



PROJECT EXECUTIVE SUMMARY
REQUEST FOR JUNE 2007 WORK PROGRAM
 UNDER THE GEF Trust Fund

GEFSEC PROJECT ID: 2941
IA/ExA PROJECT ID: 3665
COUNTRY: Brazil
PROJECT TITLE: Market Transformation for Energy Efficiency in Buildings
GEF IA/ExA: UNDP and IDB
OTHER PROJECT EXECUTING AGENCY (IES):
DURATION: 7 years
GEF FOCAL AREA: Climate Change
GEF STRATEGIC OBJECTIVES: CC1: Promote energy-efficient buildings and appliances
GEF OPERATIONAL PROGRAM: OP-5 Removal of Barriers to Energy Efficiency and Energy Conservation
PIPELINE ENTRY DATE: 13 JANUARY 2006
EXPECTED STARTING DATE: JANUARY 2008
EXPECTED CEO ENDORSEMENT: DECEMBER 2007
IA/ExA FEE: US\$1,339,450

FINANCING PLAN (US\$)		
	PPG	Project*
GEF Total	250,000	13,500,000
Co-financing	(provide details in Section b: Co-financing)	
UNDP-MLF		1,000,000
IDB		15,000,000
Government	15,000	150,000
Others	60,000	48,675,000
Co-financing Total	75,000	64,825,000
Total	325,000	78,325,000
Financing for Associated Activities If Any:		

FOR JOINT PARTNERSHIP**		
GEF PROJECT/COMPONENT (US\$)		
Outcome4 10,195,000	10%	1,019,500
Outcome 1,2,3 and 5 3,555,000	9%	319,950
Total fees		1,339,450
	(Share)	(Fee)
UNDP	55.1	739,450
IDB	44.9	600,000

** Projects that are jointly implemented by more than one IA or ExA

CONTRIBUTION TO KEY INDICATORS IDENTIFIED IN THE FOCAL AREA STRATEGIES:

- Energy Saved: 5.617 million MWh (directly)
- Cumulative GHG emissions reduction: **9.588 Mt CO₂ eq** over 20 years, of which:
 - 2.820 Mt CO₂ eq from Direct and Direct post project emissions reductions
 - 6.768 Mt CO₂ eq from Indirect emissions reductions (replication factor 4 as per GEF guidelines and a causality factor of 60%).

Approved on behalf of UNDP. This proposal has been prepared in accordance with GEF policies and procedures and meets the standards of the GEF Project Review Criteria for work program inclusion.

Y. Glemarec

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 Deputy Executive Coordinator
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 Date: 2 May 2007

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1. PROJECT SUMMARY

a) Project Rationale, Objective, Outcomes/Outputs and Activities

1. Brazil has a significant potential to achieve energy savings and reduce greenhouse gas emissions from the buildings market while simultaneously contributing to the phase-out of CFCs. GEF funding in the amount of US\$13.5 million is being requested to help remove financial, capacity, technology and policy barriers that currently limit the widespread adoption of energy-efficient (EE) measures and technologies in buildings.

2. To contribute to the removal of barriers to EE investment in the buildings sector, and to maintain compliance with the Montreal Protocol, the GOB has asked UNDP-GEF and UNDP-Montreal Protocol/Chemicals to join efforts to initiate a program that encourages cross-convention synergies to promote market transformation in EE in buildings and chiller replacement.

3. The barriers identified in consultation with various stakeholders to EE improvements in buildings are:

- EE techniques in the development and implementation of EE projects in buildings, particularly in the complex HVAC sector, remain poorly understood by building owners/operators/designers.
- Very few building owners/operators have implemented EE projects and they are reluctant to invest in projects with long payback periods;
- Accessing third party financing and performance-based contracts through, for example, energy service companies ESCOs, is complex for public buildings due to legal barriers, and lack of knowledge and understanding by the various public sector stakeholders;
- Brazilian financial institutions (FIs) lack access to performance risk mitigation options which would enhance their confidence in financing of EE initiatives.

4. This project proposes a capacity building program, complemented with an innovative Partial Performance Guarantee Mechanism (PPGM), as a mean to encourage and support the Brazilian EE services industry and ESCOs. The project will also address the needs of public and private building owners/operators, to allow them to effectively capture building energy service demand savings potential.

5. Based on consultation with the Brazilian banking community, it has become apparent that performance risk is the one aspect of ESCO financing that presents the greatest challenge to local lenders. Therefore, the PPGM seeks to address and substantially mitigate the performance risk aspects of ESCO project financing, this mechanism will both address lenders risk concerns and lend additional credibility to the guarantees that ESCOs provide to their customers.

6. It is anticipated that the PPGM will serve to demonstrate that the availability of such a partial performance risk mitigation tool is a critical element in any EE market transformation strategy and that the lessons learned from the Brazilian EE markets will be replicated in other countries.

7. The project will contribute to improving EE in the Brazilian commercial and public building sectors by more than 5.617 million MWh directly of electricity over 20 years, and will contribute GHG emissions reductions in the order of 9.588 Mt CO₂ eq over the same period.

8. The goal of the project is to influence, transform, and develop the market for energy-efficient building operations in Brazil and move towards a less carbon-intensive and more sustainable energy consumption

path in the country. The proposed project conforms to GEF Operational Program 5: Removal of Barriers to Energy Efficiency and Energy Conservation.

9. The objective of this project is to increase EE investments in private and public buildings in Brazil by addressing the technical and financial barriers which persist despite past and present public and private sector programs/initiatives in this domain.

The outcomes expected from the projects are:

Outcome 1: Enhanced EE investments through Capacity Building (CB) in private and public sector buildings

10. The project will finance a Capacity Building Program that will develop best practice capacity in Brazil in the identification, formulation, implementation and management of EE projects in the buildings sector. This capacity development exercise will be designed to reach a wide range of EE services providers (ESCOs and other energy service providers), as well as building owners/operators. The program will serve to underpin the aim of market transformation by raising the level of knowledge and understanding amongst stakeholders.

Outputs and corresponding activities will include:

- Local energy product/service providers' capacity strengthened through targeted training events. Training activities will include courses on energy management in buildings, monitoring the performance contracts, how to implement a performance contract, air conditioning system management identification and formulation of projects, etc.
- EE market players have greater awareness of and interest in implementing EE measures. Up to 5,000 persons trained in the design, installation, operation and maintenance of building energy efficiency equipment and systems; (see Part IV of ProDoc for details on training activities).

Outcome 2: Access to EE services and commercial financing for public sector buildings enhanced with a Public Building Initiative (PBI)

11. A Public Building Initiative program will be developed and implemented in order to eliminate the barriers specific to the implementation of EE projects in public buildings and facilities¹.

12. The PBI has been designed to effectively tackle the current market barriers that are hindering the uptake of EE projects in the public building: a) lack of access to financial market and EE market players due to high credit risk; b) limited public investment budgets for upgrades of equipment/appliances and EE investments; c) lack of human resources trained to promote EE investment projects; d) lack of technical personnel with appropriate knowledge on how to implement EE projects; e) obstacles to existing legal and contractual frameworks including government procurement policy and regulations where third party financing, either in the form of leasing or through a performance based contracting approach, are concerned;

Outputs and corresponding activities will include:

- Enabling institutional framework for EE project development in the public sector is established. Revisions and amendments to the legal and contractual framework for the use of Energy Performance Contracting in the public sector;

¹ For the purposes of the project, the public sector encompasses federal, state and municipal administrations, as well as public service providers, such as schools and hospitals.

- Projects realized under the ESCO approach by the Government for EE increased (public building owners/operators have been exposed to PBI program to access EE services and applied its recommendations);
- Capacity Building offered to Public Building Owners/ Operators and ESCOs in developing and implementing selected projects on a pilot basis for public sector buildings. Tailored Executive and Managerial Support Program established to encourage the use of the PBI; (see Part V of ProDoc for details on training activities)

Outcome 3: Interest enhanced in the replacement of Energy-Inefficient CFC Free-using chillers

13. The key barriers to the accelerated adoption of new, energy efficient, CFC-free chillers and related system improvements are barriers that are largely shared by energy efficiency investments in the building sector in general. Integrating the two components under the larger project umbrella would serve to demonstrate synergies between environmental conventions that address seemingly disparate issues – climate change and ozone depletion.

14. This project component will be funded using co-financing secured through the Multilateral Fund of the Montreal Protocol and from national stakeholders.

Outputs and corresponding activities will include:

- Technical Assistance provided to professionals on EE improvement combined with HVAC equipment replacement. Improved capacities of at least 120 professionals (design engineers, ESCOs, building owners/operators, entrepreneurs, etc.) in CFC-based chiller replacement. Capacity building courses and practical on-the job exercises will be provided to professionals to increase their capacities;
- Technical guides drafted for professionals;
- Pilot projects to evaluate the impact of the proposed CFC-based chillers replacement program.

Outcome 4: PPGM made available to stimulate EE investment through ESCOs

15. Two key market barriers to the financing and implementation of local ESCO projects arise with respect to the lack of confidence by both the end-users and the lenders in the guaranteed energy savings projections provided by ESCOs: the end-user market remains skeptical of energy savings guarantees provided by local companies, while local banks are not willing to consider energy savings as collateral in assessing the creditworthiness of an ESCO project.

16. Creation of the PPGM will address both market barriers by leading the market and enhancing deal flow. End-users will become more confident in the guaranteed energy savings projections offered by local ESCOs and the PPGM will provide the risk mitigation confidence required to encourage local banks to treat energy savings as collateral in their lending evaluation matrix. This would represent a major shift in local bank lending, away from exclusively balance sheet financing to *project-based financing*.

17. The PPGM facility will be funded through a US\$10 million GEF grant² and complemented with US\$15 million in the form of AAA-rated IDB guarantees from the Inter-American Development Bank (IDB). The PPGM will be operational for 13 years and will issue guarantees for a five year period (year 2 to 6 inclusive) with a maximum tenor of 7 years. The exit strategy is expected to be initiated in year seven. This should

² Out of the total US \$13.5 million being requested for this FSP to help remove policy, capacity, finance and technology barriers that stand in the way of widespread adoption of EE measures and technologies in buildings in Brazil.

allow for an initial support of more than US\$48 million in EE projects to be implemented directly through the facility³ during the 5-year issuance period with a guarantee coverage from the PPGM of 43.6 million.(see Annex H)

18. The level of funding for the PPGM was established in consultation with most stakeholders, based on their experience and the size of the market in Brazil. A US\$25 million financial mechanism comprising US\$10 million funded through GEF and US\$15 million of IDB support was considered appropriate to have a positive impact in transforming the market taking into consideration its investment leveraging ratio.

19. The operational rules of the PPGM will be based on the following framework:

- The IDB as the financial partner of this component of the project, will jointly with UNDP and the NPSC select the PPGM administrator through international competitive bidding and be in charge of ensuring that the PPGM is established following stringent legal and financial due diligence.
- The PPGM will be offered as an IDB guarantee product in Brazil, although being partially funded with GEF resources. As such, the PPGM will be a ‘AAA’ rated guarantee facility. The PPGM’s maximum exposure will be limited to US\$ 25 million in outstanding guarantees⁴. However, over the 5-year issuance period of the PPGM, the cumulative amount of lending that will be guaranteed under the PPGM will be much greater. This is because after each year of successful project performance, the PPGM administrator will have access to guarantee amounts that have become available due to the successful amortization of the underlying guaranteed loans and will be able to redeploy up to the maximum available exposure under the PPGM, which is US\$ 25 million. As such, over the 5-year issuance period of the PPGM, a total of US\$43.6 million in guarantees could be provided.
- Performance Guarantee requests presented to the PPGM for consideration will be reviewed and accepted by the Administrator based on standard intake protocols, eligibility requirements and evaluation criteria.
- Performance guarantee coverage⁵ will be issued by the PPGM to the benefit of the final end users and ESCOs. The guarantee may identify lending institutions as the beneficiary if required by the local lenders and will cover performance risk only.
- Performance shortfall calculations will be made by the Administrator on a quarterly basis and drawdown payments will be made once a year based on a consolidation of annual savings.
- To access the program and obtain a performance guarantee, the ESCOs will be charged a total amount of 4%⁶ comprising fees and premium.
- All PPGM guarantees will contain a minimum 10% deductibility clause. This will place ESCOs in a first loss position. The PPGM would only make payment in cases where the shortfall in savings exceeds 10%.

³ Any project that has the potential to generate EE benefits in buildings would be eligible to access PPGM support, assuming that required financial and technical criteria could be met. As a result, EE projects that target lighting, electricity distribution (transformer, power factor), HVAC (including ventilation, air conditioning, heat exchangers, heat control systems, pumping, steam distribution, boilers, chillers, etc), as well as self-power production, could be eligible. To be as cost-effective as possible, it is likely that ESCOs would bundle many of alternative technologies/processes in these projects.

⁴ IDB would consider taking more risk in other countries as the PPGM is replicated based upon the proven track record of the PPGM in Brazil under this component of the Project.

⁵ Which percentage is to be determined during the inception stage of the project in order to not distort the market and to best respond to specific ESCO project design.

⁶ Based on consultation with insurance brokers in Brazil, a 3/4% premium rate was indicated to be appropriate. The premium and other terms and conditions will be negotiated with the administrator of the PPGM and will be progressively adjusted to reflect experience gained, lessons learned and the real market price. An average starting premium of 4% has been assumed for the purpose of calculations presented in the project.

- ESCOs who wish to become eligible for consideration of support by the PPGM will be assessed against a set of criteria to be determined by IDB and the PPGM Administrator. The set of criteria will be continuously evaluated and adjusted as required during implementation of this component of the project.
- Projects recommended to receive a performance guarantee will be rated against a specific set of criteria including, but not limited to: (i) limited guarantee period of 7 years (the expected average period being 5 years); (ii) only established and proven types of projects/technology will be eligible; and (iii) the EE-related project investment bracket will vary from a minimum of US\$250,000 to a maximum of US\$750,000. While these limits will be adjusted based on project development, the bracket range would encourage adoption of an integrated approach.
- The PPGM Administrator will be paid an annual fee that will also cover oversight of implementation of the project's awareness and marketing activities that will be deducted from the interest income on the PPGM funds and complemented by guarantee premium and fee income charged to clients under the PPGM. A performance bonus will be tied to a percentage of the interest earned on the US\$10 million in GEF funds placed in a reserve account. If funds are drawn from the reserve account to cover claims against the performance guarantee, interest income on the reserve account will necessarily decline resulting in a reduction in the performance bonus paid to the PPGM administration. This arrangement ties payment to the PPGM administrator to performance of the program and creates a strong financial incentive for the PPGM administrator to perform at the highest level.
- A US\$500,000 technical assistance program to be funded partly from the interest income on the PPGM funds will support the due diligence process for the establishment of the PPGM, and the establishment of technical parameters through which the Administrator will be able to support the operations of ESCOs and EE clients effectively.

20. Under the PPGM, local banks assume the responsibility of assessing the credit quality of the EE project beneficiary and the full credit risk of insolvency of the beneficiary. As mentioned before, the local ESCOs are in a first loss position for a minimum of 10% of the guaranteed energy savings. If actual energy savings fall below 10% of the guaranteed energy savings, the PPGM administrator will make payment to the beneficiary. If these payments are made, the PPGM will have full recourse to the ESCO under a reimbursement agreement. As such, the ESCOs are exposed to 100% of the performance risk.

21. The main benefit of the PPGM is to stimulate banks to rely on the cash flows generated by ESCO projects to service as collateral for ESCO loans⁷.

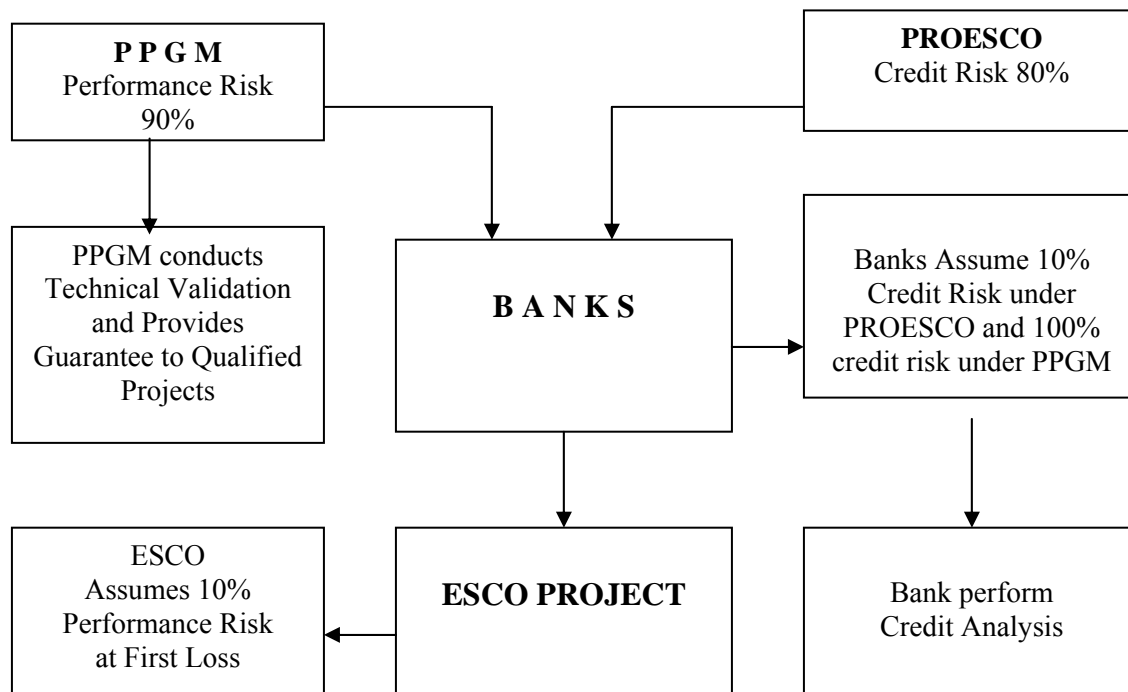
22. Relationship to BNDES and PROESCO:

- Under the PPGM, local banks will remain the source of credit review and assume credit risk. Brazil's National Development Bank, BNDES, has established a partial credit risk guarantee program named Programa Apoio a Projetos de Eficiência Energética (PROESCO) to partially mitigate credit risk for local lenders related to ESCO projects. The BNDES program and the PPGM are not mutually exclusive or competing initiatives. They are viewed as complementary by officials from both BNDES and IDB, and other local lending institutions (see table below).

