furnace replacement; retrofit of air compressor with VFD	Guaranteed savings	7.30 mn	net reduction of 220 tonnes of CO_2 per year	DPR done
MSME/Chemicals	Installation of wood-fired boiler; replacement of cooling pump	Guaranteed savings	4.89 mn	net reduction of 270 tons of CO_2 per year	DPR done
MSME/Forging	Power factor improvement, VFD installation, appliance replacement, other	Guaranteed savings	2.77 mn	Net reduction of 157 tons of CO_2 per year	DPR done
MSME/Forging	Power factor improvement, voltage reduction, waste-heat recovery, fuel switch in furnace	Guaranteed savings	3.43 mn	Net reduction of 349 tons of CO_2 per year	DPR done
MSME/Forging	Power factor improvement, temperature indicator installation, air compressor optimization, furnace automation	Guaranteed savings	15.5 mn	Net reduction of 606 tons of CO_2 per year	DPR done

Annex 8: Clean Technology Fund

INDIA: Partial Risk-Sharing Facility

A. CTF Results Framework

Table 1: CTF Results Framework

Indicator	CTF-funded Project
Annual energy savings	1066.53 GWh/year
Avoided generation investments (total) [84]	670 MW
Tons of GHG emissions avoided -Tons per year (average over 10 years) -Total tons over project lifetime	780,842 tons/year 7,808,421 tons total
Financing leveraged by CTF funding	US$178 mn (US$25 mn CTF, US$18 mn GEF, US$135 mn private sector)
CTF leverage ratio	1:6.2
Cost-effectiveness [85] -CTF cost effectiveness -Total project cost effectiveness	US$3.20/ton of CO_2 avoided US$17.3/ton of CO_2 avoided
Environmental co-benefits (value of avoided local pollution, total)	US$ 273 mn
Reduction in gap between electricity supply and demand via reduced electricity demand	Annual electricity demand could fall by 490 GWh annually, and this electricity would then be available for others' use. This is equivalent to 0.9 million households' average annual electricity consumption.

[84] This is the amount of planned generation investments that can be avoided due to the reduction in annual electricity demand achieved by this project. It is calculated using conservative estimates of transmission and distribution losses and plant load factors. See Annex 7 for more details.

[85] In October 2013, the CTF Trust Fund Committee agreed that "A threshold for CTF eligibility may be established at the marginal abatement cost of USD 200 per ton of CO2-equivalent reduced. Since the technologies supported by the CTF are typically far below that threshold, it is suggested that instead of requiring every project/program to undertake marginal abatement cost analysis, the country is requested to provide information on the estimated marginal abatement cost only for projects/programs for which the marginal abatement cost is likely to exceed USD 100 per ton of CO2-equivalent. " Since the cost of reducing a ton of CO2 -the project cost effectiveness based on total investment costs- is estimated at $17.3, one can assume that the marginal abatement cost, which is calculated as net incremental cost of reducing CO2, is less than $17.3 per ton of CO2.

Other non-quantifiable benefits	-This project is intended to catalyze a larger market for ESCOs and energy efficiency projects in India. Thus, it will improve the EE market, particularly in the targeted sectors listed below. It may also increase employment in ESCOs and the EE industry. -The reduction in energy usage by energy-intensive firms may improve working conditions. This may particularly impact female works – for example, in textiles, one of the target industries. -The reduction in domestic energy demand will contribute to increased energy security -The reduction in energy usage will also contribute to reducing the energy intensity of GDP in India.

Note: Items included in this table are explained further in the following sections.

B. **Context**

1. India is in the midst of a robust economic growth period and a massive urban transformation. It must respond to the demands imposed by an increasingly affluent and urban society by providing adequate services and infrastructure but also ensure that the growth and urbanization are environmentally sustainable. Its electricity system is already unable to meet growing demand, and it is fourth in the world in terms of total energy consumption. Adopting increased levels of energy efficiency (EE) is essential not just to manage electricity demand but also to address pressing environmental concerns. India is among the highest emitters of greenhouse gases (GHGs) in the world (though one of the lowest in per-capita terms).

2. The Government of India (GoI) estimates that its EE market has an investment potential of US$9.77 billion and could save up to 183.5 billion kilowatt hours (kWh) and 148.6 million tons of carbon dioxide (CO_2) in only five years. Buildings, for example, could avoid an average of almost 20 percent of current energy usage through EE measures. The industrial sector, whose energy intensity is currently higher than the world average, also has considerable room to gain from EE measures and represents almost 25 percent of India's potential savings from EE. Much of this potential may lie with micro, small and medium enterprises (MSMEs), as they comprise more than 80 percent of the country's industrial enterprises and lag behind larger industry benchmarks in technology modernization and other energy efficiency measures.

3. To achieve this potential, the GoI developed the National Mission on Enhanced Energy Efficiency (NMEEE). NMEEE aims to achieve a higher penetration of low-carbon options to balance growth and climate change mitigation. Accelerated deployment of low-carbon energy technologies in the rapidly expanding Indian economy would help to lower the trajectory of growth in global carbon dioxide emissions. Specifically, the NMEEE aims to increase India's energy efficiency by 20% by 2020, by avoiding addition of 19 GW of electricity generation. These efforts are expected to produce annual fuel savings of 23 million tons of oil equivalent (Mtoe) and annual emissions reductions of 98 million tons by 2014-15. A key element of this vision is to incentivize adoption of energy efficient practices by making the improvements cost-effective.

4. The GoI has also recently enacted a variety of regulatory mandates and policy initiatives to incentivize private sector participation in energy efficiency. By far the largest of these is the Perform, Achieve and Trade (PAT) scheme, a globally unique program that has set energy-intensity targets (enforced through financial penalties) for the country's most energy intensive industrial sectors and allows them to meet the targets through direct energy reductions or by trading energy saving certificates. According to Planning Commission estimates, full implementation of PAT across all 15 sectors would save approximately 24 million tons of oil equivalent (mtoe; 6 percent of India's current energy consumption) by 2020. An array of other government policy initiatives complements the PAT Scheme by providing additional incentives for industrial firms and encouraging similar savings by buildings and micro, small and medium enterprises (MSMEs).

5. Many middle-tier industrial enterprises (including those covered by PAT), buildings, and SMEs are unable to implement EE projects, however, as they lack the technical capacity, have limited ability to obtain financing for such projects, or face other barriers. In many markets, energy service companies (ESCOs) help clients overcome these barriers by providing a range of services from project design to maintenance of the new technology to project financing. In nascent markets, such as India's, ESCOs often need to take on both the technical and credit risk of EE projects to attract client interest and trust and establish themselves in the market.

6. In India, however, the ESCO market has yet to take off on a large-scale, financing for smaller ESCOs and pure-play EE projects (project in which EE is the main focus) is nearly nonexistent, and Indian ESCOs are generally limited to taking on only technical risk. A primary barrier to market growth is a lack of access to commercial credit for most ESCOs. Most commercial banks have limited or no understanding of the ESCOs' business model, and they distrust smaller ESCOs' creditworthiness (but, without access to financing, these ESCOs are unable to resolve this). Banks therefore have an unnecessarily high risk perception of ESCO loans and, in India's credit-constrained environment, banks simply choose not to lend.

7. A lack of standardization of the processes and standards involved in ESPCs is also a significant impediment to energy efficiency market transformation through ESCOs. The very nature of performance contracting, in which an ESCO guarantees minimum energy savings from proposed energy efficiency measures, requires that all market participants – clients, ESCOs, and lenders – accept the contract processes. These include contract templates, monitoring and verification (M&V) guidelines, appraisal and contractual agreements, etc. However, in India, there currently are neither widely accepted codes nor standards or associated legal provisions for these ESPC documents. As a result, many projects often devise their own contract templates and M&V protocols, which many market participants perceive as risky.

8. The PRSF proposes to build upon the enabling regulatory environment and leverage India's mature financial sector to overcome these barriers and catalyze the market for energy efficiency projects. Its development objective is to assist India in achieving energy savings by (a) mobilizing commercial financing using risk sharing mechanisms through GEF and CTF support; and (b) catalyzing ESCO-implemented energy efficiency projects. The PRSF will accomplish this by (1) leveraging project funds to encourage private sector investment in energy efficiency

projects, and (2) providing complementary technical assistance and capacity building to stakeholders in India's energy efficiency market.

9. The project falls exactly in line with one of the initiatives under the GoI's National Mission for Enhanced Energy Efficiency (NMEEE), an ambitious plan to substantially cut India's energy consumption. The NMEEE is one of eight missions under the umbrella of the GoI's flagship National Action Plan on Climate Change (NPACC) The PRSF falls under the NMEEE initiative "Creation of mechanisms that would help finance demand side management program in all sectors by capturing future energy savings", one four NMEE initiatives. It will support PAT, another of the NMEEE's initiatives, by assisting large industrial firms in meeting their PAT-mandated EE targets. The project also supports the government's Framework for Energy Efficient Economic Development and Energy Efficiency Financing Platform, programs that assist the country in meeting its broader EE goals and its GHG emissions intensity reduction targets.

C. India's Investment Plan for CTF

10. The GoI places tremendous emphasis on the transformative potential for CTF financing in achieving the pressing energy efficiency goals described above. It envisages leveraging the CTF financing to support its projects under the NAPCC, specifically in support of the NMEEE. The CTF investment plan aims to induce transformative investments on the supply side while addressing critical gaps on the demand side, under the NMEEE umbrella.

11. The PRSF will increase the energy efficiency of India's economic growth by enabling the large-scale implementation of EE measures that exploit the many opportunities for energy reduction in India's large industries, buildings, municipalities, and MSMEs. The CTF support for the PRSF will have a catalytic impact on the market for ESCO-implemented energy efficiency projects in India, which will significantly enhance the environmental benefits from existing GoI initiatives and policies. Without this support, those benefits would likely be only partially realized.

12. The CTF investment plan was approved by CTF Trust Fund committee with an understanding that there would not be co-financing from IBRD for the PRSF project, though there will be co-financing from the GEF.

13. The CTF investment plan has prioritized activities based on availability of funding. The most important projects, including PRSF, have been taken up under the current Phase I. Some desirable projects have been classified under Phase 2, awaiting commitments. The list of planned projects, from the endorsed India CTF investment plan, is:

Table 2: India's CTF Investment Plan

S.l	Name of Project	MDB Partner/Project Size	Financing Sought from CTF (US$mn)
Phase 1			

S.l	Name of Project	MDB Partner/Project Size	Financing Sought from CTF (US$mn)
1	Himachal Pradesh Environmentally Sustainable Development Policy Loan	World Bank	100
2	National Mission on Enhanced Energy Efficiency—Super energy-efficient Equipment Program (SEEP)	World Bank	50
3	Partial Risk Guarantee Facility (PRSF)	World Bank	25
4	Rajasthan Solar Park	ADB	200
5	Gujarat Solar Park	ADB	150
6	Maharashtra Solar Park	ADB	150
7	Integrated Solar-hybrid Pilot Project	ADB	50
8	National Mission on Enhanced Energy Efficiency—Perform, Achieve, Trade (PAT)-Phase I[86]	World Bank	50
Proposed Phase 2			
1	National Mission on Enhanced Energy Efficiency—Perform, Achieve, Trade (PAT)-Phase II[87]	World Bank	150
2	Support to National Solar Mission	World Bank	150
3	Northeast Transmission	World Bank	100
4	Rajasthan Urban	ADB	100
5	Net-Energy Positive Wastewater technologies for the clean-up of the Ganga river	World Bank	100
6	Eastern Dedicated Freight Corridor	World Bank	500
7	Private Sector Financial Intermediation	ADB-PSOD	75
8	Energy Efficiency & Renewable Energy Guarantee Facility	ADB-PSOD	200
9	Scaling up Renewable Energy & Energy Efficiency in private sector	IFC	100

D. Project Description

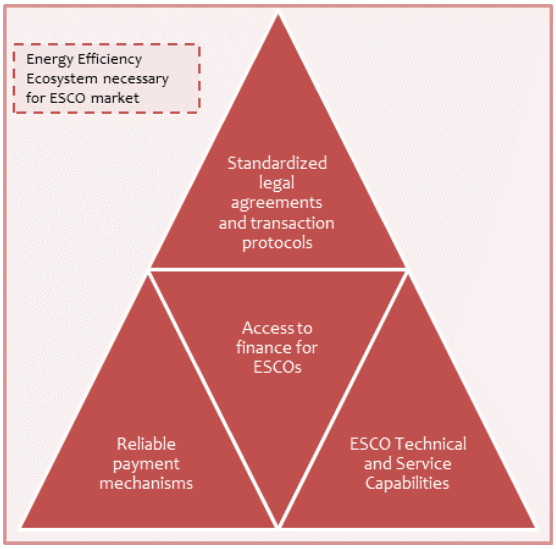
14. Despite India's enabling regulatory environment and fairly mature financial markets, many consumers with energy savings opportunities, including middle-tier large industries (including those covered by PAT), buildings, MSMEs, and municipalities, are unable to implement EE projects, as they lack the technical capacity, have limited ability to obtain financing for EE projects, or face other barriers. In many markets, energy service companies (ESCOs) help clients overcome these barriers and realize their EE potential. ESCOs provide a range of services, including identification of EE opportunities, connection with equipment manufacturers, design and management, construction, maintenance of the EE technology, and