⁷ According to the regulations of the central bank of Brazil, banks must have certain levels of collateral for each loan issued. According to the Basil Accord II, central banks are required to establish certain capital adequacy requirements for banks. Under Basil II different collateral pledges are given different value based on their credit strength. A local insurance policy from a AA rated insurance company that covers a portion of a loan is given one value while a local performance bond from a single A rated bank would have a different value. Under the UNDP/IDB proposal, the PPGM would be issued by the IDB which has an international AAA rating. This is far superior to a local currency AAA rated insurance product.

- The PPGM is also not dependent on the BNDES program for success. The PPGM will provide risk mitigation related to technology issues for all banks. Local lending institutions will continue to conduct credit review of ESCO clients and will lend on the basis of their underwriting criteria. The PPGM removes the need for technical review of the ESCO projects by local banks, a task that local banks currently do not have the capacity or inclination to perform. Under the PPGM, this function is performed by the PPGM Administrator. With the presence of the PPGM it is expected that local banks will overtime become more comfortable with performance risk.
- While the PROESCO provides risk mitigation to banks for a credit review function that a local bank has already performed, the PPGM provides risk mitigation for the technical aspects of ESCO projects that banks do not understand.
- National project proponents are pleased with the introduction of the BNDES partial credit risk guarantee and believe that the PPGM will have a market transformational impact on its own.

CREDIT ENHANCEMENTS AND RESPONSIBILITIES



Exit Strategy:

23. By the end of the seventh year of the operation, if not before it is expected that the PPGM will generate positive cash flow. At that time, IDB, UNDP and the NPSC may decide to substantially expand the program by accepting additional risk relative to the US\$10 million in the reserve account and the IDB's initial US\$15 million commitment. In this case, the US\$ 10 million in the reserve account would remain in a trust, pledged to the IDB for future claims made against PPGM guarantees. Alternatively, the IDB, UNDP and the NPSC may decide to spin off the PPGM for private sector ownership. Under this scenario, a request for proposals would be issued for ownership of the PPGM. Selection criteria could include, among other things, the amount of equity investment in the PPGM proposed by private sector applicants. This will generate additional leverage of GEF resources. Under this arrangement, the US\$10 million in the reserve account would remain in the trust but would be pledged to the private sector owner for claims made against PPGM

policies. The exit strategy will be decided by the IDB, UNDP and the NPSC based on the mechanism's uptake and relevance over the years.

Outputs and corresponding activities will include:

- A new PPGM has been experimented and is fully operational. Design and implementation of a new financial mechanism based on performance guarantee including operational rules and management structure.
- Local banks begin to treat energy savings as collateral in their lending evaluation matrix. This output will be achieved based on the success in the implementation of EE projects financed with the guarantee of the PPGM.

Outcome 5 – Project Management and M&E Implemented

24. The *overall management* of the project will be the responsibility of a National Project Steering Committee. The NPSC will be composed of senior representatives from the Ministries of Environment, Mines and Energy, Finance, and Public Planning, as well as national banks and various private sector interests⁸.

25. A National Project Management Unit (PMU) would oversee the *administration of activities* related to project outcomes 1-3, with specific emphasis on the management of the Public Building Initiative. The PMU would have full-time staff members managed by a National Project Director (NPD) and an Assistant who would clear the work plan (which forms the basis for project execution), monitor activities, manage the project on its day-to-day implementation and report back to the NPSC. The PMU will:

- Launch project activities.
- Develop the Request for Proposal for all the TA activities to be conducted by external organizations.
- Manage the project on a day to day basis.
- Produce all the management reports for the benefit of the Brazilian government, the GEF and UNDP.

26. With respect to Outcome 4, the PPGM, the IDB working with local banks, ESCOs and the PPGM Administrator will establish performance guarantee criteria and procedures, and IDB will perform ongoing monitoring of the PPGM. However, once the program is in operation, performance guarantee approval will be exclusively the responsibility of the PPGM Administrator. This fire wall between the NPSC and the PPGM Administrator regarding ESCO project approval will remove any concerns regarding political or other external influence on the project approval process. The IDB would have full authority to remove the PPGM Administrator only for failure to reach certain pre-established performance criteria or for breach of any obligations that would be set out in the PPGM administrator's contract.

27. Administration and *quality control of the PPGM* would be provided by a separate and certified Administrator, engaged through a competitive international recruitment process conducted by IDB with the participation of UNDP.. The PPGM will be administered by a staff of highly trained and experienced technical and financial experts with extensive experience in the ESCO industry. The PPGM will be closely monitored by the IDB through periodic reporting by the Administrator.

28. The Administrator will be remunerated by the interest income generated by the GEF deposit contained in the Trust and/or the guarantee premium and fees charged to clients.

⁸ See Stakeholder Involvement section.

29. The Administrator of the PPGM program will:

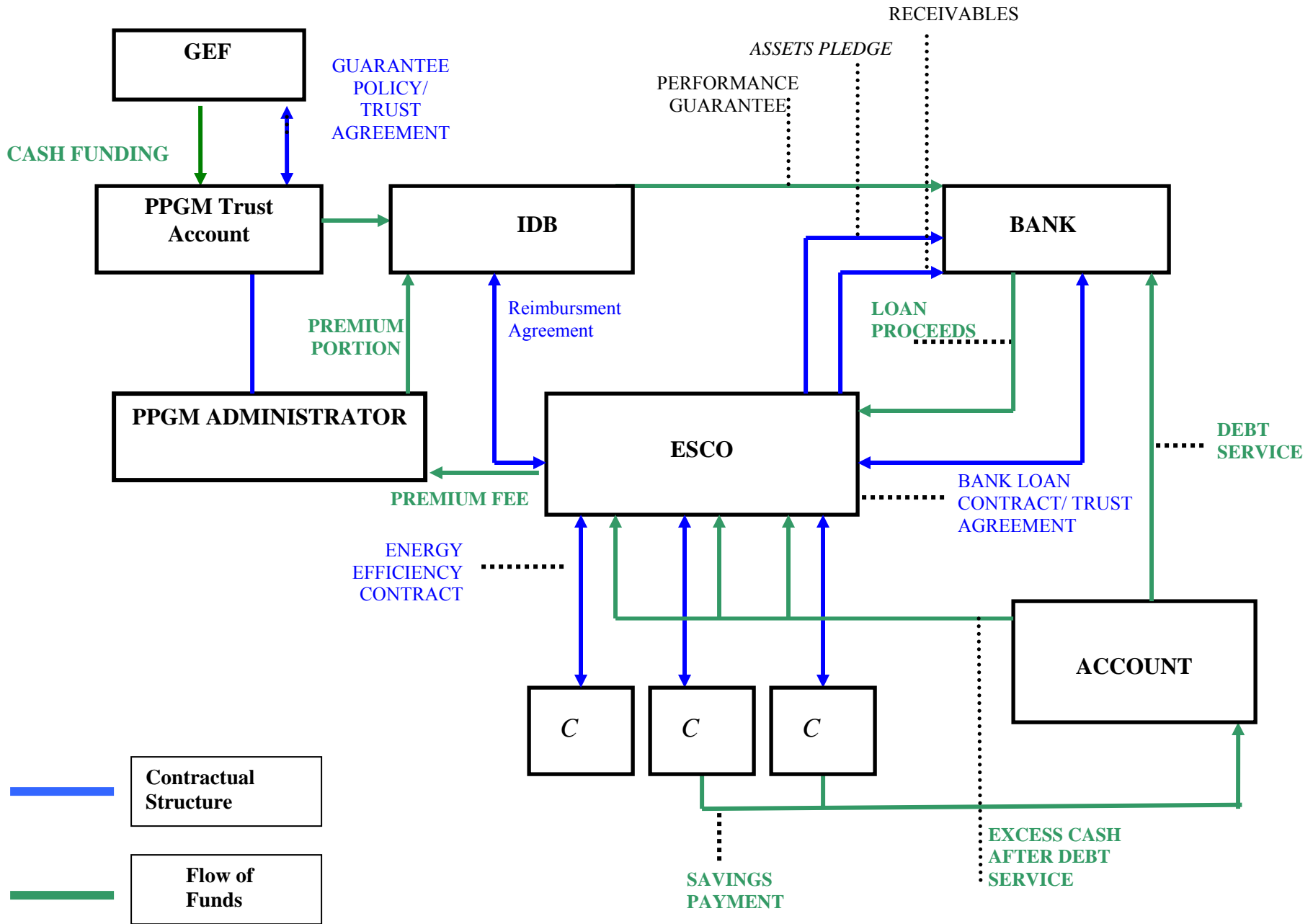
- Perform project appraisals
- Request the IDB to issue the PPGM guarantees for qualified projects
- Administer outstanding guarantees
- Monitor guaranteed projects
- Draw against the guarantee mechanism in the event of performance shortfalls
- Execute appropriate documentation prior to issuance of the guarantees and seek indemnification from the project's ESCO when a guarantee payment is made
- Require the project's ESCO to remediate the shortfalls in energy savings
- Have step in rights to remediate if the project's ESCO fails to remediate shortfalls in energy savings
- Seek indemnification for step-in costs against the project's ESCO.

30. Due to the fact that the key function of the PPGM is project appraisal, the staffing requirements will be modest. The proposed PPGM management structure is as follows:

- An Administrator
- One senior and one junior technical specialist
- One senior and one junior financial specialist
- General support staff

31. The organigram presented in Figure 1 highlights the flow of contractual agreements expected during project implementation. Performance of the project will be monitored and evaluated on a regular basis (see UNDP ProDoc Section 1, Part IV for a detailed description of M&E requirements to be met).

Figure 1: Flow of Funds and Contractual Agreements



b) Key Indicators, Assumptions, and Risks

32. The “Market Transformation for EE in Buildings” project seeks to achieve several goals, and its success will be assessed against the following set of key indicators:

- The reduction in GHG emissions resulting from the improvement of electricity consumption in both public and private building facilities;
- The gradual elimination of substances that deplete the ozone layer, as supported by the Multilateral Fund for the Implementation of the Montreal Protocol (MLF).

33. As in many countries, a large part of electricity consumption goes to buildings. In Brazil this was estimated at 44% in 2004. As a result of increases in fossil fuel prices on the international market during 2005, the country’s energy sector policy seeks to enhance support for uptake of energy efficiency measures, mainly in the commercial, industry and institutional building sectors.

34. Secondary indicators have also been included as they are central to the sustainability of this project. These are all linked to the project’s outcomes and include: (i) increased capacity of market actors; (ii) increased market activities related to EE project development and implementation in the public and private buildings sectors; (iii) increased financing leveraged as a result of establishment of the energy savings PPGM; and, (iv) an increased number of CFC-free chillers installed within the context of an integrated approach to adoption of EE measures.

Indicators

35. Key outcome-level performance indicators used to justify the Objectives ratings during project development have been identified on a preliminary basis:

- Cumulative GHG emissions reduction : 9.588 Mt CO₂ eq over the next 20 years;
- An avoided cost of US\$1.40 per ton of CO₂ emissions.

36. Key outcome-level performance indicators used to justify the Implementation Progress (IP) ratings during project development have been identified on a preliminary basis as follows:

- 5,000 service and equipment providers (design engineers, ESCOs, entrepreneurs and vendors) are informed or trained on buildings EE management;
- In the order of 97 EE projects⁹ implemented directly through the PPGM;
- Up to US\$48 million¹⁰ of financed EE investment initiatives directly enabled by the Project;
- Feedback on quality and relevance of project’s technical assistance (80% of beneficiaries of capacity building activities rating them as “very good”);
- Number of stakeholders reached through dissemination of project publications/guides (at least 2,000);
- Number of visitors to project web site (at least 1,000 per month in 6 months after website launch) ;
- Capacity building provided to public building organizations on the use of the PBI;
- PBI design and implementation of demonstration activities completed;
- 120 professionals trained in CFC-based chillers replacement with EE CFC-free chillers;
- Up to 36 chiller replacement demonstration projects completed using MLF co-financing.

⁹ Calculated based on assumption that performance guarantee coverage of 90% is on offer (see Annex H).

¹⁰ Ibid.

Assumptions

The following are conditions or factors that could assist the Project in achieving its objectives:

- The government entities involved in the Project are committed to adopt an appropriate legal and regulatory framework for EE promotion and CFC-based chillers replacement;
- Relevant participants, particularly co-funding agencies and companies, are committed to participating in various activities;
- Building owners/operators, especially in Brazil's larger urban centers, are aware of and support, through increased participation, the demonstration pilot programs to improve EE efficiency in public sector and replace CFC-based chillers;
- Line ministries are prepared to integrate the project strategy within their global and sectoral programs;
- The private sector is prepared to follow the government's lead in participating at various levels (financial, technical, technological, etc.) to the Project's realization;
- Local FIs are interested in expanding their EE lending portfolios to support market transformation costs.

Risks

37. Based on the meetings held in Brazil with the various stakeholders during the development of the present project, several potential risks have been identified. The following section briefly summarizes and assesses these risks briefly.

38. *The risk of lack of support for the PBI program within the Federal Government's administration:* The project has already taken steps to mitigate this risk by involving all relevant stakeholders in the design and preparation of the proposed project. It will continue to mitigate this risk by establishing a National Project Steering Committee (NPSC) to co-ordinate project activities with other ongoing activities in Brazil, as well as to discuss and introduce the legal and regulatory changes needed to promote energy efficiency incentives. This risk is assessed as low.

39. *Interest in EE financing does not evolve as projected during the PDF B phase:* The creation of the PPGM to backstop local ESCOs' energy savings guarantees is expected to spur interest in EE financing and lend support to development of EE projects. A high level of interest has been expressed by national stakeholders with respect to the innovative nature of the energy savings guarantee concept during the PDF B phase. The PPGM, properly designed and capitalized in Brazil, is expected to catalyze all levels of stakeholder interest in EE projects. This risk is assessed as medium to low, the reasons for which are explained below.

40. *Every EE project has two basic risks - credit risk and performance risk.* Before a lending institution will finance a project loan, it will review both the credit risk of the borrower and the performance risk of the project. Credit risk analysis is a core competence of commercial banks and local banks in Brazil are fully competent to perform such credit risk analysis for ESCO projects. The principal constraint faced by local banks with respect to ESCO projects is that they do not have the capacity or the interest per se, to assess performance risk for ESCO projects and, as a result, generally will not finance them.

The PPGM addresses this issue by removing the need for a bank to engage in performance risk analysis by providing a guarantee of performance.

41. *The PPGM suffers from limited interest from professionals, developers and operators to get involved in EE initiatives, from bank professionals to cooperate in the program, and from private operators/developers to submit projects with good EE improvement potential:* A high level of interest was expressed by national stakeholders with respect to the innovative PPGM concept during the preparatory phase, as well as for the integrated approach to EE enhancement in buildings. Capitalizing on this interest, the development and

implementation of a comprehensive and multi-faceted financing and CB program under the project is expected to mitigate this risk through extensive and targeted marketing campaigns aimed at potential lenders and customers. This risk is assessed as medium to low.

2. COUNTRY OWNERSHIP

a) Country Eligibility

42. According to the Instrument for the Establishment of the Restructured Global Environment Facility, Brazil qualifies for GEF financing on the following grounds:

- It has ratified the United Nations Framework Convention on Climate Change on February 28, 1994; and
- It receives development assistance from UNDP's core resources.

b) Country Drivenness

41. The Government of Brazil began adopting policies and measures with stronger emphasis on energy efficiency over two decades ago. Programs have been implemented at the federal, state and municipal levels, as well as in the private sector. The overview of ongoing EE programs in Brazil, below, underlines the Government's interest in EE promotion and adoption:

42. The Programa Nacional de Conservação de Energia Elétrica (PROCEL) was initiated in 1985. Under Eletrobras responsibility since 1998, the program's objectives are to promote the rational use of electricity by, inter alia, households, industry, water utilities and public buildings, and public lighting.

43. The 'Programa Nacional de Racionalização do Uso dos Derivados do Petróleo e do Gás Natural' (CONPET), created in 1991, aims at encouraging the efficient use of oil products and natural gas in the transport, commerce, industry and agriculture sectors.

44. Law # 9991 of 24 July 2000 mandates electricity distribution companies to invest in research and development (R&D), and in EE programs.