[86] This was in the original investment plan but is not in the current one.
[87] This was in the original investment plan but is not in the current one.

monitoring and verification of the resulting energy and cost savings. They establish credibility through an energy savings performance contract (ESPC) that guarantees the client savings from the identified EE measures, thereby transferring technical project risk to the ESCO. Implementation of the EE measures can then be financed through a "guaranteed savings" model, in which the client finances the project or a "shared savings" model, in which the ESCO finances the project, thereby assuming also assuming the project's credit risk, and gets repaid through a portion of the client's future savings.[88]

15. ESCOs are often essential to realize energy efficiency potential; however, implementation of ESCO transactions is still inherently complex. Multiple stakeholders of the EE market – ESCOs, firms and buildings that require the EE projects, financial institutions, and sometimes even equipment manufacturers and electricity utilities – have to coordinate to conclude such projects. Thus, a robust "energy efficiency ecosystem" is necessary to enable a successful ESCO and energy service performance contracting market. Figure 1 depicts the conditions of an enabling EE ecosystem.

Figure 1: Enabling "Energy Efficiency Ecosystem" Conditions for ESCO Market



16. The PRSF aims to help build the missing pieces from this ecosystem and catalyze the market for ESCO-implemented energy efficiency projects in India. It will achieve this by:

a. Addressing the barriers to of access to financing faced by ESCOs, by providing risk coverage to reduce the risks perceived by financial institutions in financing ESCOs implementing energy efficiency projects on performance contract basis,

[88] For simple EE measures involving technologies with known performance characteristics (e.g. light bulbs) in well-known and consistent use conditions, there is also a "deemed savings" model, in which the energy savings are estimated in advance rather than measured in real-time. In this model, typically the host entity finances the project and takes on the very minimal technical risk that exists in such projects. This model is often used in municipal street lighting projects, for example.

b. Engaging financial institutions and ESCOs and building the former's capacity to finance EE projects on a commercially-sustainable basis and the latter's capacity to structure and seek financing for ESPC- based energy efficiency projects, and

c. Structuring the transactions involved in financing EE projects by standardizing ESPC, Measurement and Verification (M&V) protocols, appraisal and other supporting documents

17. The learning from the PRSF is expected to help build the capacity of commercial banks to analyze and appraise loans to ESCOs, thereby reducing their risk perception of such loans and obviating the need for the type of risk-sharing offered by the PRSF in the future. The operational templates for ESPC, measurement and verification protocols, and appraisal tools will ensure that the reduction in financial institutions' risk perception of loans to ESCOs and increased access to credit for ESCOs is sustained in the future.

18. Towards the above-mentioned objective, the PRSF, of a total corpus of US$43 million, will consist of two components:

a. Component 1: A risk sharing facility for energy efficiency, managed by SIDBI, of US$37 million, funded from a GEF contribution of US$12 million and backstopped by a CTF Guarantee, in the form of contingent finance, of US$25 million, and

b. Component 2: A technical assistance and capacity building component of US$6 million, funded by GEF, US$4 million managed by SIDBI and US$2 million managed by EESL.

19. *Component 1:* This component will be executed by the Small Industries Development Bank of India (SIDBI) to establish a Risk-Sharing Facility for Energy Efficiency.[89] This facility will provide partial credit guarantees to cover a share of the default risk that financial institutions face when extending loans to energy efficiency sub-projects. In particular, eligible loans would be those given to sub-projects being implemented by ESCOs on the premises of eligible beneficiaries (industries including MSMEs, municipalities engaged in street lighting projects, and buildings).

20. *PFI Eligibility Criteria:* The Partial Risk Sharing Facility will be available to support energy efficiency loans made by SIDBI and by participating financial institutions (PFIs) that will be empanelled and sign a memorandum of understanding (MoU) with SIDBI as part of this project. The PFIs will be charged a sub-project guarantee fee, at a pre-determined rate, for each energy efficiency sub-project that receives a PRSF guarantee.

[89] SIDBI is a public sector financial institution focused on the development and financing of MSME sector in India and have been involved in EE sector.[89] Set up in 1990 [or 89?] through an Act of the Indian Parliament of India, SIDBI provides financing support to MSME sector through various instruments including loans and guarantees. A PMU for the PRSF will be set up within SIDBI. One sentence needed on why SIDBI was chosen.

21. *Loan eligibility criteria:* To be eligible for credit guarantees from PRSF, loans will have to be for to EE projects that are implemented by ESCOs. The borrower for the loans could be either the beneficiary (the industry, municipality, or building upon whose premises the project is implemented) or the implementing ESCO. For projects to be eligible, the implementing ESCO will have to have an energy savings performance contract with the beneficiary. Further, the SIDBI and the PFI will have to appraise the projects using the standardized appraisal documents developed under Component 2 of this project and using the PRSF Operations Manual.

22. *Protection of CTF Capital:* CTF capital will be provided as a CTF Guarantee, to be disbursed only in the event that GEF cash in the facility is exhausted through unexpectedly many sub-guarantee calls. The GEF Grant of US$12 million will provided up-front as cash and will serve as a first-loss reserve for sub-guarantee calls, with US$6 million allocated to cover SIDBI's own loans and the other US$6 million to be used for PFI loans. The CTF Guarantee will only backstop the US$6 million allocation for PFIs. All operating and management expenses of the facility will also be covered from PRSF interest and sub-guarantee fee income. If necessary, SIDBI may transfer funds from its own risk coverage allocation of US$6 million in to cover any expenses exceeding facility income. No transfers towards facility expenses can be made from the US$6 million in risk coverage reserve for PFIs without consent from IBRD/CTF.

23. No calls on the CTF Guarantee are expected in the base case financial forecast. Any calls that materialize will be limited to the amount of shortfall in PRSF accounts and need to be reimbursed if the facility manager recovers any losses. To minimize the probability of call events occurring, implementation arrangements include strong risk management features such as risk-sharing with the private sector, proactive adjustment of sub-guarantee terms in response to market conditions, initial provisioning of US$12 million only for sub-guarantee calls as well as independent management of GEF cash and other cash flows related to the facility.

24. *Legal terms and conditions:* Similarly to World Bank guarantee operations, IBRD/CTF will enter into a CTF Guarantee Agreement with SIDBI (as manager of the PRSF and beneficiary of the CTF Guarantee) and a direct agreement (Cooperation Agreement) with the country, India. Unlike the indemnity agreements used in guarantees out of the World Bank's own funds, the CTF Public Sector Guidelines[90] clearly state CTF guarantees have "[n]o requirement for sovereign government indemnity." Thus, the Cooperation Agreement will not require India to reimburse or indemnify IBRD or CTF if the CTF Guarantee is called. The Public Sector Guidelines do require that agreements relating to a CTF guarantee contain "an optional cross-default clause with MDB loans for the project/program." Here there are no MDB loans for the Project. However, IBRD/CTF will provide for the right to terminate the CTF guarantee if, among other events, GEF requires a refund of funds from the PFI sub-account (the account which the CTF guarantee will be backstopping).

25. The Public Sector Guidelines also call for "[a]pplication of standard MDB policies and procedures" in providing a CTF guarantee, and require the implementing MDB to "discharge its responsibilities with the same degree of care as it exercises with its own resources." Both CTF

[90] The Clean Technology Fund Financing Products, Terms, and Review Procedures for Public Sector Operations (November 7, 2013).

and GEF (each through IBRD) will enter into this Cooperation Agreement with India. This agreement will contain provisions relating to India's cooperation and consultation with the CTF and GEF regarding the Project, as well as certain specific provisions in the event of, for example, a substitution of the Project Implementing Entity. However, this agreement will not incorporate the Standard Conditions for Loans Made by the World Bank out of the Climate Investment Funds and is intended to set out a limited set of acknowledgments and undertakings relating to the Project. It thus will not contain a cross-default provision allowing acceleration or suspension across the country's World Bank portfolio for a breach of any covenant thereunder. Such provisions have been included in indemnity agreements for guarantees made by the World Bank out of its own funds, as remedies for failure by a country to reimburse and indemnify the World Bank or for breach of a covenant. Because of the nature of the CTF contingent finance and the specific nature of this operation, the team has determined that limitation or termination of the CTF guarantee on the occurrence of certain events is an appropriate remedy, among others, which will provide leverage under the CTF Guarantee Agreement without the need for a cross-default remedy against the country under the Cooperation Agreement. Similarly, due to the high-level nature of the Cooperation Agreement, it will not contain an arbitration provision.

26. *Component 2:* This component will fund technical assistance and capacity building to ensure that Component 1 is successful and to address other aspects of the energy efficiency ecosystem needed to sustain a strong ESCO market. It will develop the capacity of the PRSF facility; standardize transaction and appraisal documents for ESCO projects; provide for monitoring and evaluation of the project; provide marketing and awareness for the project; and develop a pipeline of sub-projects to utilize the PRSF.

27. Component 2 will have two implementing entities: SIDBI[91] will manage US$4 million and Energy Efficiency Services Limited (EESL)[92] will manage US$2 million. SIDBI will provide upfront project preparation support and market development and facilitation support to help the implementation of the risk-sharing facility itself. In addition, it will provide assistance to the PFIs, ESCOs and host entities by bringing them together and facilitating match-making and disseminating information about the PRSF. The SIDBI team operating PRSF will make consultants, standardized tools and templates available to PFIs, ESCOs and beneficiary sectors directly involved in PRSF or working in the EE market. It will also provide capacity building and training.

28. EESL will deliver technical support to address broader EE market barriers in India. EESL's support will be on a broader scale and reach out to a larger set of EE market stakeholders than SIDBI's. BEE works closely with EESL in the latter's role as a financial and implementing agency to facilitate the enabling environment for scaling up EE investment in India, particularly through ESCOs.

[91] SIDBI has a successful track record of running EE projects and guarantee operations, including under World Bank-funded projects. As a part of SIDBI's broader strategic vision, it intends to develop and provide end-to-end solutions for delivering EE services in India.

[92] EESL is a Joint Venture of NTPC Limited, Power Grid Corporation of India Limited (PGCIL), Power Finance Corporation Limited (PFC) and Rural Electrification Corporation Limited (REC) to facilitate implementation of EE projects in India. EESL is leading the market-related actions of the NMEEE and it complements the objectives of BEE, which is the statutory body created by the Energy Conservation Act 2001. EESL has a GoI mandate to function as a market aggregator for EE projects in India.

29. *Project Pipeline for PRSF*: There is a robust market of potential ESCO-implemented energy efficiency projects for PRSF support, and there are several potential candidates to receive initial PRSF support. Initial PRSF support will focus on projects under development with EESL, as they will play an active role in ensuring the identified projects obtain financing and will be eligible for PRSF support. The initial projects would likely be four municipal street lighting projects, requiring a total of US$ 66.7 million in investment, which EESL has identified as the best candidates. See Annex 7, section E for a brief description of these projects.

30. In addition, the team has worked with ESCO and industry associations, as well as EESL and SIDBI, to develop a larger set of projects that could be eligible for PRSF. This additional set comprises 34 projects from industrial MSMEs, large industries, buildings, and municipalities requiring US$108 million in investment. The candidacy of these specific projects for PRSF is less certain than the EESL street lighting ones, as their abilities to receive financing and timelines are uncertain. However, they are representative of the depth of projects in India that would be eligible for PRSF support. See Annex 7, Section E for a list of these projects. In addition, Annex 7 analyzes the economic and financial viability of a selection of the street lighting and other projects.

E. **Assessment of Proposed Project with CTF Investment Criteria**

A. Potential for GHG Emissions Savings

28. This program will likely avoid 7.8 million tons of CO2. This estimate represents the CO_2 emissions avoidance likely to result from the sub-projects that receive PRSF risk-sharing coverage. However, in the likely case that the PRSF is successful in catalyzing the market for ESCO-implemented energy efficiency projects, there will be many future EE sub-projects whose existence and avoided GHG emissions can be attributed to the PRSF, including the EE sub-projects supported through GoI's PRGFEE (US$20 million). Thus, the overall impact of the PRSF on GHG emissions is likely significantly larger than this estimate.

29. It is impossible to know exactly which EE sub-projects the PRSF will support with risk coverage. Therefore, the GHG analysis considers a set of sub-projects from large industries, MSMEs, municipalities, and buildings that are representative of the sub-projects whose loans would likely receive funding under PRSF and calculates the CO2 emissions they will likely avoid. The analysis then assumes that the PRSF portfolio will comprise projects that exhibit the characteristics of the seven representative sub-projects and proportionally aggregates the sub-projects up to represent the full amount of projects that will likely be supported by the PRSF.

30. The sub-projects reduce GHG emissions by reducing use of grid electricity and/or furnace oil. Energy reduction estimates are taken from ESCOs' annual savings projections based on EE measures implemented, adjusted to account for a potential 10 percent rebound effect and using a conservative assumption for the lifetime of energy savings based on the specific EE measures taken. For electricity, the analysis uses the average grid electricity CO_2 emissions factor for the Indian electricity grid over the lifetime of energy savings, assuming the emissions factor falls at the same average rate going forward as it has over the previous five years (the

average is about 0.72 tons of CO_2 per MWh). The furnace oil CO_2 emissions factor is assumed to be 3.02 tons of CO_2 per kilo liter of furnace oil, as in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. See Annex 7 of the main PAD for a detailed explanation of this analysis.