45. ANEEL, the Agencia Nacional de Energia Eletrica, was created by Law 9427 (1996) and is part of the Ministry of Mines and Energy (MME). ANEEL regulates and inspects the production, transmission, distribution and commercialization of electric energy in Brazil.

46. Under the Brazilian Labeling Program (PBE), established in 1983 and managed by INMETRO¹¹, Brazil applies a voluntary labeling scheme for energy consuming equipment.

47. Parallel to PBE, Law 10.295 (October 2001) stipulates that minimum EE or higher EE standards are to apply to energy consuming equipment and buildings in the future.

48. The EDIFICA Program ("Programa de Eficiência Energética em Edificações" - EE Program for Buildings), under PROCEL Management since 2003.

49. On top of the aforementioned initiatives, BNDES, the national development bank in Brazil, has launch a new financing mechanism, a partial credit risk guarantee initiative (PROESCO) that will aim at reducing the credit risks (up to 80%), for banks in taking an active part in the EE market in the country. This initiative will complement the PPGM proposed in this project and increase the market access to EE projects in Brazil. The PPGM will allow local banks to accept energy savings guarantees as collateral, reducing the high collateral requirements currently imposed by local banks on ESCO projects in Brazil. The PPGM will provide risk

¹¹ National Institute of Metrology, Normalization and Industrial Quality - INMETRO

mitigation related to technology issues for all banks. The PPGM is therefore important for the successful implementation of the PROESCO program as it effectively provides the technical validation of ESCO projects that local banks require.

3. Program and Policy Conformity

a) Fit to GEF Focal Area Strategic Objectives and Operational Program

50. This project conforms to GEF Operational Program 5: Removal of Barriers to Energy Efficiency and Energy Conservation by removing barriers to the large-scale application, implementation, and dissemination of cost-effective, energy-efficient technologies and practices that will result in the reduction of greenhouse gas emissions in Brazil. In addition, the project also serves to support the recently adopted (GEF-4) Strategic Objective CC1: Promote energy-efficient buildings and appliances. This project will remove institutional, regulatory and financial barriers by introducing an innovative financing mechanism; creating an enabling institutional framework for EE project development in Public Sector through revisions and amendments to the legal and contractual framework for the use of Energy Performance Contracting in the public sector; and build the required capacity of key stakeholders.

51. The project seeks to improve the EE of buildings and appliances in Brazil by: (i) reinforcing the capacity of market actors in EE building activities; (ii) increasing market activities related to EE projects development and implementation in the buildings sector; (iii) designing an innovative energy savings guarantee initiative (PPGM), (iv) increasing the number of EE appliances such as EE CFC-free chillers; and, (v) monitoring the results of project's activities.

52. The project will contribute to the market transformation of EE in Brazil by securing funding in the ratio of 5:1 and leveraging US\$64.8 million in co-financing.

b) Sustainability (Including Financial Sustainability)

53. The project's sustainability will emanate from the following:

Institutional sustainability

54. A major change expected to result from the project's implementation will be to enable public sector building managers to have access to outsourcing of technical and financial services all over the country. The PBI component will develop and market all necessary tools to reach that objective. As similar successful initiatives in other countries have been implemented, the project will take advantage of these experiences in designing and implementing the appropriate tools.

Technical sustainability

55. A Capacity Building component will be made available to a large number of stakeholders including building owners and operators, to all kind of EE service and equipment providers, including ESCOs, as well as to other key partners including universities and technical educational institutions. The new capacities created through this initiative are expected to be applied over time.

Financial sustainability

56. The PPGM will be financially self-sustainable and operated by a private company with a performance based incentive compensation system. The appropriate flexibility to adjust to market level components, such as project eligibility criteria and service fees, will result in a financial services mechanism adapted to market conditions. The PPGM will encourage local financing institutions to accept energy savings guarantees as

collateral, reducing the high collateral requirements currently imposed by local banks on ESCO projects in Brazil.

Socio-economic sustainability

57. *Market transformation*, the use of market mechanisms to promote the development of EE initiatives holds the best prospect for sustainability, as it allows market actors to make decisions based on commercial merit. In addition, where market imperfections may be present, well-designed interventions can be very effective in bringing the market to the level required for normal and effective market operation.

58. *ESCOs Development*, an ESCO business currently exists in Brazil but it will be greatly reinforced by the present project, making it more viable. ESCOs will be one of the major players who actually benefit from the project by increasing the number of EE projects implemented.

c) Replicability

59. By end of the project, the conditions created by its implementation should encourage project developers, financing institutions and building owners/operators to replicate EE projects. The market will have been primed, the deal flow enhanced and private sector interest in this mechanism will be established. It is expected that the PPGM will be replicated by other financial players, such as insurance companies, that will benefit from the project experience and accomplishment to create and scale-up a sustainable performance guarantee market. More broadly speaking, by demonstrating success, either one or both of the newly developed activities could be used in other countries with similar economic situations.

d) Stakeholder Involvement

60. During the PDF B phase consultative meetings with various stakeholders (see the list below) and key market players revealed that the private sector is willing to integrate EE considerations in the buildings operation process under specific conditions, including: (i) having the government take the leadership on this issue through retrofitting of its own buildings; and, (ii) having a PPGM in place to help mobilize investment resources from within the banking system.

61. The role of the government will therefore, be key to the participation of others stakeholders in this project. The Ministry of Environment (MMA - Ministério do Meio Ambiente) has been strongly supportive of this project from beginning and will act as a Leading Executing Agency and will work in close cooperation with other relevant ministries.

62. The Ministries of Mines and Energy, Finance, and Public Planning, as well as the MMA will oversee the global implementation of the project during its entire execution as part of the national program steering committee together with national banks and various private sector representatives.

63. Furthermore, as the project will need the support of a wide range of stakeholders within the market, it is expected that the project implementation will be coordinated in conjunction with the following stakeholders:

- Programa Nacional de Conservação de Energia Elétrica (PROCEL) will provide technical expertise to Ministry of Mines and Energy and will contribute in the CB program component implementation.
- Brazil National Development Bank (BNDES) is starting to implement a new EE financing facility called PROESCO. EE projects presented to our PPGM component for a savings guarantee will potentially be able to benefit from this new BNDES financing facility through the different private banks.
- Agencia Nacional de Energia Eletrica (ANEEL), which is responsible for the allocation of EE funds from electricity distribution

- The United States Agency for International Development (USAID), which is involved in public building EE strategy. The PBI component will take advantage of their evaluation of legal aspects for public buildings to access ESCOs technical and financial services.
- ESCOs belonging to electric utilities such as AES-ESCO, ESCO Light, Eficiência and others will actively participate in the project as implementers.
- Various banks such as ITAU and Banco Real have expressed their interest in the introduction of a performance guarantee mechanisms and an interest in financing ESCO projects.
- Associação Brasileira das Empresas de Serviços de Conservação de Energia (ABESCO) will assist in promoting the various activities included in the Brazil Market Transformation for EE in Buildings program.
- Associação Brasileira de Refrigeração, Ar Condicionado, Ventilação e Aquecimento (ABRAVA) will assist ESCOs in their efforts to take advantage of the Project.
- Federação Brasileira dos Bancos (FEBRABAN) will act as a potential trainee/ partner, and linkage to banks for financing of EE programs.
- Other stakeholders are also expected to collaborate in the project implementation, as it is more widely marketed and gains renown.

e) Monitoring and Evaluation

64. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the national project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF. The project indicators, as given in the Project Logical Framework, are the benchmark against which Monitoring and Evaluation will take place.

65. With respect to the PPGM monitoring will be carried out by the IDB through the reports of the Administrator and will make them available to UNDP and the NPSC. The IDB will have the right to review the operations and financial records of the Administrator and to appoint an independent auditor for the purposes of performing an audit on the books of the Administrator, to inspect the procedures used to recover defaulted Eligible Projects and to review the operations of the Administrator for the purpose of developing and enhancing best practices and implementing improvements based on the Administrator's record.

66. The IDB will exercise the same degree of care and diligence in the discharge of its responsibilities herein as its exercises with respect to the monitoring of its private sector projects.

67. The detailed monitoring and evaluation process is elaborated upon in Section I, Part IV of the UNDP Project Document. In percentage terms, 0.3% of project resources will be dedicated to monitoring, evaluation. (see Annex E)

4. FINANCING

68. The proposed total GEF grant requested for project implementation is US\$13.5 million. The details of the budget are elaborated upon in the tables presented below. The GOB, through its relevant agencies involved in EE-related projects, will provide US\$150,000 through in-kind contribution. UNDP, drawing upon funds approved under the Multilateral Fund for the Implementation of the Montreal Protocol, will contribute US\$1 million in response to project Outcome 3, for Outcome 4 the IDB will contribute with a US\$15 million unfunded balance sheet commitment to capitalize the PPGM and participating private sector entities, including local banks and other private sector actors, will contribute in the order of US\$48 million, for a total co-financing input of US\$64.8 million. (See Table d).

69. In terms of cost-effectiveness, during the PDF B phase, several possible initiatives to eliminate the EE market barriers in Brazil were taken into consideration. From a technical assistance perspective, the opportunity to build capacity with respect to energy audit preparation was viewed as a valuable tool which would reinforce

development of viable projects, but given the difficulty of implementing such an activity at a reasonable cost, the idea was abandoned.

70. From a financial perspective, initial consideration was given to the idea of putting in place a partial credit guarantee mechanism, as has been supported in other countries by the GEF. However, based on the comments received from the various Brazilian FIs consulted, it became clear that such a mechanism would not be the complete solution to present constraints for EE in buildings, as client risk is not perceived as an insurmountable barrier. Notwithstanding, the introduction of a partial credit risk program, local FIs expressed strong concern about the performance risk of ESCO projects and felt that a performance credit risk program implemented in conjunction with a credit risk program would have a demonstrable positive impact on FI financing or ESCO projects.

71. Based on these considerations, it was decided, through multi-stakeholder consultations, that the most effective measures, in terms of costs and barrier removal, would be those presented in the project under consideration. The estimated total cost of the proposed interventions contained in the project is considered reasonable in order to realize the projected energy and environmental benefits.

72. Considering the projected CO₂ emissions reduction that will result directly, and indirectly, from the project, the estimated unit abatement cost falls in the order of US\$1.40 ton CO₂. This corresponds to all EE projects that will be installed within the 20 year project life, as presented in the Incremental Cost Analysis.

a) **PROJECT COSTS**

Project Components/Outcomes	Co-financing (US\$)	GEF (US\$)	Total (US\$)
1. OUTCOME 1	500,000	1,265,000	1,765,000
2. OUTCOME 2	160,000	1,085,000	1,245,000
3. OUTCOME 3	1,000,000	0	1,000,000
4. OUTCOME 4	63,015,000	10,195,000	73,210,000
5. M&E	0	255,000	255,000
6. Project management budget/cost*	150,000	700,000	850,000
Total project costs	64,825,000	13,500,000	78,325,000

* This item is an aggregate cost of project management; breakdown of this aggregate amount should be presented in the table b) below.

b) **PROJECT MANAGEMENT BUDGET/COST¹²**

Component	Estimated Staff weeks	GEF (US\$)	Other Sources (US\$)	Project Total (US\$)
Project personnel	1,008	504,000	150,000	654,000
Consultants (local + intern'l)		0	0	0
Office equipment		30,000	0	30,000
Travel		95,000	0	95,000
Miscellaneous (incl. rent)		71,000	0	71,000
Budget Total		700,000	150,000	850,000

* Local and international consultants in this table are those who are hired for functions related to the management of project. For those consultants who are hired to do a special task, they would be referred to as consultants providing technical assistance. For these consultants, please provide details of their services in c) below:

UNDP and IDB Administrative Budget: all internal UNDP and IDB Administrative costs will be covered by the IA Fee, No GEF project resources will be used for this purpose.

12 For all consultants hired to manage project or provide technical assistance, please attach a description in terms of their staff weeks, roles and functions in the project, and their position titles in the organization, such as project officer, supervisor, assistants or secretaries.

c) CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Estimated staff weeks	GEF (US\$)	Other sources (US\$)	Project total (US\$)
Personnel	0	0	0	0
Local consultants @1,500 x week	334	400,000	100,000	500,000
International consultants@ 2,500 x week ¹³	180	350,000	100,000	450,000
Total	514	750,000	200,000	950,000

NOTE: see Annex F for details

d) CO-FINANCING SOURCES (US \$)

NAME OF CO-FINANCIER (SOURCE)	CLASSIFICATION	TYPE	AMOUNT (US\$)	STATUS
IADB	Impl. Agency	Balance Sheet Commitment	15,000,000	Confirmed through letter of intent
MMA	Nat. Government	In-kind	150,000	Confirmation in process
BANKS, ESCOS, END USERS, ETC	Private Sector	In-kind	660,000	Confirmation in process
		In cash	48,015,000	Confirmed as per PPGM financial model ¹⁴
UNDP - MULTILATERAL FUNDS (MONTREAL PROTOCOL)	Impl. Agency	In cash	1,000,000	Confirmed through approval by MLF Executive Committee at ExCom 47, November 2005
Total Co-financing			64,825,000	

5. INSTITUTIONAL COORDINATION AND SUPPORT

a) Core Commitments and Linkages

73. The proposed project is in line with the Country Cooperation Framework (CCF) 2002-2006, in which UNDP and the Brazilian Government have committed themselves to sustainable environmental management and energy development. In particular, UNDP will support the research on the utilization of new technologies to generate renewable energy and the promotion of EE. Furthermore, the project is connected to UNDP/Brazil MYFF, fitting Goal 3 on Energy and Environment for Sustainable Development, Result 3 on promotion of low emissions energy technologies including renewable energy, EE and/or advanced fossil fuel technologies.

b) Consultation, Coordination and Collaboration between IAs, and IAs and ExAs

74. The project's IAs and ExA have conducted the necessary consultation, coordination and collaboration arrangements in a participative approach with the stakeholders through a series of meetings, workshops and official communications during the PDF-B process. Discussions with the World Bank, UNIDO and UNEP, specific to the scope of the overall strategy to address these kinds of projects, occurred during an interagency meeting hosted by the Multilateral Fund of the Montreal Protocol. Assistance to different countries to avoid overlaps was discussed. In addition, UNDP participated in the Chiller Conversion: Converting Obligations to Opportunities workshop on 27 September 2005 hosted by the World Bank with MLF funding, at which experiences, barriers, risks and perceived opportunities with respect to EE were discussed. With specific regard

¹³ These costs are indicative, the consultancy work required for the due diligence process of the PPGM will be open for competitive bidding under IDB procedures.

¹⁴ see Annex H

to interaction with the World Bank, complementarily of the respective World Bank and UNDP EE efforts underway in Brazil has been evaluated, with UNDP explaining that the mechanism in question would not replicate, but rather complement the Bank's ongoing efforts in the EE market in-country. During the stakeholders' consultation meeting in Brasilia, hosted by both Ministry of Environment (MMA) and Ministry of Energy (MME), and attended by PROCEL and BNDES representatives, it was confirmed to both MMA and MME that no World Bank financial resources, nor previous GEF resources, would be used to support this project.

75. The PPGM component of the project will benefit from the presence of the IDB as co-IA that will be in charge of supervising the successful implementation and oversight of this financial mechanism¹⁵.

76. Commitments on co-financing and parallel funding have been negotiated during the PDF-B exercise in order to comply with the various project requirements that will be met by the support being requested from GEF. UNDP and the MMA have been coordinating closely with the country's GEF Operational Focal Point resulting to the endorsement of this proposed project.

c) Project Implementation Arrangements

The project will be nationally executed in accordance with standard UNDP national execution guidelines.

77. The executing agency will create, in consultation with UNDP, a National Project Steering Committee (NPSC) that will be established to oversee the global implementation of the project during its entire execution. The NPSC will be composed of senior representatives from the Ministries of Environment, Mines and Energy, Finance, and Public Planning, as well as national banks and various private sector interests (refer to Stakeholder Involvement section).

78. A national Project Management Unit (PMU) that will manage and supervise the global implementation of the project during its entire duration, except Outcome 4, the PPGM, with specific emphasis on the management of the PBI and the capacity building activities of Outcome one. The PMU would have full-time staff members managed by a National Project Director (NPD) who with the support of an assistant will review proposals, clear the work plan (which forms the basis for project execution), monitor activities, manage the project on its day-to-day implementation and report back to the NPSC.

79. The PPGM, under the oversight of IDB, will be managed by a separate and qualified Administrator, engaged through a competitive international recruitment process. The PPGM Administrator will be staffed by highly trained and experienced technical and financial experts with extensive experience in the ESCO industry. This service would be performed under a management contract. The administrative and financial procedures of the PPGM will be established on the basis of IDB experience and due diligence. Furthermore the IDB will oversee the activities of the PPGM ensuring its transparent performance.

80. UNDP will have the overall responsibility of the project implementation with particular emphasis on the capacity building activities of outcome 1 and 2 and the implementation of outcome 3 but it will also play an active role in the implementation of outcome 4 under the oversight of IDB.

¹⁵ In any agency function, there are provisions applicable which reduce the extent of legal liability of the agent towards its partners. Nevertheless, the IDB, as per the Coordination Agreement to be signed with UNDP related to the implementation of the PPGM, the IDB undertakes to "coordinate and assume primary responsibility for the supervision and accountability of the US\$10 million GEF grant for the PPGM including ensuring that annual audits are performed on the PPGM, in accordance with the provisions of the IDB Direct Access to GEF Resources MOU".