31. *Technology Development Status*: While it is unknown exactly which projects (and thus which technologies) will be supported by the PRSF, the facility will only support low-carbon technologies that are technically proven and commercially viable. This condition is specified in the PRSF Operations Manual.

B. Cost-Effectiveness

32. The US$25 million in CTF financing will generate US$135 million in private sector financing for energy efficiency sub-projects. (Section E of this section gives the foundation for this estimate.) Together, the sub-projects enabled by the CTF financing will likely avoid 7.8 million tons of CO_2. Thus, the cost effectiveness of the CTF funding is US$3.20 per ton of CO_2 avoided. The cost effectiveness of the total project cost is equal to $17.31 per ton of CO2 ($135 million divided by 7.8 million tons of CO2). This estimate is conservative for a variety of reasons; see the previous section and Annex 7 of this PAD for more discussion of this.

C. Demonstration Potential at Scale

33. The program design has taken into account the importance of catalyzing the market for ESCO-implemented EE project such that the project's impact is sustained well beyond its lifetime. Ultimately the project aims to not just directly enable EE projects through risk-coverage but to catalyze a market that will continue to fund significantly more EE projects going forward. Strong potential exists for such a market to develop. For example, industry estimates suggest that the industrial sector has an energy efficient investment potential of US$3 billion; India's industrial energy efficiency potential is higher than the world average, underscoring this potential. Much of this potential may lie with MSMEs, a target sector for this project, as they comprise more than 80 percent of the country's industrial enterprises and lag behind larger industry benchmarks in technology modernization and other energy efficiency measures. Section A of the main PAD discusses India's energy efficiency potential in more detail.

34. The project provides a broad set of support for creating a sustainable market. First, Component 1 of the project will encourage commercial banks to lend to ESCOs and energy efficiency projects by providing guarantees against some of the banks' lending risk. Increasing commercial banks' lending to these players will increase their comfort with energy efficiency projects and with ESCOs' business models, which will increase their likelihood of continuing lending.

35. This will be paired with strong technical assistance (Component 2 of this project) to increase the capacity of all energy efficiency market players and develop standardized transaction documents and appraisal procedures. The technical assistance will help ensure that the increased lending achieved by Component 1 is sustained beyond this project period, under

the broader efforts of GoI through the NMEEE, including through support by the GoI's own PRGFEE facility of US$20 million.

D. Development impact

36. *Environmental and Health Co-Benefits: By* reducing demands for electricity generated from India's largely coal-fired generation system and demands for other primary fuels (e.g., furnace oil), this project will avoid the emission of local pollutants. It is challenging to accurately estimate which and how many local pollutant emissions will be avoided, as the actual set of projects that will receive risk coverage is not known in advance and as the target firms and buildings could be throughout the country. Therefore, analysis of this co-benefit is based on India-specific research on the reduction in local pollutants that tends to occur along with a reduction in CO_2 emissions. This research suggests that for every ton of CO2 avoided, the country also receives about US$42 in an associated reduction in local pollutant emissions (a conservative figure within the range of estimates). This benefit derives from the increased life expectancy and reduced mortality that comes from a reduction in local toxic pollutants. The project will avoid 7.8 million tons of CO2 emissions, so we estimate the benefit from the associated reduction in local pollutants will be US$273 million.

37. *Reduction in gap between electricity supply and demand:* The project will reduce electricity demand; the exact amount depends on the exact PRSF portfolio, but sub-project estimates suggest it may be in the range of 490 GWh per year. Electricity demand in India far exceeds supply, so this saved electricity will be immediately used by other consumers – for example households – and/or will strengthen overall grid reliability, thus reducing power outages. As an example of the impact, the average electrified Indian household consumes about 840 kWh annually so this saved electricity is equivalent to 0.9 million average households' annual electricity consumption.

38. *Support for a nascent market*: This project will support growth of the ESCO and energy efficiency market, a nascent market in India. Thus, it will improve the EE market, particularly in the targeted sectors listed below. It may also increase employment in ESCOs and the EE industry.

39. *Other benefits*: The reduction in energy usage achieved by this project will have a variety of follow-on benefits. Reducing energy usage in the energy-intensive industrial firms that are likely to engage in energy efficiency projects may improve working conditions; this may particularly impact female workers – for example, in textiles, one of the target industries. The reduction in domestic energy demand will also contribute to increased security and reduce the energy intensity of India's GDP.

40. *Gender benefits:* A gender screening has identified ways in which the project can be sensitive to social and gender issues and enhance the benefits this project generates for women. The project design will ensure the criteria for selecting sub-projects to receive risk coverage gives preference to projects that improve working conditions for women or, at a minimum, does not allow projects that worsen working conditions and has minimum safety and labor standards that firms must meet. Further, the project will also seek opportunities to enable and promote

female receipt of the benefits under the project – risk-sharing coverage for EE projects, technical assistance, and capacity building – potentially by relaxing the eligibility criteria for risk-sharing coverage for projects at firms with female decision-makers, designing the eligibility criteria to be attractive to firms with female-decision-makers, and/or reaching out to firms with female decision-makers for workshops and other activities. These elements are expected to have a particular impact among the MSMEs that the project covers. The project's monitoring and evaluation component may also include a review of its social and gender impact.

E. Implementation potential

41. *Institutional Arrangements: The* PRSF has been carefully designed to coordinate the multiple stakeholders involved in the project and ensure successful implementation. A Cooperation Agreement between the Republic of India (DEA, on behalf of India) and GEF and CTF (with IBRD as implementing entity) along with a CTF Guarantee Agreement with SIDBI and GEF Grant Agreements with each of SIDBI and EESL will lay the legal framework for this proposed operation. All agreements will include references to other key documents, including the Operations Manual.

42. For Component 1, SIDBI will manage the PRSF Guarantee Facility on behalf of India. The institutions who will benefit from the PRSF Facility will be the PFIs, ESCOs, and the beneficiaries (MSMEs, industries, municipalities, and buildings). PFIs and SIDBI as lender will access the facility that SIDBI is managing to obtain partial credit guarantees. Those credit guarantees will be given for their loans to either ESCOs or beneficiaries. For Component 2, the implementing agencies will be SIDBI and EESL.

191. Commercial banks and non-banking financial corporations would be the financial institutions eligible to be empaneled PFIs. In accordance with World Bank guarantee policy, financial institutions would have to meet World Bank policy requirements relating to eligible guarantee beneficiaries to be empaneled and benefit from the PRSF and, ultimately, the CTF guarantee. Only empaneled PFIs will be allowed to access the US$6 million PFI sub-account of the PRSF fund corpus and lend to ESCOs for implementing ESPC-based EE projects. SIDBI will empanel suitable financial institutions as PFIs across the duration of the project.[93] To ensure a robust participation under PRSF, PFIs would also need to fulfill appropriate empanelment criteria laid out by BEE. The following empanelment criteria would be assessed in determining PFI eligibility: i) size and profitability, ii) experience from energy sector projects, iii) existence of adequate risk management systems, iv) availability of qualified personnel and v) involvement in any litigation or black-listing by a public sector entity.

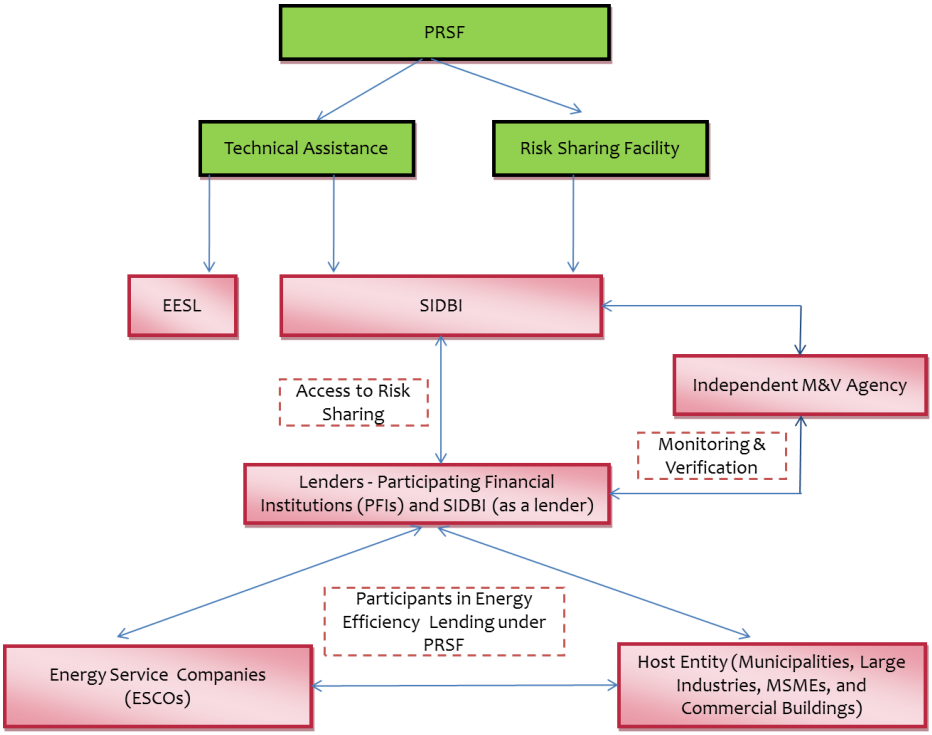
43. An independent monitoring and verification agency (MVA) will be empanelled by SIDBI to verify the risk claim submitted by PFIs. The MVA will also conduct due diligence on the

[93] Based on stakeholder consultations with a number of financial institutions and analysis of Indian Banking Sector, there are more than 25 FIs which fulfill majority of empanelment criteria being developed by SIDBI. These FIs include large nationalized commercial banks with high net-worth and geographic presence like ICICI, SBI, Bank of Baroda, Yes Bank, and NBFCs like IREDA, PFC, PFS, Tata Capital, etc.

appraisal process that the PFIs use in extending loans to ESCOs for energy efficiency projects under PRSF.

44. Figure 1, below, illustrates the institutional arrangements in place for this program.

Figure 1: PRSF Institutional Structure



45. *Sustainability of the Transformation*: Past World Bank experience in energy efficiency markets has shown pairing a strong technical assistance and capacity building component with a financing facility significantly increases the likelihood of generating a sustained impact. Accordingly, the PRSF project has a significant technical assistant component that will help create asset and knowledge base and a strong capacity building component that will ensure both financial institutions and ESCOs gain the technical expertise necessary to participate in the energy efficiency financing market without assistance.

46. *Leverage:* The CTF Guarantee of US$25 million will leverage GEF funds, commercial debt as well as private equity. A GEF contribution of US$12 million will be used towards the management and operating expenses of the facility and meeting sub-guarantee calls, and a GEF contribution of US$ 6 million will be used for technical assistance. When sub-guarantee fees, interest income and facility reflows are included, the total guarantee issuing capacity of the risk-sharing facility will be US$51 million over 10 years. With an average coverage ratio of 54 percent and an equity contribution of 30 percent for each sub-project, total commercial debt and private investment for energy efficiency investments will be US$136 million, i.e. (51.3/0.54)+(51.3/0.54)*(30/70)=136. Therefore US$25 million of CTF mobilizes US$136

million of financing from the private sector, as well as US$ 18 million in GEF financing, making the CTF leverage ratio 1:(154/25)=1:6.2.

F. CTF Additionality

47. The project's risk-sharing component, which the CTF financing will enable, is fundamental to ensuring this project achieves a sustained impact at scale. A primary barrier to the energy efficiency financing market is financial institutions' high risk assessment of the risk of loans to ESCOs for projects implemented through performance contracts. This is a result of commercial banks' lack of comfort with these loans, rather than from a project or loan's fundamental riskiness, so there are many financially viable EE projects that remain unimplemented. The PRSF risk coverage will reduce the risk in lending for these projects, encouraging banks to lend and allowing them to grow comfortable with the ESCO model. Once successful projects implemented by smaller ESCOs are demonstrated, banks' risk perception will fall, and they will be willing to lend to ESCOs without the need for risk coverage.

48. The CTF Guarantee is fundamental for the GoI to undertake this project. In the event of a shortfall of cash in the risk sharing facility to meet claims by PFIs (not including SIDBI) under their sub-guarantees, SIDBI will call the CTF Guarantee in the form of contingent finance to provide additional funds, on a second-loss basis, to meet sub-guarantee calls. The CTF Guarantee is a financially efficient instrument to provide capital for the facility, given that it is not expected to be called in the base case scenario and therefore need not be physically deposited in the facility as a loan would be. The CTF Guarantee fee is 0.1% per annum on the annual committed CTF amount and the maturity is expected to be up to 20 years. The CTF Guarantee does not require a sovereign counter-guarantee. The instrument will be committed in tranches based on the capital requirement of the risk-sharing facility and, subject to CTF approval and agreement, the guarantee fee will be charged only on that committed amount. Although, the CTF Guarantee will be made available for up to 20 years for a maximum amount of US$25 million, the Government of India has requested that only part may be committed in a given year depending on capital needs of the facility and as requested by the facility manager in order to minimize the CTF Guarantee fee. Subject to CTF's agreement, the CTF Guarantee fee would not apply on the available amount but only on the committed amount, i.e. the amount of CTF capital which would actually be at risk in a given period. A front-end fee of US$200,000 will be payable by the PEA to the CTF implementing agency (IBRD), at or before guarantee effectiveness. CTF financing is critical to allow the facility to achieve sufficient leverage and support a large enough number projects to have a demonstrational effect.