ANNEX A: INCREMENTAL COST ANALYSIS

BROAD DEVELOPMENT GOALS

81. The broad development goal of the project is to provide affordable, reliable, and sustainable sources of financing in Brazil to accelerate market penetration of energy efficient technologies for buildings through the removal of various and specific market barriers. The project will contribute to improve EE in the commercial and public buildings sectors by more than 5.617 million MWh directly, and reduce greenhouse gas emissions by in the order of 9.588 Mt CO₂ eq over the same period by catalyzing annual investments that increase EE through application of environmentally sound and energy-efficient alternative technologies. In this sense, the project will also contribute to reducing building operation costs for project owners/operators and reinforce the local economy by decreasing the dependence of the country on imported fossil fuel.

82. The GEF funds will be used to leverage substantial additional private sector capital through the PPGM in order that a sustainable EE market transformation may occur. Successful EE projects funded by the GEF, the IDB and the Multilateral Fund will have a multiplier effect by demonstrating the viable technical and financial benefits of EE ventures in the buildings sector to commercial operators and lenders, thereby making commercial financial resources more widely available in the future.

BASELINE

83. Electric energy use is growing at a rate of approximately 5.7 % (see table 1), per year. Future electric energy demand is expected to be met through natural gas, coal, and hydro resources¹⁶. To meet power demand, while simultaneously avoiding pollution-related impacts, the Government of Brazil is following a three-prong approach: a) introducing wide power sector reforms, including pricing and regulations, to enhance competition and private sector participation; b) encouraging EE and energy conservation measures; and, c) encouraging the demonstration and deployment of renewable energy technologies.

84. The expected expansion in electric power consumption will require an increment in Brazil's installed capacity from 94 GW in the year 2006 to approximately 135 in 2015. This corresponds to an addition of 41GW generating capacity over the 2006/2015 period. Therefore, several different primary sources will have to be utilized for electric power generation.

85. The current market opportunities for EE projects are limited due to a lack of confidence by both the end-user and the lender in the guaranteed energy savings projections provided by ESCOs. Local banks are not familiar with the performance risk associated with energy savings projects and are not willing to consider energy savings as collateral. In addition, EE opportunities in the public sector market are very limited due to existing procurement and contractual barriers.

86. Therefore, it is reasonable to assume that, in the absence of the project's interventions, Brazil's EE efforts would likely remain in their current state or, given the reforms presently underway in the sector, funding for EE enhancement may start to decline as deregulation of the energy sector advances. Under the baseline scenario, demonstration of emerging technologies and market driven EE delivery mechanisms would be restricted. Investments in EE would most likely remain in Government hands, through the use of subsidized loans to state governments and qualifying enterprises.

GLOBAL ENVIRONMENTAL OBJECTIVE

87. The global environmental objective of the Project is to decrease GHG emissions from electricity generation associated with fossil fuel. By increasing EE in building operations, the project will enable Brazil to avoid emissions of about 9.588 Mt CO₂ eq from additional utilization of energy efficient technologies over a 20 year period.

¹⁶ The Hydroelectric Power Option In Brazil Environmental, Technological And Economic Aspects, Ventura Filho, Altino Itaipu Binacional Foz Do Iguaçu, Brazil.

World Energy Council, http://www.worldenergy.org/wec-geis/publications/default/tech_papers/17th_congress/1_2_06.asp#fnB1

GEF ALTERNATIVE

88. The goal of the project is to influence, transform, and develop the market for energy-efficient building operations in Brazil and move towards a less carbon-intensive and more sustainable energy consumption path in the country.

89. This project will foster substantive EE investments in private and public buildings by addressing the technical and financial barriers which persist despite past and present public and private sector programs/initiatives in this domain.

90. The project is expected to have a catalyzing effect by reinforcing the capacity of local ESCOs and, through the PPGM leveraging capital resources through local financing institutions that would otherwise not be available due to the perceived risks in the local EE market.

91. The project proposes to look at five specific aspects of EE promotion in the buildings sector: (i) instigate a knowledgeable EE 'offer and demand' base amongst owners/operators of private and public buildings; (ii) design and implement an EE project for the public sector (PBI); (iii) implement, as part of an integrated approach to EE enhancement in buildings, a pilot project for replacement of inefficient CFC-using centrifugal chillers with EE CFC-free models; (iv) establish a PPGM to stimulate implementation and financing of EE projects through ESCOs in Brazil; and, (v) increase learning by doing and by developing the tools necessary for effective project management and evaluation.

INCREMENTAL COST CALCULATIONS

92. The analysis consists of the comparison between (i) the baseline costs of implementing EE projects in the absence of: capacity development, a PBI program, a pilot program for replacement of inefficient CFC-using chillers, and access to a PPGM; and, (ii) the cost of implementing these projects¹⁷. The scope covers the public and private buildings sectors, including owners/operators, service providers such as ESCOs and other stakeholders, including EE equipment suppliers, electric power suppliers, and others.

93. Within the context of the government's overall development programs the current EE improvement project for the buildings sector will provide significant financial leverage and CO₂ abatement.

94. In order to make an evaluation of the carbon emission reduction that will be generated from the present project, a series of assumptions have been made:

Direct and post direct emissions reductions

95. In a first step, the evaluation of the direct emission reductions was made on the basis that US\$25,000,000 would be made available for the use of the PPGM (US\$10 million from GEF and US\$15 million from the IDB).

96. The US\$ 25,000,000 will be dedicated to be used as a reserve against claims that will be done for not meeting the energy consumptions reductions guaranteed by the ESCOs.

97. In order to evaluate the savings that could be generated from the projects to be guaranteed by the PPGM, we assumed that the average project presented to the facility will need a total investment of US\$500,000 (including interest to be paid on the loan), so generating at least US\$100,000 of savings per year for a period of 5 years. We also assumed that PPGM will only cover 90% of the default, the ESCO assuming the first 10% of non attained savings. A fee of 4% of the amount insured will be asked to be paid by the ESCOs.

98. On the side of the reserve to be maintained to cover the defaults of the different projects, an amount equal to the amount insured by the facility has been assumed to be kept at all times. This figure is highly conservative and could be reduced over time subject to IDB approvals, as required.

¹⁷ including the incremental features associated with the financing scheme, demonstration, dissemination and capacity building programs included in the alternative

99. With the use of all these figures, we have established that it will be possible to cover about 97 projects over a period of 5 years of operation of the PPGM. We assumed the period of 5 years of operation out of the 7 years of the project, since the first year will be used to set up the facility and the last year will be used to transfer the facility in its new form, as presented in the exit strategy of the project.

100. Once the financial savings have been estimated, we made the following assumptions in order to convert them in carbon emissions savings. Based on an increasing penetration factor of the PPGM over the five years period, a 0,125US\$/kwh hour average cost, a downfall of the expected savings of 5% (meaning these investments would not generate any savings), a 20 years lifetime of the energy efficiency measures implemented (but including as well a reductions of the generated savings of 10% after the ESCO has completed its mandate), we evaluated that on a period of 20 years, the PPGM would be able to generate 5.617 million MWh directly of savings. Using the Emission Factor coefficient for Brazil of 0.502 tCO₂/MWh, as recommended in the publication titled ‘Brazilian Greenhouse Gases Emission Baseline from Electricity Generation that enables us to evaluate the direct and post direct emissions reductions for the project at 2.820 Mt CO₂ eq.

Indirect emissions reductions

101. Using the suggested replication default factor of ‘4’ for credit and guarantee facilities proposed by the ‘GEF Manual for Calculating GHG Benefits of GEF Projects’, and a conservative causality factor of 60% (level 3 as stated in the GEF guidelines), we can estimate that the indirect emissions reductions to be generated by the project are equal to:

$$4 \times 2.820 \text{ Mt CO}_2 \text{ eq} \times (0, 6) = 6.768 \text{ Mt CO}_2$$

Global emissions reductions

102. Based on these figures, we can estimate that the global emission reductions to be generated by the present project are:

$$2.820 \text{ Mt CO}_2 \text{ eq} + 6.768 \text{ Mt CO}_2 = 9.588 \text{ Mt CO}_2 \text{ eq}$$

Cost per ton of CO₂ avoided

$$13,500,000 / 9.588 \text{ Mt CO}_2 \text{ eq} = \text{US\$}1.40 \text{ per ton of CO}_2$$

Table 2		
Direct Emission Reduction	20 Year Period	
Total Emission Reduction	2.820	Mt CO ₂ eq
Energy Savings	5.617	million MWh

N.B. the CO₂ emissions from electricity generation has been calculated using Brazilian Baseline Emission Factor¹⁸ of 502g CO₂eq/MWh

Table 3: Total CO ₂ Emissions Reduction from electricity generation (average value of emission factor: 502 gCO ₂ eq/kWh)	
Total CO ₂ emissions reduction over 20years (Direct + Direct post project emissions reduction)	2.820 Mt CO ₂ eq
Total CO ₂ emissions reduction over 20 years (Indirect emissions reductions) factor 4 * 60% (Causality Factor level 3)	6.768 Mt CO ₂
TOTAL CO₂ emissions reduction over 20 years	9.588 Mt CO₂ eq

Summary of costs

In summary, benefits, costs, and increments of the proposed project, as compared with the baseline option, are provided in the following incremental cost matrix:

¹⁸ Brazilian Greenhouse Gases Emission Baseline from Electricity Generation, Rio 02 – World Climate & Energy Event Rio de Janeiro, January 6-11 2002

INCREMENTAL COST MATRIX

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
Domestic Benefits	<p>Under the baseline, domestic benefits would include reductions in local air pollution and reductions in fuel imports for electricity power generation.</p> <ul style="list-style-type: none"> • Current level of energy savings in buildings remains low • Current level for EE technologies, information dissemination, regulations, financing mechanism and capacity are limited • No demonstration projects on EE CFC Free chillers replacement are implemented 	<p>The EE investments in the building sector under the proposed project will improve building operation and reduce energy bill. Building owners/operators, energy services providers and technology suppliers will also improve their capacity to manage energy resources, increasing the quality and reliability of EE services for public and private facilities. Banks will improve lending resources for ESCOs and EE project promoters.</p>	<ul style="list-style-type: none"> • Improved level of services and 1.055 TWh of energy saved • EE barriers removed • Air pollution reduced
Global Environmental Benefits	<p>In the baseline, investments in EE will result in limited reductions in fuel consumption in the public and private building sectors. Investments in EE will develop slowly based on the learning curve of the banking system and potential projects will go unrealized because of a lack of incentives to implement the projects and a lack of capacity among stakeholders to utilize bank credits.</p> <ul style="list-style-type: none"> • Current level of CO₂ emissions remains high 	<p>In the GEF alternative 9.588 Mt CO₂ eq are reduced through investments in energy-savings projects. Experts will provide a centralized source of training and assistance for the PPGM in EE building technology with an overview of the various sources of funding available, increasing the demand for credit resources. Barriers will be reduced or eliminated resulting in CO₂ emissions reduction. There will have increase in the number of viable EE projects able to be replicated in the country and the region</p>	<p>Significant GHG emission reductions are attained.</p> <p>The 20-year CO₂direct reductions are nearly 2.820 million tons.</p> <p>Indirect CO₂ emission reductions projected as a result of this project is 6.768 Mt CO₂</p> <p>Total reduced CO₂ emissions equal to 9.588 Mt CO₂ eq on 20 years estimate period using a 60%GEF causality factor</p>
Costs	US\$ million	US\$ million	US\$ million
Outcome 1: Enhanced EE investments through CB in private & public buildings	0.1	1.86	1.76
Outcome 2: Access to EE services and commercial financing for public sector buildings enhanced with a PBI	0.5	1.75	1.25
Outcome 3: Interest enhanced in the replacement of E-inefficient CFC-using chillers	0.5	1.50	1.00
Outcome 4: PPGM made available to stimulate EE investment through ESCOs	1.0	74.21	73.21
Outcome 5: Project Management and M&E implemented.	0.5	1.60	1.10
Cost Totals	2.6	80.92	78.32

Outcome	Baseline	Alternative	Increment
Outcome 1: Enhanced EE investments through CB in private & public buildings	A continued lack of capacity and awareness among stakeholders, energy services providers, equipment suppliers and financing institutions hinders the identification and implementation of EE projects. While some opportunity exists, the lack of knowledge first, in HVAC operation and other EE technologies, second in loan request preparation makes it difficult to achieve good result.	The project provides a technical assistance to train ESCOs, Equipment Suppliers, Universities, Building owners/operators to facilitate the development of a long-term stream of high-quality EE projects with diversified financing. Available funding is used more efficiently through capacity building of the EE market main actors to lead an increase in demand for EE services and the capacity for the ESCOs to respond to that demand.	High-quality technical support to the ESCOs, Equipment Suppliers, Building owners/operators and Government entities and to energy users throughout the country.
	Cost: US\$0.1 (Invest. Funds from ongoing Project)	US\$0.6 million (Project partner contributions) US\$1.26 million (GEF)	US\$0.5 million (Project partner contributions) US\$1.26 million (GEF / Capacity Building assistance)
Outcome 2: Access to EE services and commercial financing for public sector buildings enhanced with a PBI	The current purchasing mechanism for public sector is lowest cost only.	Introduction of a pilot program to improve EE in Public Building Sector.	<ul style="list-style-type: none"> • Model for PBI designed by half of first year. • Public sector EE Program implementation
	Cost: US\$0.5 million	US\$0.2 million (Project partner contributions) US\$1.55 million (GEF)	US\$0.15million (Project partner contributions) US\$1.1 million (GEF)
Outcome 3: Interest enhanced in the replacement of energy-inefficient CFC-using chillers	The estimate of CFC-based chillers is about 1,000 centrifugal chillers. The barriers to eliminate all the CFC still remain due to the difficulty to raise funds for this purpose.	The project provides a source of expertise and funding to launch a pilot project for the removal of up to 36 CFC-based chillers	High-quality support to the country in the Montreal Protocol implementation process. Results can be used for replication nationwide.
	Cost: US\$0.5 (Ongoing Project)	US\$0.5 million (Government) US\$1.0 million (Multilateral Funds for Montreal Protocol)	US\$1.0 million (Montreal Protocol Allocation)
Outcome 4: PPGM made available to stimulate EE investment through ESCOs	EE financing remains a priority, but fund-raising is not targeted strategically or coordinated. Financing EE activities continues to be dominated by government grants, with continued low disbursement rates for available credits, as state organizations lack skilled personnel and experience of using loan resources to finance EE measures. Few ESCOs can borrow from commercial Banks; they use ANEEL fund and own money or partly client money.	Energy Savings Partial Guarantee Mechanism led to a portfolio of energy saving projects with a high potential for replication. Projects also provide information on techniques that are particularly successful and cost-effective, and information on the projects can be shared with other potential investors. Particular emphasis is placed on the use of loan resources to stimulate cost-effectiveness of EE investments. Key barriers to investments in EE, such as a lack of well-prepared, bankable projects and a lack of awareness of the benefits of investments in EE, have been permanently reduced.	Improvement of quality of energy audits and feasibility studies related to EE systems and CFC-based chillers replacement in buildings. Enhancement of credibility of EE service providers with a performance guarantee, and thus access to financing via commercial banks.
	Cost: US\$1.0 (Invest. Funds from ongoing Project)	US\$49 million (Project partner contributions) US\$15 million (IDB funding for PPGM) US\$10.2 million (GEF allocation for Financial Mechanism &TA)	US\$10.2 million (GEF) US\$15 million (IDB funding for PPGM) US\$48 million (Project partner contributions)
Outcome 5: Project Management and M&E implemented.	Cost: US\$0.5 million	US\$0.3 million (Government) US\$1.3 million (GEF allocation for Financial Mechanism &TA)	US\$0.95 million (GEF) US\$0.15 million (Government)
TOTAL Cost	Total baseline costs: US\$2.6 million from local sources	Total project costs: US\$80.9 million	US\$13.5 million (GEF) US\$64.8 million (co-financing by benefic.) Total Incremental costs: US\$ 78.3 million

ANNEX B: LOGICAL FRAMEWORK – MARKET TRANSFORMATION FOR EE IN BUILDINGS

Project Strategy	Objectively Verifiable Indicators				
<p>Goal: to influence, transform and develop the market for energy-efficient building operations in Brazil and move towards a less carbon-intensive and more sustainable energy consumption path in the country.</p>	<p>With this project Brazil will significantly improve the general conditions in which EE measures are implemented in all economic sectors. Private and public building owners/operators will have the possibility to really take advantage of energy savings in their buildings with the technical and financial support of EE service companies such as ESCOs.</p>				
Strategy	Indicators	Baseline (in the absence of the project)	Target	Sources of Verification	Risk and Assumptions
<p>Project Objective: To foster EE investments in private and public buildings in Brazil.</p>	<ul style="list-style-type: none"> • Increase in the number and in annual revenues of EE project developers • Rate of public and private building owners/operators reported to use ESCOs services to improve their energy consumption (at least 80%) • Number of FI offering energy savings guarantee services (at least 10 FIs) and value (at least \$43.6 M in total) of financed EE investment enabled by the Project, including by local FIs and other sources • Number of new EE implemented projects using the PPGM or other similar mechanism due to the Project 	<ul style="list-style-type: none"> • Very few buildings owners/operators have incorporated EE measures • Govt. buildings operation do not specify minimum EE performance values • Professionals and developers do not understand basic EE principles <p>Financing institutions are not aware on how they can support the development of EE market</p>	<ul style="list-style-type: none"> • Increase in investment in EE for building public and private sectors by US\$ 48 million • Local banking system provide financing in 70% of EE projects 	<ul style="list-style-type: none"> • Bi annual progress report • Independent mid term evaluation • Final Evaluation of the Project 	<ul style="list-style-type: none"> • Govt. adopts necessary institutional I and regulatory framework • Govt. is willing to “lead by example” in adopting EE promotion Plan in its own building • Strong support from professionals and Banks for EE promotion