Annex 9: Governance Accountability and Action Plan (GAAP)

INDIA: Partial Risk Sharing Facility for Energy Efficiency

1. The Task Team has identified the following main risks in the area of governance, accountability and institutional effectiveness and designed specific risk mitigation measures as part of the overall project implementation strategy:

a. Market Exit and Sustainability: The PRSF may lead to an increased lending to EE Performance Contracting while PRSF is present in the market and drop considerably after the program, thus questioning the sustainability of the market

b. The PFIs may still not lend to the ESCOs on the basis of an Energy Savings Performance Contract (ESPC) and instead undertake Balance Sheet financing under PRSF

c. The PFIs may get empanelled but undertake no lending activity under PRSF

d. The PFIs may not undertake a strong technical appraisal of EE projects

e. The stakeholders may only end up using the transaction and appraisal documents developed under the PRSF's Technical Assistance component, and not access the fund corpus

f. The stakeholders – PFIs, ECSOs and beneficiaries – could collude and may over-cost the EE projects under PRSF

g. The PFIs may utilize PRSF to lend out to EE projects which are weaker on financial viability and which the PFIs wouldn't have otherwise lent out to

h. A conflict of interest may arise if SIDBI would also lend as a PFI under PRSF in addition to being a PEA.

Market Exit and Sustainability: The PRSF may lead to an increased lending to EE Performance Contracting while PRSF is present in the market and drop considerably after the program, thus questioning the sustainability of the market

2. International experience in risk-sharing projects suggests that the Technical Assistance component associated with financial incentive-based interventions such as through partial risk sharing instruments, have been critical in triggering sustainable transformation of energy efficiency markets. Throughout the operational period of the project, the PFIs will be trained to appraise the EE Projects, work with market intermediaries like ESCOs, and better understand the energy performance contracting model and their implementation aspects. It is expected that demonstration through PRSF will ensure that sufficient confidence in PFI is developed towards EE lending to ESCOs through Performance Contracting approach, thereby resulting in sustainable EE lending market.

3. Further, the PRSF is intended to only catalyze the energy efficiency performance contracting market, which has a large potential but remains limited in terms of actual delivery so

far; thus, the project will exit the market after the expiry of the project duration,. The standardization of ESPC related transaction documents, to be developed and used in analyzing, appraising, and implementing the EE sub-projects projects, will be available for the ESCO and FI community at large and will continue to be utilized beyond the PRSF project boundaries and after the PRSF project ends. Thereby, it will be ensured that the project exits the market without distorting the energy efficiency market in India.

The PFIs may still not lend to the ESCOs on the basis of an Energy Savings Performance Contract (ESPC) and instead undertake Balance Sheet financing under PRSF

4. The empaneled PFIs will be signing MoU with SIDBI (PRSF's PEA), to lend to EE projects to be implemented by ESCOs on an ESPC basis. The projects in which PFIs lend on a balance sheet will not be covered under PRSF as clearly defined by the PRSF Operations Manual.

5. The premise under PRSF design and approach is that even good, financially viable EE opportunities are not being captured and projects not being implemented especially by the mid-tier large industries, MSMEs and buildings primarily due to the lack of their technical capacity but also due to their inability to borrow from FIs. Even though ESCOs bring technical strengths and could bridge the gap, being small in size with limited balance sheets, they are also constrained by their ability to access finance. The risk sharing provided by PRSF is intended to extend the ESCOs' access to finance. Standardized transaction templates to operate ESCO transactions based on performance contracting approach will help in addressing the risks that FIs perceive while lending to ESCOs, and thereby increase their understanding and raise their comfort level in supporting EE investments where ESCOs are able to take both technical performance and financial credit risks.

6. It will be ensured that, through appropriate empanelment criteria, the empaneled PFIs possess appropriate project financing experience and appraisal experience for clean energy and EE projects. The PRSF Operations Manual, standardized ESPC templates for scaling up ESCO-driven implementation and associated capacity building and technical assistance will help address FIs' perceived lending risks to ESCOs.

7. Further, SIDBI, through an Independent Monitoring and Verification Agency (MVA), would conduct random due diligence on the PFIs' appraisal and verification on the PRSF operation, particularly on risk claim submitted by the PFIs. It will cover all aspects of the project appraisal, including the mode of financing.

8. If the need arises, the SIDBI will also take strict action against the PFIs not adhering to appraisal guidelines under PRSF as laid out in the Operations Manual, and de-empanel PFIs from the project.

The PFIs may get empanelled but undertake no lending activity under PRSF

9. The PFIs, before getting empaneled, will have to submit past EE experience, EE technical/ appraisal experience and capacity, and future energy efficiency plans under its participation in PRSF to SIDBI.

10. The *Advisory* and Executive Committees will regularly monitor the lending performance, amongst other parameters, of each empanelled PFIs against these plans and will provide feedback, and recommend actions required to take corrective actions and fill gaps if any. These would also be facilitated through technical assistance and capacity building activities available for PFIs and other PRSF stakeholders. The fact that SIDBI will possess power to take decision on potential de-empanelment of the non-performing PFIs from the program in case of no lending activity will encourage PFIs to utilize the PRSF to the maximum extent possible.

The PFIs may not undertake a strong technical appraisal of EE projects

11. The PRSF will provide a loan to the ESCO. Only up to a default risk of maximum of 50% of outstanding principal of an energy efficiency loan will be covered by the PRSF. That is, the remaining 50% credit risk lies with the PFI. Hence, there will be a disincentive to the PFIs to conduct a "light" appraisal on an energy efficiency loan under PRSF.

12. In case the PFI does not undertake technical appraisal of EE Projects as laid out in the Operations Manual, there is a provision of random due diligence in which, after approval from the Executive and *Advisory* Committee, the Facility will have the right to randomly select EE sub-projects and scrutinize the documents submitted by the PFI. If the appraisal conducted by the PFI is found to be sub-standard through this process, Bureau may de-empanel that PFI from the program.

The stakeholders may only end up using the transaction and appraisal documents developed under the PRSF's Technical Assistance component, and not access the fund corpus

13. This project has two key objectives. The first is to establish a PRSF Fund corpus to encourage the PFIs to lend funds to ESCOs for implementing EE projects. The second is to assist and strengthen the ability of various market stakeholders (FIs, ESCOs, etc.) to scale up EE project implementation particularly through the performance contracting route. The TA and capacity building component is designed to achieve the second objective.