Strategy	Indicators	Baseline (Year 1)	Target	Sources of Verification	Risk and Assumptions
<p>Outcome 1: Enhanced EE investments through CB in private & public buildings</p>	<ul style="list-style-type: none"> • EE offer fully functional in private building sector • EE offer fully functional in public building sector • EE Product and Service providers trained 	<ul style="list-style-type: none"> • Limited capacity in term of EE offer from local market players 	<ul style="list-style-type: none"> • EE building market capacity building in progress by Yr 1 • Efficiency Improvement in Brazil reinforced by Yr 5 	<ul style="list-style-type: none"> • Project files • Progress Reports • Workshop evaluation reports 	<ul style="list-style-type: none"> • Political support to reinforce the EE market
<p>Output 1.1: Local energy product/service providers capacity strengthened through training events</p>	<ul style="list-style-type: none"> • Number of stakeholders (building managers, entrepreneurs, equipment providers, ESCOs) advised or trained (up to 1400 product/service providers) • Number of transactions supported by the Project's TA services (more than 90) • Feedback on quality and relevance of Project's assistance (80% of beneficiaries rating "very good" the TA) 	<ul style="list-style-type: none"> • Limited capacity of EE product/service providers 	<ul style="list-style-type: none"> • 1400 ESCOs, Equipment providers, Building owner/managers association, Engineers associations, Technical Education institutions and Universities strengthened • Project Management Unit set up by end of Yr 1 	<ul style="list-style-type: none"> • Official govt. publication • Meeting minutes • Project Progress Report • M&E Report 	<ul style="list-style-type: none"> • Gov. of Brazil support the EE project • Professional in EE sector participate to project activities
<p>Output 1.2: EE market players have greater awareness of and interest in implementing EE measures</p>	<ul style="list-style-type: none"> • Number of people from public and private building sectors trained (up to 5000 persons) • Number of stakeholders reached with Project publications (at least 2,000) • Number of unique visitors to Project's Web site (at least 1,000 per month in 6 months after website launch) 	<ul style="list-style-type: none"> • Limited EE activities conducted by the Authorities on EE benefit for market players 	<ul style="list-style-type: none"> • Up to 5000 participants from public and private sector informed on the project benefit 	<ul style="list-style-type: none"> • Project files • Official govt. publications • Awareness campaign evaluation reports 	<ul style="list-style-type: none"> • Gov. of Brazil support the EE project • Professional in EE sector participate to project activities

Strategy	Indicators	Baseline (Year 1)	Target	Sources of Verification	Risk and Assumptions
<p>Outcome 2: Access to EE services and commercial financing for public sector buildings enhanced with a PBI</p>	<ul style="list-style-type: none"> Public building EE tender process PBI Program for Public Building operational by end of project 	<ul style="list-style-type: none"> The current purchasing mechanism for public sector is lowest cost only 	<ul style="list-style-type: none"> Model for PBI designed by end of first year. Public sector EE Promotion plan drafted and submitted to the Gov. for adoption by the end of Yr 2 	<ul style="list-style-type: none"> Official govt. publications M&E reports 	<ul style="list-style-type: none"> Govt. and Public entities willingness to incur additional cost of EE measures
<p>Output 2.1: Enabling institutional framework for EE project development in Public Sector is established</p>	<ul style="list-style-type: none"> Validation of the EE Program for Public Sector with at least 15 RFP per year 	<ul style="list-style-type: none"> Limited institutional capacity to undertake EE promotion Program 	<ul style="list-style-type: none"> Institutional Framework for EE promotion for approval by the end of Yr 2 	<ul style="list-style-type: none"> Official govt. publications Progress Reports 	<ul style="list-style-type: none"> The institutional framework for EE responds to local economic, social and cultural specificities
<p>Output 2.2: EE Projects realized under the ESCO approach by the Government increased ;(Public building owners/ operators have been exposed to PBI program to access EE services and applied its recommendations)</p>	<ul style="list-style-type: none"> Number of ESCOs and building owners/ operators trained on the PBI program (at least 400 persons) Use of the PBI approach for RFP process in public buildings 	<ul style="list-style-type: none"> No tender process for public building under performance contract 	<ul style="list-style-type: none"> 15 RFP a year based on the PBI concept (on average) Number of demonstration project implemented 	<ul style="list-style-type: none"> Bi annual report Mid-term evaluation reports Progress Reports 	<ul style="list-style-type: none"> Enabling EE promotion regulation adopted by the Government to make possible the PBEEETB concept
<p>Output 2.3: CB offered to Public Building Owners/ Operators and ESCOs in developing and implementing selected projects on a pilot basis for public sector buildings</p>	<ul style="list-style-type: none"> CB provided to public building organizations is effective for a demonstration of EE project implementation Number of ESCOs provided with technical assistance to develop public EE projects At least 80% of satisfaction expressed by public building organizations on TA 	<ul style="list-style-type: none"> Limited CB possibilities in EE sector to public building operators/owners Limited experiences in EE in public building projects Limited experience in ESCO projects in public buildings 	<ul style="list-style-type: none"> 5 pilot projects for public building sector by the end of Yr 3 At least 30 ESCOs provided with technical assistance to develop public EE projects 	<ul style="list-style-type: none"> Bi annual report Official govt. publications Mid term report 	<ul style="list-style-type: none"> Public Sector EE reform adopted by the Government to enable ESCO projects

Strategy	Indicators	Baseline (Year 1)	Target	Sources of Verification	Risk and Assumptions
<p>Outcome 3: Interest enhanced in the replacement of energy-inefficient CFC-using chillers</p>	<ul style="list-style-type: none"> Design the full program complying with the Montreal Protocol regarding CFC-based equipment removal 	<ul style="list-style-type: none"> The inventory of CFC-based chillers is accepted as 1,000 centrifugal chillers 	<ul style="list-style-type: none"> Stakeholders trained on CFC based chillers replacement Up to 36 CFC-based chillers replacement demonstration projects using MLF co-financing implemented by the end of Yr 2 Effective promotional program for the replacement of CFC chillers 	<ul style="list-style-type: none"> Bi annual reports Mid term report Technical Publication 	<ul style="list-style-type: none"> Project design responds to Montreal Protocol requirement and local specificities
<p>Output 3.1: TA provided to professionals on EE improvement combined with HVAC equipment replacement</p>	<ul style="list-style-type: none"> Number of professionals trained on replacement of inefficient chillers (CFC and non-CFC) 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> 120 Professionals (ESCOs and Entrepreneurs) in the specific field of chiller replacement (non-CFC and CFC-based chillers). 	<ul style="list-style-type: none"> M&E reports Progress Reports Mid term report 	<ul style="list-style-type: none"> Professionals cooperate with the Project Management Unit Data from monitoring program (see Output 3.3) confirms efficiency gains from demonstration projects
<p>Output 3.2: Technical guides drafted for professionals</p>	<ul style="list-style-type: none"> Number of professionals using practical guides design to assist in CFC-based chillers replacement 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Practical guides published on CFC-based chillers replacement 60 professionals using practical guides 	<ul style="list-style-type: none"> Publication of practical guides 	<ul style="list-style-type: none"> Guideline material developed by Yr 1
<p>Output 3.3: Pilot projects to evaluate the impact of the proposed CFC-based chillers replacement Program</p>	<ul style="list-style-type: none"> Number of demonstration projects (36 CFC-based chillers replaced) Monitoring of energy consumption in sample buildings 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Up to 36 proposed demonstration projects are field implemented to validate CFC-recovery and EE gains 	<ul style="list-style-type: none"> Contracts with operators Monitoring reports 	<ul style="list-style-type: none"> Availability of good testing sites (public buildings for pilot project) Data from monitoring of pilot projects are relevant

Strategy	Indicators	Baseline (Year 1)	Target	Sources of Verification	Risk and Assumptions
<p>Outcome 4: PPGM made available to stimulate EE investment through ESCOs</p>	<ul style="list-style-type: none"> The PPGM is operational Number of ESCOs and/or financial institutions using portfolio guarantees such as the PPGM 	<ul style="list-style-type: none"> Few ESCOs can borrow from commercial Banks; they use ANEEL fund and own money or partly client money 	<ul style="list-style-type: none"> Enhancement of credibility of EE service providers with a performance guarantee, and thus access to financing via commercial banks. 	<ul style="list-style-type: none"> Bi annual report Financial Audits Mid term report Final report 	<ul style="list-style-type: none"> Willingness and interest from Financial Institutions to access the PPGM
<p>Output 4.1: Local banks begin to treat energy savings as collateral in their lending evaluation matrix</p>	<ul style="list-style-type: none"> Number of financial institutions which have defined target segments for EE financing and made relevant changes in internal procedures At least 2 employees in 10 FIs who know how to assess, structure and monitor loans/guarantee to EE transactions 	<ul style="list-style-type: none"> A limited number of EE projects are implemented due to lack of financing, lack of ESCOs' evaluated savings credibility 	<ul style="list-style-type: none"> Drafting of new strategies for each participating FI in Years 1-2 in response to requests from ESCOs and other professionals New financial products available on the EE market by Yr 2 At least 3-5 of financial institutions which have defined target segments for EE financing 	<ul style="list-style-type: none"> Project Report FIs Publication Progress Reports M&E reports 	<ul style="list-style-type: none"> Financing Professionals cooperate with the PMU to develop adequate products for the EE market Information from the ESCOs confirms cost effectiveness of EE measures resulting from demonstration projects
<p>Output 4.2: A new PPGM has been experimented and is fully operational</p>	<ul style="list-style-type: none"> Number of projects approved under PPGM Amount of guarantees provided for qualified projects Number of ESCOs supported by PPGM 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> At least 90 projects approved under the PPGM 	<ul style="list-style-type: none"> Project Report FIs Publication Progress Reports M&E reports 	<ul style="list-style-type: none"> Energy Performance Contract (EPC) models comply with national business regulation
<p>Outcome 5: Project management and M&E implemented</p>	<ul style="list-style-type: none"> Overall project management and coordination 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Timely submission of all project reports Project objectives substantially met 	<ul style="list-style-type: none"> Surveys of key stakeholders and donors 	

Strategy	Indicators	Baseline (Year 1)	Target	Sources of Verification	Risk and Assumptions
Output 5.1: Overall project management support	<ul style="list-style-type: none"> Project objectives and deliverables Alignment of sector policies with objectives of EE project 	<ul style="list-style-type: none"> Minimal integration of EE issues in govt. building programs 	<ul style="list-style-type: none"> Timely submission of all project reports Project objectives substantially met 	<ul style="list-style-type: none"> Surveys of key stakeholders and donors Ministerial policy statements and annual programs 	Willingness of key Authorities to become lead adopters of EE Improvement Program in Brazil
Output 5.2: Project monitoring and Evaluation support	<ul style="list-style-type: none"> One progress report available per year M&E effective on time 	<ul style="list-style-type: none"> None 	100% of planned Project monitoring and evaluation activities completed	<ul style="list-style-type: none"> Annual reports M&E reports 	The PMU is established and fully operational
Input into all Project components					
(a) EE Training	US\$ 1.75 million for TA			Annual PIR reporting	The Project's inputs and timeframe are sufficient to achieve its Objective & Goal
(b) Public Building Initiative	US\$ 1.25 million for TA			Annual PIR (Project Implementation Review) reporting	
(c) Replacement of CFC-based chillers and other appliances	US\$ 1.0 million from MLF to stimulate the EE market			Annual PIR reporting	
(d) PPGM	US\$ 10.2 million GEF funding US\$ 15 million IDB balance sheet commitment (over 48 million co-financing from Local Banks and private sector investors)			Annual PIR reporting	
(e) Project management	US\$ 1.1 million for management and M&E			Annual PIR reporting	

ANNEX C: RESPONSE TO PROJECT REVIEWS

A. CONVENTION SECRETARIAT COMMENTS AND IA/EXA RESPONSE

B. STAP EXPERT REVIEW AND IA/EXA RESPONSE

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September 19, 2006

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1. General Overview

Thank you for the opportunity to review this project. The design of the project has been improved considerably since an earlier version that I first reviewed. These improvements include clarifications such as explaining that non-chiller replacement projects will be eligible for support through the PPGM and using a more realistic CO₂ emissions coefficient to estimate the projected CO₂ emissions reduction. Also, the initiation of the PROESCO credit risk guarantee initiative is a significant development that should help to make the project a success. In general I believe the project is well-designed and that there are good prospects for success, and I recommend approval.

Comments : Responses to specific comments below:

2. Specific comments, observations and questions

STAP Comments	Responses to STAP Comments and Corresponding Changes in the Document (in bold)
<p>1. As the project description states, it costs a lot of money to replace an older chiller with a new chiller and the payback period based on the electricity savings can be long, normally more than five years and in some cases 10 years or more. The idea of combining chiller replacement with more cost-effective efficiency measures such as lighting retrofits has now been fully incorporated into the project design. This should increase the likelihood that building owners will agree to undertake major energy retrofits.</p> <p>I recommend that the interest in and market for chiller replacement be carefully monitored as the project is implemented. Based on this experience, it may be desirable to adjust the project focus over time. For example, if there is interest in chiller replacements in hotels and hospitals but not large office buildings, marketing should be directed to the more receptive sectors. Or if there is little interest in chiller</p>	<p>This project proposes a partial performance guarantee mechanism that is fully market-driven, it will complement the work of credit risk initiatives such as PROESCO of BNDES and support the expansion of the work of ESCOs.</p> <p>It promotes energy efficiency in buildings, including lighting and HVAC systems. As you suggest there may be a tendency from the private sector to concentrate on the more cost effective sectors such as lighting retrofits, nevertheless in the case of hospitals, major savings are to be made in the HVAC systems that make them attractive to ESCOs too. The project is not focusing on promoting one technology against another one, it will use ESCOs as the delivery mechanism and will give them all the flexibility to develop the most comprehensive and interesting project possible for each</p>

<p>replacement entirely, more focus should be given to promoting lighting and HVAC system retrofits. Likewise the balance between marketing to the private and public sectors should be adjusted based on the receptivity of these different sectors and their willingness to implement major energy efficiency projects.</p> <p>I have a concern that the private sector will prefer more cost-effective energy efficiency (EE) measures such as lighting retrofits and will not be very interested in combining these measures with more costly chiller replacement. If this is the case, I recommend figuring out some explicit ways to promote project bundling. For example, the PPGM could prove less guarantee coverage (say 50% maximum) for lighting retrofits and greater coverage (say up to 90%) for HVAC retrofits or projects that combine chiller replacement with other measures.</p>	<p>case.</p> <p>However, as you mention there is need for flexibility and thus a comprehensive monitoring and evaluation system has been included in the project to allow for timely adjustments to ensure that its objectives are fully met.</p>
<p>2. The Public Building Initiative (PBI) is focused on promoting energy performance contracting and ESCO services in the public sector. The use of ESCOs and performance contracting in the public sector is commonplace and successful in other countries such as the United States and Canada. There is great potential for EE improvement in the public sector in Brazil as well, but so far there has been very limited use of ESCOs and performance contracting to implement EE projects in the public sector.</p> <p>But there are very significant legal and regulatory barriers such as the Law 8666 that inhibit performance contracting from occurring in the public sector in Brazil. In order to make the PBI a success it may be necessary to revise these laws and regulations. The PD notes the importance of these barriers and talks about working to remove them. Legal and regulatory reform should be the primary focus of the project in terms of working with the public sector in my view, securing as much support from GOB as is possible. The GOB will need to make these reforms; the project can only provide advice and assistance to the GOB. But the PBI should make use of legal and regulatory experts (consultants) to do draft proposed legal and regulatory changes, for example.</p> <p>Also, I recommend that the PBI look carefully at how success in the public sector has been achieved in other countries including contracting terms, financing mechanisms, and performance verification techniques. This experience should be transferred to Brazil where appropriate. It may be desirable to have foreign experts on performance contracting in the public sector advise the project, or send project representatives abroad to meet with key ESCOs and governmental officials responsible for performance contracting to learn how this success was achieved.</p>	<p>We totally agree with this comment. The PBI component was designed based on the Canadian Federal Building Initiative that initially focused on developing the right legal framework to enable the ESCO concept to be used at the federal level in Canada, and then promoted the concept throughout the federal building managers and operators level, to finally expand to other public sectors such as the provincial and the municipal ones.</p> <p>The PBI has been developed under the assumptions that:</p> <ul style="list-style-type: none"> • For the first years, the initiative would focus essentially on the legal framework to be adopted in Brazil, analyzing the existing laws and regulations and proposing the most feasible modifications. • On a second phase it will promote EE in public buildings by using the ESCO approach and carry out capacity building activities. <p>To implement these tasks there is a provision for TA within PBI that has been reserved to exactly meet the recommendations presented here.</p> <p>We therefore believe that this comment is very relevant and that the proposed approach is fully integrated at this time in the PBI design.</p>
<p>3. With respect to marketing energy efficiency services and in particular chiller</p>	<p>This is a good suggestion that could be promoted through the</p>