14. If the stakeholders end up benefiting only from Component 2, that is, using only the transaction and appraisal documents developed under PRSF without utilizing the fund corpus itself to implement EE projects, then it would actually mean that would lead to sustainable market transformation as it would have demonstrated that the EE lending market has adopted the mitigation measures (transaction and appraisal documents) for overcoming the legal barrier (weak legal documents, and ESPC) for lending.

The stakeholders – PFIs, ECSOs and beneficiaries – could collude and may over-cost the EE projects under PRSF

15. In order to cover the actual investment in any EE Project, the PFIs, ESCO, and the beneficiaries can collude to over-project the cost so that with the risk coverage available under PRSF, full cost of EE project is covered.

16. However, possibility of such colluding is remote as there is an inherent reputational risk for the PFI. Even if the PFI participates in colluding then also there is a provision in the program of random due diligence in which after approval from the Executive Committee, the Facility (SIDBI as PEA) will randomly select EE Projects and scrutinize the documents submitted by the PFI. If the appraisal conducted by the PFI is found to be sub-standard then the Facility will de-empanel that PFI from the program. Finally, the appraisal guidelines and operational guidelines in the PRSF Operations manual, which will operationally bind the participants of the ESPC based transaction.

Moral Hazard and Adverse Selection: The PFIs may utilize PRSF to lend out to EE projects which are weaker on financial viability and which the PFIs wouldn't have otherwise lent out to

17. The fundamental premise of PRSF is to scale up implementation of good, viable EE projects that is not happening due to barriers and risk perceptions in EE markets, particularly where host entities are small and can neither take credit risk no have technical expertise to implement EE projects and where technically-credible but smaller ESCOs are unable to borrow from financial institutions.

18. There is significant number of good, viable EE projects that could benefit from PRSF support. The EE investments can get paid out of achieved energy savings and therefore the focus is on projects which have enough savings vis-à-vis investment so that the project is not only viable but also pays for ESCOs' costs and/or expected profits in case of both guaranteed and shared savings ESPCs . So, by definition, ESCO-implemented EE projects will limit the scope of projects to have good savings estimates as well as strong financials.

19. The guidelines in the Operations Manual, includes the Rules of the Risk Sharing Mechanism of PRSF. These rules clearly lay out the eligibility criteria for the EE projects to be supported by PRSF. In an exceptional case of lending by the PFI to an EE Project which is weaker on financial viability, then that EE Project will definitely not sustain and result in default. The PFI, in that case, will submit the Risk Claim to the PRSF Facility and SIDBI will appoint an Independent M&V Consultant to conduct verification of energy savings. The review of Risk Claim will involve scrutiny of initial documents as well as actual savings achieved, and if the Risk Claim is found to be fraudulent or there is evidence of sub-standard appraisal of EE Project then the Bureau will reject the Risk Claim and de-empanel the PFI from the program.

20. There can be cases where PFI does sub-standard appraisal of EE Loan application in view of the risk coverage provided by PRSF. However, in order to safeguard this possibility, there is a provision of random due diligence of appraisal documents submitted by the PFI. This condition will also take into account cases of adverse selection of EE Projects in view of the risk coverage.

A conflict of interest may arise if SIDBI would also act as a lender under PRSF in addition to being a PEA.

21. The perception of a conflict of interest may arise if SIDBI functions both as a facility manager and a lender. As a facility manager it could give preferential access or treatment to its lending arm for potential loans and investments under PRSF. It could also apply the loan eligibility criteria less strictly for SIDBI's own loans thereby increasing the risks assumed by the facility.

22. To manage the potential conflict of interest, adequate mechanism will be introduced to separate in form and substance the facility management operation from the lending activities. Any loan that SIDBI would propose for PRSF coverage would have to undergo the same eligibility criteria as required from PFIs for their loans. SIDBI would have to carefully manage the GEF capital allocated for covering its own loans as they will not be backstopped by CTF. To ensure compliance with the Operational Manual for considering SIDBI's own loans under PRSF, an independent consultant will be hired to review and audit the processes followed by SIDBI as a facility manager.

Governance & Accountability Action Plan

Risks and Concerns	Risk Control and Mitigation	Responsibility	Target (date/Year)
Limited capacity of and inadequate governance arrangements within the implementing agency may impede project implementation	Actively involving implementing agency from initial stages of project documents preparation	SIDBI, EESL and World Bank	
Market Exit and Sustainability	Training PFIs to appraise the EE Projects and based on results of such lending PFIs may continue to do so even after operational period of PRSF	SIDBI, EESL and World Bank	
The PFIs may still not lend to the ESCOs on the basis of an Energy Savings Performance Contract (ESPC) and undertake Balance Sheet financing under PRSF	Based on results of EE lending through Performance Contracting mode, the PFIs may develop the confidence to lend on the basis of ESPC rather than Balance sheet lending	SIDBI, World Bank and M&V	
The PFIs may get empanelled but not undertake lending activity under PRSF	Regular monitoring of lending performance and subsequent de-empanelment in case of no lending activity	SIDBI, EESL, M&V and World Bank	
The PFIs may not undertake technical appraisal of EE projects	The PRSF will provide a loan to the ESCO. Only up to a default risk of maximum of 50% of outstanding principal of an energy efficiency loan will be covered by the PRSF. That is, the remaining 50% credit risk lies with the PFI. Hence, there will be a disincentive to the PFIs to conduct a "light" appraisal SIDBI will also be conducting random due diligence of documents submitted by PFIs by the Bureau	SIDBI and World Bank	
The stakeholders may	This would imply that EE lending market has adopted the mitigation	SIDBI and	

Risks and Concerns	Risk Control and Mitigation	Responsibility	Target (date/Year)
only end up using the transaction and appraisal documents developed under the PRSF's Technical Assistance component, and not utilize the fund corpus	measures (transaction and appraisal documents) for overcoming the legal barrier (weak legal documents, and ESPC) for lending	M&V	
The stakeholders – PFIs, ECSOs and beneficiaries – could collude and may over-cost the EE projects under PRSF	Due to provision of random due diligence, the PFIs will refrain from colluding with ESCOs and the Beneficiary Also, the appraisal and operational guidelines in the PRSF Operations Manual will operationally bind the participants of the ESPC based transaction.	SIDBI and M&V	
The PFIs may utilize PRSF to lend out to EE projects which are weaker on financial viability and which the PFIs wouldn't have otherwise lent out to	Appointment of Independent M&V Consultant to verify energy savings will provide neutral results to the Bureau for decision of potential de-empanelment of the PFI. Also, the provision of rejecting Risk Claim in case found fraudulent and de-empanelment from the program will ensure that PFIs do not lend to weaker financially viable projects.	SIDBI and M&V	