<p>replacement to the private sector, one suggestion is to identify multi-national companies that have implemented energy efficiency projects on a wide scale in their home country and urge them to do so in Brazil as well, using ESCOs and performance contracting if they lack the capital and know-how in Brazil. Companies such as Johnson & Johnson, 3M, Dow Chemical, and IBM are well-known for their active pursuit of energy savings in the U.S., and these companies could be good candidates for participation in the project in their operation in Brazil.</p>	<p>training to be provided to consultants and ESCOs as part of Outcome 1 ‘Enhanced EE investments in private and public sector buildings’ and incorporated to the marketing strategy of the same Outcome. Large corporations will be included as a key sector for the promotion of EE in buildings activities.</p>
<p>4. Regarding project implementation, I think it is appropriate to form a National Project Steering Committee (NPSC) with representatives from different agencies. But I think it might be desirable to have a lead agency as well. The lead agency could be responsible for chairing and convening the NPSC, taking the lead in initiating and supervising monitoring and evaluation activities (which should be independent from the PMU since it is the work of the PMU that will be evaluated). I am not sure which agency is most appropriate to be the lead agency, but the agency best qualified and most willing to take on this responsibility should be selected.</p>	<p>The Ministry of Environment will be the leading agency in the NPSC. See PART II of ProDoc ‘Stakeholder Involvement Plan’.</p>
<p>5. In order to increase the chance of project success, I have the following suggestion. Assuming the PMU is a private company (or consortium of companies) hired through a RFP process, I suggest including performance incentives in the contract with this entity. In particular, I suggest limiting the payment to the PMU to cost recover only (i.e., no profit) if the project is not a success in terms of the number and size of EE projects that go forward under the PPGM and BPI. However, if the project is a success, I suggest providing bonus payments to the PMU on a sliding scale. The sliding scale could be designed along the following lines: bonus level 1 at 50% success, bonus level 2 at 75% success, bonus level 3 at 100% success, bonus level 4 at 125% success, and bonus level 5 at 150% or greater success. The bonus levels can be defined as a fraction of the contract size (i.e., bonus level 1 is 2%, bonus level 2 is 4%, etc.). Success can be determined based on either the quantity of EE projects that are implemented (in R\$) or the energy savings achieved (or some combination of the two), with 100% success the levels identified in the PD. This type of bonus scheme has been used successfully in the U.S. when utilities or government agencies have hired contractors to implement complex EE programs. If adopted, the bonus scheme should be based on concrete results such as the level of EE project investment and energy savings, not on intermediate activities such as the number of training courses implemented.</p>	<p>We agree on this suggestion of incorporating a system of performance bonus, indeed the PPGM Term Sheet presented in Part II (page 48) of the Pro Doc, contemplates this idea of performance bonus. Nevertheless, these incentives should focus on the PPGM Administrator and not on the PMU. This because the main function of the national Project Management Unit (PMU) would be to oversee the administration of all activities with specific emphasis on the management of the PBI, while the PPGM Administration will be in charge of performing project appraisals, providing guarantees for qualified projects, monitoring guaranteed projects, etc. The exact modalities of the bonus system for the PPGM Administrator will need to be defined at project inception stage.</p>
<p>6. Regarding the issue of sustainability, I have a question about what happens to the PPGM after the 7-year project ends. What if there is a remaining balance in the PPGM at this time? (Hopefully there will be a balance.) Does this money revert back to the GEF or does it remain in Brazil? If it remains in Brazil, who will get it and what will it be used for? This should be explained in the PD.</p>	<p>There are a number of options that have been evaluated as possible exit strategy for the PPGM, these include:</p> <ul style="list-style-type: none"> • Converting the remaining funds to an EE technical assistance program if by the end of the project, FIs have gained confidence in the value of EE projects in buildings

	<p>in general, and in performance contracting mechanisms in particular, and will be interested in funding these types of projects in an ongoing manner, even in the absence of the PPGM facility.</p> <ul style="list-style-type: none"> • Auctioning the mechanism to a private sector institution. • The funds are transferred to BNDES to be used as a mechanism to reduce the interest rates on loans to be provided through PROESCO or other mechanisms that would aim at promoting energy efficiency projects. <p>The second option has been proposed in the project document because it is expected that the PPGM will generate a positive cash flow by the seventh year of operation which will make it an attractive entity for private ownership and because this option will generate additional leverage of GEF resources.</p> <p>However, the exit strategy will have to be decided by the Project Steering Committee based on the mechanism uptake, market transformation effects and relevance over the years.</p>
<p>7. The proposal does not discuss at any length the potential contribution of distribution utilities to the project. Distribution utilities in Brazil are required to spend a minimum amount of money on promoting energy efficiency by their customers. It could be very valuable to have distribution utilities offer financial incentives to customers who replace older inefficient chillers with new high efficiency chillers as this would reduce the payback period for the building owner. I suggest that the project conduct outreach to distribution utilities and encourage them to participate in this manner, in partnership with this government-led market transformation project. Note that this is different from ESCOs owned by utilities participating in the project as a provider of energy efficiency services.</p>	<p>Distribution Utilities are critical partners for the success of the project, indeed AES Eletropaulo, a utility based in Sao Paulo, has been working closely with UNDP during development of the project and is a key private sector partner that will co-finance the project partly through its ANEEL obligation. Attached in PART I of the ProDoc is the Letters of intent and co-financing of AES.</p> <p>Furthermore, AES Eletropaulo has recently launched the “Integrated solution business concept” to encourage clients to transition to new CFC-free chillers and related systems improvement. AES is interested in launching such a business model in partnership with the GEF and UNDP, not only in the region of Sao Paulo, but also through partnership with other utilities which operate in other areas of Brazil.</p>
<p>8. Regarding the estimated electricity savings and reduction in greenhouse gas emissions, I believe the estimate of potential electricity savings is reasonable assuming the project is successful. The emissions coefficient of 500 kg of CO₂ per MWh of electricity savings is also reasonable in my view.</p>	<p>No response is required.</p>

C. GEF SECRETARIAT AND OTHER AGENCIES' COMMENTS AND UNDP/IDB RESPONSE (Summary)¹⁹

April 2007

Country/Region:	Brazil
Project Title:	Market Transformation for Energy Efficiency in Buildings
GEFSEC Project ID:	2941
UNDP Project ID:	3665
Operational Program:	5
Implementing Agenc(ies):	UNDP/IDB
Anticipated project financing (\$ million):	PDF \$ 0.25 / GEF Project Allocation \$ 13.50 / Total Project Cost: 78.58
Target Work Program Date:	June 2007
Program Manager:	Zhihong Zhang
IA Contact Person:	Marcel Alers/ Suely Carvalho

GEF SEC COMMENTS	UNDP/IDB RESPONSES
Project Design	
<p>Project components/outcomes</p> <ol style="list-style-type: none"> 1. Enhanced EE investments through CB in private and public buildings 2. Access to EE services and commercial financing for public sector buildings enhanced 3. Interest enhanced in the replacement of CFC chillers 4. PPGM made available to stimulate EE investment through ESCOs 5. Project management and M&E <p>The ProDoc gives the outcomes and outputs but lacks description of the specific activities to produce the outcomes and outputs. Further details are needed to describe under each outcome what activities will be financed by GEF and what activities will be (co-)financed by other sources.</p>	<p>The activities of the project are presented below:</p> <p><i>Section IV Part IV and V of the ProDoc provide a detailed list of the training activities under outcome 1 and 2 which focus mainly on capacity building.</i></p> <p><i>The activities for Outcome 3 'Interest enhanced in the replacement of energy-inefficient CFC-using chillers' are the following:</i></p> <ul style="list-style-type: none"> • Technical training to 120 professionals (design engineers, ESCOs, building owners/operators, entrepreneurs, etc.) in CFC-based chiller replacement. • On-the job exercises to professionals on EE improvement combined with HVAC equipment replacement. • Draft Technical guides on CFC-based chiller replacement for professionals; • Implementation of 36 pilot projects to evaluate the impact of the proposed CFC-based chillers replacement program. <p><i>The activities for Outcome 4 'PPGM made available to stimulate EE investment through ESCOs' are the following:</i></p> <ul style="list-style-type: none"> • Carry out the due diligence process • Select the administrator and establish the PPGM • Issue performance guarantees to 97 projects • Implement the exit strategy.

¹⁹ A full version of the responses was provided to GEF Sec on 16th April 2007.

<p>The rationale for the PPGM is to enable banks to accept energy savings guarantees as collateral for ESCO to borrow. Please provide evidence that banks in Brazil are willing and ready to do so, and under what conditions.</p>	<p>According to the regulations of the central bank of Brazil, banks must have certain levels of collateral for each loan issued. According to the Basil Accord II, central banks are required to establish certain capital adequacy requirements for banks. Under Basil II different collateral pledges are given different value based on their credit strength. A local insurance policy from a AA rated insurance company that covers a portion of a loan is given one value while a local performance bond from a single A rated bank would have a different value. Under the UNDP/IDB proposal, the PPGM would be issued by the IDB which has an international AAA rating. This is far superior to a local currency AAA rated insurance product. The international AAA rated insurance would be given dollar for dollar value under the Basil II accord. As such, the banks would be allowed to treat the IDB guarantee the same as cash collateral. This is not a discretionary call by the banks but governed by central bank regulations that are in compliance with the Basil II accord. For more information on the central bank of Brazil regulations please go to www.bcb.gov.br. For additional information on the Basil II Accord please see www.cleo.com/about/basil.asp. <i>See footnote on paragraph 72 of ProDoc and footnote on paragraph 21 of the Executive Summary.</i></p>
<p>On the other hand, ESCOs will need to pay 4% of the amount insured by PPGM. This cost seems rather steep on top of the high interest rates in Brazil. Please provide evidence that such costs would be acceptable to ESCOs.</p>	<p>The 3%-4% premium referred to in the ProDoc is a preliminary estimate only at this stage, prior to due diligence and further structuring, we recognize that it is a rather high fee that may be adjusted downward during project implementation. The IDB/UNDP project team will explore ways of reducing the premium estimate as well as the all-in cost for borrower (e.g. ESCOs or client) including the underlying interest rates charged by the banks, to make sure that the PPGM is a relevant and cost effective resource for the borrower. The question is whether EE projects in Brazil can produce sufficient energy savings to cover debt service and fees Assuming a 16-18% loan with a 4% fee, an EE project would need to produce a minimum of 20 to 22% annual reduction in energy costs to be viable. This equates to a simple payback period of 5 years or less. Based on discussions with local ESCOs, many projects have simple paybacks of 3-4 years or less. Although the high interest rate environment in Brazil and the PPGM fees will reduce the number of EE projects that can sustain the costs of financing, we are confident that the universe of projects in the 3-4 year or less payback period is sufficient to generate adequate deal flow for the PPGM. <i>See footnote on paragraph 70 of ProDoc and footnote on paragraph 19 of the Executive Summary.</i></p>

<p>The project intends to focus on HVAC equipment. How does this square with the eligibility criteria (what are they anyway?) of the PPGM? Would ESCOs engaged in other activities be eligible?</p>	<p>Any project that has the potential to generate EE benefits in buildings would be eligible to access PPGM support, assuming that required financial and technical criteria could be met. As a result, EE projects that target lighting, electricity distribution (transformer, power factor), HVAC (including ventilation, air conditioning, heat exchangers, heat control systems, pumping, steam distribution, boilers, chillers, etc), as well as self-power production, could be eligible. To be as cost-effective as possible, it is likely that ESCOs would bundle many of alternative technologies/processes in there projects.</p> <p>Section IV Part III of the ProDoc ‘Terms and Conditions for The Partial Performance Guarantee Mechanism’ presents the initial eligibility criteria for projects under the PPGM, these include:</p> <ul style="list-style-type: none"> (i) minimum and maximum EE Project and EE Contract sizes, (ii) minimum and maximum Performance Guarantee amounts, (iii) proven technologies, (iv) EE Contract types pre-approved by the Sponsors, (v) EE Projects complying with the IDB’s environmental and social requirements, and (vi) counterparties (ESCOs, Clients and Lenders) fulfilling certain eligibility criteria to be determined, and not involved in activities on the IDB Exclusion List and complying with the Administrator’s integrity screening procedure. <p><i>See footnote on paragraph 68 of ProDoc and footnote on paragraph 17 of the Executive Summary.</i></p>
<p>The title of the chart (p. 19 ProDoc) seems to be a misnomer, since PPGM is not about credit enhancement.</p>	<p>The chart shows the complementarities of the PROESCO program that focuses on credit risk and the PPGM that focuses on performance risk. The final result of these interventions is the increased number of EE projects as a result of the enhancement of credit availability.</p>
<p>For project management arrangements, PPGM is supposed to be under the oversight of IDB, while UNDP has the overall responsibility of project implementation while also playing an active role in implementing PPGM. Such arrangements beg the question about the fiduciary responsibility over PPGM. In fact, according to the terms and conditions of PPGM, IDB is the Guarantor, and Trustee of the GEF grant is the Co-Guarantor ("to be pledged in favor of the Guarantor"). Furthermore, "The Guarantor shall not be deemed a fiduciary for the Co-Guarantor, nor be answerable or accountable under any circumstances for the monitoring of the PPGM or for the actions or inactions of the Administrator." Such clause undermines the very purpose of having a financial institution to jointly implement the project with UNDP,</p>	<p>The IDB will hold the GEF Funds as collateral for the GEF portion of the PPGM guarantees and will also supervise the PPGM Administrator and report to the stakeholders. The PPGM, under the oversight of IDB, will be managed by a separate and qualified Administrator, engaged through a competitive international recruitment process. The PPGM Administrator will be staffed by highly trained and experienced technical and financial experts with extensive experience in the ESCO industry. This service would be performed under a management contract. The administrative and financial procedures of the PPGM will be established on the basis of IDB experience and due diligence. Furthermore the IDB will oversee the activities of the PPGM ensuring its transparent performance.</p> <p>The IDB's Private Sector Department has a successful 12-year history of acting as administrative agent in loan syndicates under its A/B Loan program and has a dedicated Portfolio Management Unit that monitors day-to-day activities of and reporting on the portfolio. The IDB’s Private Sector Department has a current portfolio of US\$3.2 billion of A Loans and US\$3.7 billion of B Loans.</p> <p>In any agency function, there are provisions applicable which reduce the extent of legal liability of the agent towards it partners. Nevertheless, the IDB, as per the Coordination Agreement to be signed with UNDP related to the implementation of the PPGM, the IDB undertakes to "coordinate and assume primary responsibility for the supervision and accountability of the US\$10 million GEF grant for the PPGM including ensuring that annual audits are performed on the PPGM, in accordance with the provisions of the IDB Direct Access to GEF Resources MOU".</p>

<p>if IDB does not take the fiduciary responsibility.</p>	<p>Since both the GEF and the IDB intend to delegate operational decisions to the PPGM Administrator, neither UNDP, GEF nor IDB should be legally responsible for the effects of those decisions on their partners. Nevertheless, in supervising the PPGM Administrator, the IDB will use the same level of care and diligence that it uses in the agency functions that it performs in other transactions with partners. The level of diligence required of the IDB is set out in the IDB Direct Access to GEF Resources MOU dated as of May 19, 2004, which states that "the IDB shall be solely responsible for the administration of GEF funds made available to it and will carry out such administration in accordance with IDB's policies and procedures and with the same degree of care as it uses in the administration of its own funds".</p> <p>The provisions of the IDB Direct Access to GEF Resources MOU are incorporated in the Coordination Agreement and are binding on the IDB. In addition, the Financial Procedures Agreement between the IDB and the IBRD (as Trustee of the GEF) dated as of May 19, 2004 states that, "IADB shall exercise the same degree of care and diligence in the discharge of its functions under this Agreement as it exercises with respect to the administration and management of its own resources."</p> <p><i>See paragraph 131 and footnote on section IV part III under Monitoring of PPGM of ProDoc and footnote on paragraph 75 of the Executive Summary.</i></p>
<p>In addition, the guarantee structure seems very unfavorable to the Co- Guarantor in terms of both call on a performance guarantee, the ranking of recovery right against the ESCO, as well as reimbursement obligations of the Co-Guarantor to the Guarantor. Risk exposure to the GEF grant seems excessive; there needs to be a reasonable risk-sharing mechanism.</p>	<p>The risk to be assumed by the GEF grant in the PPGM is well mitigated under the proposed structure. Firstly, the GEF funds are not exposed to construction or installation risk, since the PPGM Guarantee will be effective only after acceptance of the project. Secondly, the ESCO will absorb the first layer of losses. ESCOs eligible for PPGM support should be highly incentivized to perform because of their financial exposure under the PPGM. Thirdly, the step in rights that the PPGM Administrator should have (i.e. to replace a defaulting ESCO), as well as benefits from performance guarantees and liquidated damages from equipment manufacturers, mitigate the risk of losses under the PPGM in excess of the first layer of amounts defaulted on by the original ESCO.</p> <p>Under the Bank's policies, the IDB cannot guarantee instruments other than debt, therefore any guarantees covering savings to the client that do not represent debt service would have to be covered by the GEF grant. In general, the IDB's position in respect of the GEF funds is considered appropriate since this is the IDB's first project as a guarantor of energy efficiency performance risk and technology risk. A successful track record due to a high level of risk mitigation and a reduced likelihood of loss in this initial operation should allow the Bank to participate in future energy efficiency projects in its Borrowing Member Countries and possibly replicate the PPGM.</p> <p><i>See footnote 26 on section IV part III of ProDoc under Ranking and footnote 21 of the Executive summary.</i></p>
<p>The coverage of due diligence costs by interest income of the GEF grant and payment of the Administrator by interest income (under what terms?) are also questionable.</p>	<p>Interest income on the GEF funds prior to activation of the PPGM are surplus to the US\$10 million required to be available during the operational period of the PPGM, and provides a resource for the project to pay for their due diligence experts, which are critical to structuring and implementing the PPGM. Normally, the IDB's due diligence expenses are borne by its clients. In the case of the PPGM, there is no specific client-</p>

<p>What are the implications on the incentives to the Administrator to generate deals, manage the risks, and conduct due diligence?</p>	<p>counterpart to pay for such due diligence and structuring, as this was an initiative of the UNDP and IDB.</p> <p>Partially linking the remuneration of the PPGM Administrator to the interest generated on the GEF grant is a valid way of ensuring that the PPGM Administrator is highly incentivized to maintain the full level of the GEF grant deposit by (a) selecting sound ESCOs and projects where the guarantees are unlikely to be disbursed, and (b) pursuing all available remedies prior to having to pay out under a guarantee. The use of the GEF deposit interest also contributes to the self-sustainable nature of the PPGM - as principle, interest and premium income should be sufficient to provide remuneration for the PPGM Administrator, without the need for an ongoing subsidy from a source outside of the PPGM. The IDB's Private Sector Department's policy is to support self-sustainable entities.</p> <p>Furthermore, the Administrator will be selected through competitive bidding and pre-established performance criteria will be established and the IDB would have full authority to remove the PPGM Administrator for failure to reach these performance criteria or for breach of any obligations that would be set out in the PPGM administrator's contract. We are convinced that this system ensures that the Administrator will have clear incentives in achieving the proposed results of the project. <i>See paragraph 85 and footnote 16 of the ProDoc.</i></p>
<p>The cover page of the ProDoc still gives only UNDP as the project's IA.</p>	<p>Acknowledged</p>
<p>Monitoring and Evaluation</p>	
<p>SMART indicators need to be developed for all project activities. Some of those presented in the Annex do not confirm to this requirement. Please check and revise. Examples: 1. Under output 1.1 "1400 ESCOs, etc. strengthened": This is not measurable. 2. Under output 2.2 "number of demonstration project implemented": This is not a target.</p>	<p>The SMART indicators will be developed before final submission</p>
<p>Furthermore, given the 7-yr duration of the project, it seems necessary to develop mid-term indicators and targets.</p>	<p>Acknowledged, also these indicators will be developed before final submission</p>
<p>UNDP-MLF: 1m IDB: 15m Govt: 150k Total: 78.3m The project budget needs to specify the amount of cash vs. in-kind for each source</p>	<p><i>Please refer to tables 6 and 7 of the ProDoc that provides the requested information.</i></p>

and component.	
Please clarify in the budget tables what activities will be financed by GEF and what activities by (which) co-financing sources.	<i>Please refer to table 8 of the ProDoc which has been modified to include a column with the source of funding.</i>
For components 1 and 2, please clarify what the 2 personsx20kx7 yrs will be used for.	<p>Outcome 1 ‘Enhanced EE investments through Capacity Building in private and public sector buildings’ aims at developing best practice capacity in Brazil in the identification, formulation, implementation and management of EE projects in the buildings sector. (See Section IV, Part IV of the Pro Doc for details of the capacity building program). Since this capacity building component is very large and comprehensive, targeting administrators/owner buildings (800), technical staff of buildings (1,400), service providers (consultants and ESCOs) (1,800), architects and engineers (800), and Banks and other Financial institutions (400), for a total of 5,000 trainees from different areas in Brazil. The training should be distributed around the country in at least 2 cities of each geographical region. Therefore it has been estimated that the coordination needs and complexity of the logistics of the whole component requires 2 full time managers.</p> <p>Outcome 2 ‘Access to EE services and commercial financing for public sector buildings enhanced with a Public Building Initiative’ focuses on the elimination of barriers specific to the implementation of EE projects in public buildings and facilities.</p> <p>For this component two managers are envisaged: One will concentrate in the coordination of the activities related to removing the existing legal and contractual frameworks obstacles where third party financing, either in the form of leasing or through a performance based contracting approach, is concerned. The second manager will focus his/her activities on the coordination of the training activities (See Section IV, Part V of the Pro Doc for details of the capacity building program) to remove the following barriers a) lack of human resources trained to promote EE investment projects; and b) lack of technical personnel with appropriate knowledge on how to implement EE projects. The capacity building program aims at training 1,600 people on 8 different topics and therefore a full time manager has been considered to be necessary.</p> <p><i>See foot notes on table 8 of the ProDoc</i></p>
Please specify (and justify) the budget for printing, communication, travel, etc., instead of lumping them together.	<p>Outcome 1 Printing: 5,000 trainees @ US\$10 per trainee = US\$50,000.00 Communications: US\$200 per month x 7 years= aproxUS\$17,000.00 -Office Miscellaneous US\$150 per month x 7 years= aproxUS\$13,000.00 Travel: -Trainers 25 different courses in 10 cities @ US\$500 (average) per trip = US\$125,000.00 - Managers 50 trips @ US\$500 (average) per trip = US\$25,000.00 Total: US\$230,000.00</p> <p>Outcome 2 Printing: 1,600 trainees @ US\$10 per trainee = US\$16,000.00 Website: = US\$15,000.00 Publications = US\$3,000.00 per year = US\$21,000.00 -Office Miscellaneous US\$165 per month x 7 years= aproxUS\$14,000.00</p>

	<p>Communications: US\$350 per month x 7 years= aproxUS\$30,000.00 Travel -Trainer 8 different courses in 10 cities @ US\$500 (average) per trip = US\$40,000.00 - Managers 10 trips per year @ US\$500 (average) per trip = US\$70,000.00 Total: US\$206,000.00</p> <p>Outcome 5 Printing -Publications = US\$6,500.00 per year = approxUS\$45,000.00 -Office Miscellaneous US\$250 per month x 7 years= aproxUS\$21,000.00 Communications: US\$700 per month x 7 years= aproxUS\$60,000.00 Travel - Managers 10 trips per year @ US\$500 (average) per trip = US\$70,000.00 Total: US\$196,000.00 <i>See budget details on table 8 of the ProDoc.</i></p>
<p>Project management M&E costs seem quite high for this project (cost of PPGM Administrator is covered separately). Together with the CB components, at least 8 staff will be hired full-time for 7 years. What is the justification for GEF to pay for such costs with little government cofinancing?</p>	<p>The cost of the management component without M&E is 850,000 out of which only 700,000 are GEF contribution. This amount corresponds to 5.2% of the GEF contribution and less than 1% of the total project costs. The PPGM administrator’s fees will be linked to a commission structure that is part of the business model of the same PPGM and thus it should not be consider as an extra managerial cost to the project. Regarding the staffing requirements of the project, given the labor intensive nature of outcomes one and two which are mainly focusing on Capacity Building activities in a large country like Brazil we believe that 2 managers will be required to carry out the tasks under each outcome (see explanation above). Furthermore, given the complexity of the project management resulting from the number and type of institutions involved we believe that the one project director and an assistant director will be needed. Please note that the salary level estimated for the managers is very reasonable at US\$20,000.00 per year making it cheaper than hiring a consultant for the same function on a part time basis. <i>See table 3 and table 8 of the ProDoc and Annex E of the Executive Summary.</i></p>
<p>For M&E, it seems difficult to justify the high cost of baseline and end of project study (100k) (shouldn't this be covered by PDF and final evaluation?) and measurement of project progress (150k). Also, the cost of field visits by government representatives (45k) should be covered by government cofinancing.</p>	<p>The M&E work plan has been modified based on your suggestions, (see Annex E) reducing its budget from 450,000 to 255,000; funding for end of project study has been removed, measurement of project progress was reduced from 150,000 to 50,000 and funding for visits deleted. Please note that 50,000 for baseline study were left because the PDF resources have been used for other aspects in the design of the proposal. <i>See table 3 of the ProDoc and Annex E of the Executive Summary.</i></p> <p><i>The balance of funds from the reduction of the budget of M&E has been incorporated to the budget of Outcome 4 to cover some of the due diligence costs.</i> <i>See table 8 of the ProDoc.</i></p>

UNEP Comments	UNDP/IDB RESPONSES
<p>The main element of the proposed project is the creation of a guarantee facility for ESCOs (the PPGM). There is no doubt that ESCOs are essential market players in the framework of an energy efficiency policy directed to the building sector, and UNEP strongly supports activities designed to reinforce ESCOs role and positioning in this respect. However, it is highly debatable whether the creation of a PPGM is the most appropriate approach: actually, the role of an ESCO is precisely to provide performance guarantees and the creation of a guarantee instrument to guarantee the ESCO performance makes in fact the ESCO useless. In addition, structurally such a guarantee instrument using grant money is not sustainable and there is no evidence the guarantee issuance period of five years will effectively lead to a change in the lending attitude of the banks.</p>	<p>All GEF guarantee mechanisms including partial credit are supported with grant funds. To accept this logic is to discontinue the use of GEF funds as credit enhancements.</p>
<p>It is not true that ESCOs are prevented from developing their business due to the lack of confidence of end-users: in reality these end-users do not take risks through an EPC approach.</p>	<p>This is incorrect. The customer takes the risk of lack of performance if the ESCO is financially unable to make payments to the customer if the project fails to achieve projected energy savings. This risk is real in Brazil and is one reason customers are reluctant to accept a guarantee from a local ESCO as they question the ESCOs capacity to compensate for lost savings. In fact many customers are concerned that the ESCO may not be around for the life of the project.</p>
<p>What impedes the development of ESCO approaches in the public building sector are regulatory issues, i.e.: i) the impossibility of using an operational budget line to pay for a service including an investment and ii) procurement issues which makes cumbersome and sometimes impossible the selection of an ESCO. It is advised the project should focus more on these issues.</p>	<p>These are indeed issues that serve as impediments to ESCO development in particular countries. However, it has been demonstrated in several countries that promotion of the ESCO concept and regulatory reform alone have failed to create a vibrant ESCO market and have failed to result in local financial lending for ESCO projects. This Brazil project takes a more holistic approach by combining policy and regulatory reform with financial innovation.</p>
<p>The key issue for ESCOs in Brazil is their lack of financial surface and their poor creditworthiness. The solution for this is to foster the participation of healthy institutions in the capital of these ESCOs (for instance, banks, as it has happened in Eastern Europe) or to support the creation of equity or quasi equity funds, which could invest in the development of this business.</p>	<p>This was done with the use of GEF grants to provide a partial credit guarantee, an approach condemned by UNEP in the previous paragraph.</p>
<p>These would be more sustainable approaches than the creation of a short term action PPGM</p>	<p>There are several countries where equity funds for ESCOs have been created that have failed to generate a viable ESCO industry. These equity funds must leverage debt financing to be viable. Without local commercial bank lending for ESCO projects the equity funds can not achieve their objectives. Creation of additional equity funds will not address this problem.</p>

	<p>A number of new equity funds have been created in the last few years for renewable and energy efficiency projects. Although the growth in these funds has been tremendous in recent years very few equity funds of this nature have found investing in ESCO projects profitable due to the lack of local debt for ESCO projects.</p> <p>Equity requires debt to be effective. In most projects the debt/equity ratio is 80/20, that is, every 1 dollar in equity requires 4 dollars in debt. Creating additional equity funds will not address the funding gap confronted by local ESCOs in Brazil. The PPGM is designed to mobilize local bank debt financing for ESCO project which is the key financial barrier to ESCO project implementation.</p>
<p>It should be also noted that a guarantee facility is much more complicated to administer and manage than one could imagine. There are difficult issues regarding exactly which risks are covered and which are not, and how they can be analyzed and measured, and to which extent they will be covered.</p> <p>This always leads to a lengthy and cumbersome process as was illustrated by the HEECP project in Hungary, and as a result to high transaction costs, discouraging for the guarantee users and for the facility itself. Actually, this project by project approach is in contradiction with the ESCO concept which is to bundle a series of small scale projects and therefore to access financing under the form of credit lines ESCOs can tap according to the needs. Again, the possibility to do so will only come from a strengthened credit worthiness through capital increase.</p>	<p>These are the very issue that ESCOs and customers must address in striking a performance guarantee agreement between the ESCO and client.</p>
<p>Due to the reasons mentioned above, the main risk with such a facility is that in the end the main beneficiary is the Administrator through the perceived fees.</p>	<p>The true beneficiaries of this program will be the local ESCOs in Brazil who were consulted extensively during this program design and who strongly support the performance guarantee program.</p>

ANNEX D

MODEL EE PROJECT CASH FLOW

The chart below provides an overview of the cash flow of a typical EE project with guaranteed savings of US\$500,000 over 5 years, and how the PPGM would work. It highlights how the ESCO remains financially liable for the performance of the project under the PPGM. This simulation presents one possible scenario assuming 100% PPGM guarantee coverage of a bank loan financing 90% of project costs. It is important to note that the share of energy savings due to return to the ESCO is not covered by the performance guarantee and that the ESCO is liable to the guarantors for any amounts disbursed under a PPGM guarantee, hence a 100% risk allocation would be assumed by the ESCO.

PPGM Cashflow Example

Project capital cost	271,308	including finance costs
Bank finance %	90%	of project cost
ESCO equity %	10%	of project cost
Bank loan principal	244,177	
Bank debt service	372,869	principal and interest
ESCO equity	27,131	
Tenor	5	years
Bank interest rate	16%	p.a.
ESCO profit	10%	of energy savings
Client saving	10%	of energy savings
PPGM gtee coverage to bank	100%	of debt service 372,869
Energy savings amount	500,000	EE contract amount

Cashflow split	Year	1	2	3	4	5	Total
Total energy savings	100%	100,000	100,000	100,000	100,000	100,000	500,000
Client savings	10%	10,000	10,000	10,000	10,000	10,000	50,000
Debt service to bank	75%	74,574	74,574	74,574	74,574	74,574	372,869
ESCO equity recovery	5%	5,426	5,426	5,426	5,426	5,426	27,131
ESCO profit	10%	10,000	10,000	10,000	10,000	10,000	50,000

29. Under this example, the client's retains 10% of the total energy savings amount. The next 75% of energy savings cashflow is used to service the bank debt, with the next 5% being used to recover the ESCO's equity investment in the project costs (the amount not financed by the bank), and the final 10% being the ESCO's profit. While the 10% client savings and the amount of the debt service to the bank would be guaranteed under the PPGM, the 15% used to pay the ESCO is not guaranteed, creating an incentive for the ESCO to meet its obligations. In this example, the project would have to underperform by 15% to trigger a PPGM guarantee payment.

This structure places a strong incentive on the ESCO to meet projected energy savings or lose income. It also creates a strong incentive for the ESCO to quickly remedy any shortcoming in performance at the earliest possible moment. Energy savings will be certified through a Monitoring and Valuation protocol based on The International Performance Measurement and Verification Protocol (IPMVP)²⁰ to ensure transparency in the process.

²⁰ www.ipmvp.org

ANNEX E: Indicative M&E work plan and budget

Type of M&E activity	Responsible Parties	Budget US\$	Time frame
Inception Workshop/ Annual Work Plan finalization	<ul style="list-style-type: none"> ▪ NPSC ▪ Project Team ▪ UNDP CO ▪ Hired consultant 	15,000	Annually, first SPM immediately following approval of Phase II
Baseline Study of Project Indicators	<ul style="list-style-type: none"> ▪ PMU ▪ Hired consultant 	50,000	Start and end of project.
Measurement of Means of Verification for Project Progress and Performance (measured annually)	<ul style="list-style-type: none"> ▪ Oversight by UNDP-GEF RCU & NPD ▪ Counterpart organizations in the field or hired consultants on an as-needed basis 	50,000	Annually prior to APR/PIR and to the definition of annual work plans
APR-PIR	<ul style="list-style-type: none"> ▪ PMU ▪ UNDP-CO ▪ UNDP-GEF 	0	Annually
Steering Committee Meetings	<ul style="list-style-type: none"> ▪ NPD ▪ UNDP CO 	0	Following Project IW and held regularly
Technical reports	<ul style="list-style-type: none"> ▪ NPD/PMU 	As part of project activities	To be determined by Project Team & UNDP-CO
Mid-Term Evaluation	<ul style="list-style-type: none"> ▪ NPD/PMU ▪ Hired consultants 	50,000	Mid project
Final External Evaluation	<ul style="list-style-type: none"> ▪ NPD/PMU ▪ UNDP-CO ▪ UNDP-GEF RCU ▪ External Consultants (i.e. evaluation team) 	50,000	At the end of project implementation
Terminal Report	<ul style="list-style-type: none"> ▪ NPD/PMU ▪ UNDP-CO 	As part of project activities	At least one month before the project's end
Lessons learned	<ul style="list-style-type: none"> ▪ NPD/PMU ▪ UNDP-GEF RCU (suggested formats for documenting best practices, etc) 	30,000	Yearly
Audit	<ul style="list-style-type: none"> ▪ UNDP-CO ▪ NPD/PMU 	10,000	Yearly
Visits to field sites (UNDP staff travel costs not included as will be charged to IA fees)	<ul style="list-style-type: none"> ▪ UNDP CO ▪ UNDP-GEF RCU (as appropriate) ▪ Government representatives 	0	Yearly
TOTAL INDICATIVE COST Excluding project team staff time and UNDP staff and travel expenses.		US\$255,000	

Note: refer to Section II of ProDoc for full details of the budget including Outcome 5 'Project Management and M&E'.

ANNEX F

Roles and functions of consultants involved in M&E activities

	Title	Roles and functions	Weeks
1	Facilitator	A national specialist in facilitation. His/her function will be to facilitate the Inception Workshop and Annual Work Plan finalization.	3
2	Monitoring expert	A national specialist in project monitoring with experience in the energy sector. His/her function will be to work on the baseline and end-of project study of project indicators.	20
3	Monitoring expert	A national specialist in project monitoring with experience in the energy sector. His/her function will be to work on the measurement of means of verification for project progress and performance (measured annually).	30
4	Mid term evaluators	A team of international/national specialists in project evaluation with experience in the energy sector. Their function will be to carry out the Mid Term Evaluation	10
5	Final Evaluators	A team of international/national specialists in project evaluation with experience in the energy sector. Their function will be to carry out the Final Evaluation	12

Roles and functions of consultants for Special Tasks

	Title	Roles and functions	Weeks
1	Technical consultant expert in EE for the PPGM	To define the technical issues underpinning the financial instrument (i.e. the EE projects that will be financed by the ESCOs); to work with counsel in specifically defining the nature of performance risk coverage; assist in the development of project and ESCO eligibility criteria; to identify the exact requirements and TOR for the PPGM administrator, to assist in drafting and launching the RFP process to recruit a candidates for PPGM Administrator, this post including the evaluation of the bids received (although IDB will lead, UNDP will participate in this selection process).	30
2	Market consultant for PPGM	To analyze and verify the demand/market for the PPGM; To assist in the development of pre-launch marketing and suggest best ways to market the product (“the performance guarantee”) PPGM to various clients (e.g. ESCOs, banks).	20
3	Legal consultants for PPGM	To provide legal advise on during the whole due diligence process for the structuring and establishment of the PPGM, including, but not limited to. In particular: (i) comprehensive assessment of legal risks involved in the PPGM; (ii) assess the use of equipment warranties of equipment; (iii) draft contracts (preferably a standard set of template contracts to be used for transactions between ESCOs and their clients); (iv) drafting of the performance guarantee agreement and the reimbursement agreement; (v) drafting of inter-creditor agreement between IDB and the GEF trust; (vi) detailed description of procedures to follow in case of defaults (who should pay what and who and in what order/proportion); (vii) define the eligibility criteria for projects and guarantees (in collaboration with the technical expert); (viii) assess the regulatory risk of the local Brazilian market; and (ix) preparation of a detailed term sheet for discussion with ESCOs and banks regarding the PPGM. Other legal documents to be prepared include: <ul style="list-style-type: none"> • An PPGM Administration Agreement; • A Master Reimbursement Agreement between the Guarantor and the Co-Guarantor (if required); • A form Reimbursement Agreement between the Guarantor, the Co-Guarantor and the ESCO; • An Inter-creditor Agreement; • Any other legal contract needed. 	50

4	Energy Efficiency Specialists (ESCOs)	To provide technical assessment of ESCO projects under the PPGM administrator.	100
5	Energy Efficiency Specialists (Chillers)	To provide technical assessment of old inefficient chillers and their successful replacement under the supervision of the PMU Director on Outcome 3 of the project funded by the Montreal Protocol.	80
6	Energy Contract Lawyer	To provide the necessary legal advise to PMU Director on Outcome 3 of the project funded by the Montreal Protocol. The lawyer will be specialized in energy contracts.	30
7	Energy Commercialization Specialist	To work at policy amendments that allow organizations to enter into energy performance contracts under their own authority in much the same manner as they currently pay their energy bills;	20
8	EE Legal Specialist (PBI)	To identify the obstacles to existing legal and contractual frameworks where third party financing, either in the form of leasing or through a performance based contracting approach, are concerned. To develop an EE services procurement process specific to, and accessible by, public sector building owners, taking into consideration the legal and contractual environment specific to Brazil; To provide model contracting and assessment documents. These model documents will include requests for proposals, actual energy performance contracts, environmental assessments and other necessary policy and legal processes	60
9	EE Technical advisor (PBI)	To support on the development of a successful Energy Performance Contracting (EPC) mechanism to enable the use of such an approach in the public sector in Brazil. To provide a list of pre-screened private-sector firms qualified to bid for energy performance contracts. To produce an in-depth study on the typical costs, electricity savings and payback periods for different types of buildings and regions in the country.	24
10	EE Specialists	To provide technical assistance to Public Building Owners/ Operators and ESCOs in developing and implementing selected projects on a pilot basis for public sector buildings.	100
		TOTAL	514

ANNEX G

Terms and Conditions for THE PARTIAL PERFORMANCE GUARANTEE MECHANISM “PPGM”

Partial Performance Guarantee Mechanism (“PPGM”)	
Sponsors	United Nations Development Program (“UNDP”) and the Inter-American Development Bank (“IDB”).
Guarantee Facility	<p>Partial Performance Guarantee Mechanism (“PPGM”) for the issuance of Performance Guarantees in respect of energy efficiency projects (“EE Projects”) implemented by qualified Energy Savings Companies (“ESCOs”) and their clients (“Clients”) in Brazil, evidenced by energy efficiency implementation contracts (“EE Contracts”). The EE Projects will comply with the Eligibility Criteria.</p> <p>It is anticipated that the proposed PPGM will consist of two guarantee tranches: (a) US\$10 million Global Environment Facility (“GEF”) guarantee facility, 100% backed by a cash reserve fund provided by a GEF grant to the IDB; and (b) US\$15 million IDB Partial Credit Guarantee (“PCG”) facility, in local currency equivalent, backed by the IDB’s AAA credit rating.</p>
Beneficiaries	(a) Brazilian banks (“Lenders”) lending to ESCOs or Clients, for up to 100% of the loan amount, using the EE Contract as collateral, and (b) Clients, for the energy savings guaranteed to them by the ESCO under the EE Contract.
Eligibility Criteria	To be determined by the Sponsors, and expected to include (i) minimum and maximum EE Project and EE Contract sizes, (ii) minimum and maximum Performance Guarantee amounts, (iii) proven technologies, (iv) EE Contract types pre-approved by the Sponsors, (v) EE Projects complying with the IDB’s environmental and social requirements, and (vi) counterparties (ESCOs, Clients and Lenders) fulfilling certain eligibility criteria to be determined, and not involved in activities on the IDB Exclusion List and complying with the Administrator’s integrity screening procedure.
Administrator	To be selected jointly by the Sponsors, through competitive bidding, to administer the PPGM. The Sponsors will develop detailed governance, oversight, reporting and operating procedures, including pricing and diversification guidelines, to be followed by the Administrator for the PPGM. The Administrator will review project proposals for satisfaction of Eligibility Criteria and request issuance of Performance Guarantees by the Guarantor. The Administrator will have an environmental and social procedure (to be defined) to ensure that the EE Projects being guaranteed comply with the IDB’s environmental and social requirements, and an integrity screening procedure (to be defined), to ensure that the Sponsors do not incur any reputation risks. The Administrator will be responsible for monitoring the portfolio of Performance Guarantees issued, keep appropriate books and records, and will provide periodic reports to the Guarantor.
Guarantor of Record	IDB (the “Guarantor”). The Beneficiaries will each receive a single Performance Guarantee issued by the IDB.

Co-Guarantor	Trustee of US\$10 million to be deposited and maintained in US Dollars by the GEF in a Trust Account to be pledged in favor of the Guarantor for as long as PPGM remains in effect.
Monitoring	<p>The Guarantor will monitor the PPGM through the reports of the Administrator and will make the reports available to the Co-Guarantor. The Guarantor shall have the right to review the operations and financial records of the Administrator and to appoint a independent auditor for the purposes of performing an audit on the books of the Administrator, to inspect the procedures used to recover defaulted Eligible Projects and to review the operations of the Administrator for the purpose of developing and enhancing best practices and implementing improvements based on the Administrator's record.</p> <p>The Guarantor shall exercise the same degree of care and diligence in the discharge of its responsibilities herein as its exercises with respect to the monitoring of its Private sector projects²¹.</p> <p>The IDB, as per the Coordination Agreement to be signed with UNDP related to the implementation of the PPGM, the IDB undertakes to "coordinate and assume primary responsibility for the supervision and accountability of the US\$10 million GEF grant for the PPGM including ensuring that annual audits are performed on the PPGM, in accordance with the provisions of the IDB Direct Access to GEF Resources MOU".</p>
Availability Period	<p>The period during which the Administrator may issue Guarantees will be 5 years.</p> <p>During the Availability Period the PPGM Administrator will receive requests from ESCOs, Clients or Lenders, for the issuance of Performance Guarantees in respect of EE Projects. As long as the EE Projects meet the Eligibility Criteria, and there are sufficient funds in the Trust Account, the Administrator will request the Guarantor to issue Performance Guarantees. The Administrator's request must demonstrate that the Eligibility Criteria have been met and must be accompanied by an information package, contents to be agreed, and expected to include information on the counterparties and a description of the EE Project. The Guarantor will issue the Guarantee within [10] business days of receipt of the request from the Administrator.</p>
Maximum Performance Guarantee Tenor	Each Performance Guarantee will have a final expiry date of no more than 7 years after issuance.
Performance Guarantee Structure	<p>While each Performance Guarantee will be a single seamless guarantee in favor of each Beneficiary, it will consist of at least the B Tranche and up to three Tranches, as follows:</p> <p>Tranche A: up to 50% of the bank loan amount in favor of the Lender, unfunded and backstopped by the IDB's AAA credit rating;</p> <p>Tranche B: up to 50% of the bank loan amount in favor of the Lender, funded and 100% backstopped by funds in the Co-Guarantor's Trust Account;</p> <p>Tranche C: the energy savings guaranteed to the Client under the EE Contract, 100% backstopped by funds in the Co-Guarantor's Trust Account.</p>
Ranking	<p>Upon a call on a Performance Guarantee by a Beneficiary, the order of disbursement will be as follows²²:</p> <p>First: Tranches B and/or C</p> <p>Second: Tranche A</p> <p>The ranking of recovery rights against the ESCO will be as follows:</p> <p>First: Tranche A</p> <p>Second: Tranches B and/or C</p> <p>This arrangement will be reflected in an Intercreditor Agreement between the Guarantor and the Co-Guarantor.</p> <p>The Guarantor and the Co-Guarantor may instruct the Administrator to enforce and implement their respective recovery rights against the ESCO.</p>

²¹ The provisions of the IDB Direct Access to GEF Resources MOU are incorporated in the Coordination Agreement and are binding on the IDB. In addition, the Financial Procedures Agreement between the IDB and the IBRD (as Trustee of the GEF) dated as of May 19, 2004 states that, "IADB shall exercise the same degree of care and diligence in the discharge of its functions under this Agreement as it exercises with respect to the administration and management of its own resources."

²² The risk to be assumed by the GEF grant in the PPGM is well mitigated under the proposed structure. Firstly, the GEF funds are not exposed to construction or installation risk, since the PPGM Guarantee will be effective only after acceptance of the project. Secondly, the ESCO will

Reimbursement Agreements	<p>The Guarantor and the Co-Guarantor will enter into a Master Reimbursement Agreement governing the reimbursement obligations of the Co-Guarantor to the Guarantor in the event that Tranches B and/or C of any Performance Guarantee, or part thereof, are disbursed by the Guarantor. The Co-Guarantor's reimbursement obligations will be 100% cash collateralized in favor of the Guarantor through a pledge over the Trust Account.</p> <p>The Administrator will ensure that the ESCO signs a Reimbursement Agreement, governing the on-demand reimbursement obligations of the ESCO to the Guarantor in the event that Tranche A of the Performance Guarantee, or part thereof, is disbursed.</p> <p>The Administrator will ensure that the ESCO signs a Reimbursement Agreement, governing the reimbursement obligations of the ESCO to the Co-Guarantor in the event that Tranche B and/or C of the Performance Guarantee, or part thereof, are disbursed.</p>
Guarantor's Step-In Rights	<p>The terms of the EE Contracts, the Performance Guarantees and the Reimbursement Agreements will contain step-in rights in favor of the Guarantor, enabling the Guarantor to replace the defaulting ESCO or seek other remedies to maintain the EE Contract in full force and effect, such as enforcement of any warranties or liquidated damages provided by equipment suppliers, service providers or subcontractors in favor of the ESCO.</p> <p>The Guarantor may instruct the Administrator to enforce and implement collection, foreclosure and its step-in rights.</p>
Performance Guarantee Coverage	<p>The Performance Guarantee will cover performance risk of the ESCO only, the legal definition of "performance" to be acceptable to the Sponsors and to the Beneficiaries. It is expected that the definition of performance will be based on an objective measurement of energy savings and clear, strictly performance-related reasons for failure to achieve the contracted energy savings.</p> <p>The Performance Guarantee will become effective only upon completion and acceptance of the EE Project.</p> <p>The Performance Guarantee will be unconditional with the following exceptions: the Guarantor may have the right to terminate the Performance Guarantee a) upon non-payment of the Guarantee Premium and/or b) upon the amendment of the terms and conditions of bank loan to increase the amount of the loan or extend its tenor or otherwise increase in any material respect, in the reasonable opinion of the Guarantor, the risk accepted by the Guarantor by virtue of having issued the Performance Guarantee.</p> <p>The Guarantor will pay to the Lender the shortfall between the actual energy savings generated under the EE Contract and the contracted amount, as these amounts fall due. The Performance Guarantee will not be subject to acceleration.</p>
Conditions Precedent to Issuance of Performance Guarantees	To be determined by the Sponsors and monitored by the Administrator.
Maximum IDB Liability	In aggregate, US\$15 million.
Maximum Co-Guarantor Liability	In aggregate, US\$10 million.
Currency	The Performance Guarantee will be denominated in local currency, subject to a maximum cap in US Dollars. If disbursed, the reimbursement obligation of the Co-Guarantor will be for the amount in US Dollars actually disbursed. In order to comply with Brazilian regulations governing the issue of local currency guarantees by multilaterals, the reimbursement obligation of the ESCOs will be in local currency in the local currency amount actually disbursed.

absorb the first layer of losses. ESCOs eligible for PPGM support should be highly incentivized to perform because of their financial exposure under the PPGM. Thirdly, the step in rights that the PPGM Administrator should have (i.e. to replace a defaulting ESCO), as well as benefits from performance guarantees and liquidated damages from equipment manufacturers, mitigate the risk of losses under the PPGM in excess of the first layer of amounts defaulted on by the original ESCO.

Under the Bank's policies, the IDB cannot guarantee instruments other than debt; therefore any guarantees covering savings to the client that do not represent debt service would have to be covered by the GEF grant. In general, the IDB's position in respect of the GEF funds is considered appropriate since this is the IDB's first project as a guarantor of energy efficiency performance risk and technology risk. A successful track record due to a high level of risk mitigation and a reduced likelihood of loss in this initial operation should allow the Bank to participate in future energy efficiency projects in its Borrowing Member Countries and possibly replicate the PPGM.

PPGM Documentation	<ol style="list-style-type: none"> 1. An PPGM Administration Agreement between the Administrator and the Sponsors setting out the terms and conditions of the PPGM; 2. A form Performance Guarantee; 3. Master Reimbursement Agreement between the Guarantor and the Co-Guarantor; 4. A form Reimbursement Agreement between the Guarantor, the Co-Guarantor and the ESCO; 5. Trust Agreement. The UNDP will create a Trust under Delaware laws, appoint a Trustee, and sign a Trust Agreement] 6. Intercreditor Agreement between the Guarantor and the Co-Guarantor; 7. Up to 4 approved EE Contract types. <p>1, 2, 3, and 4 each under New York law.</p>
<i>PRICING, FEES, COSTS AND EXPENSES</i>	
IDB Analysis Fee	Will be covered by the IDB IA fee received from GEF
Due Diligence Expenses	The due diligence expenses will be partly covered by interest income of the US\$10 million GEF cash contribution to the PPGM component of the project Trust and partly by the TA component of the same outcome.
Legal Fees and Expenses	The legal expenses will be covered by interest income of the US\$10 million GEF cash contribution to the PPGM component of the project Trust.
Payment of the Administrator	The Administrator will be remunerated by the interest income generated by the GEF deposit contained in the Trust and/or by a portion of the Performance Guarantee Premium and fees charged to clients.
IDB Monitoring Fee	Will be covered by the IDB IA fee received from GEF
Performance Guarantee Premium	The ESCO will pay the Guarantor and the Co-Guarantor a premium based on the outstanding amounts available under each Performance Guarantee, to be determined based on the type of risk assumed by the Guarantor and Co-Guarantor and based on relevant benchmarks.
Interest Rate	Reimbursement obligations of the ESCO following a disbursement under a Performance Guarantee will accrue at a default interest rate to be determined.

ANNEX H: PPGM Guarantee Exposure and Investment Leveraging

Average amount of each gtee	450,000
Average tenor (years)	5
Financing % by banks	90%
Interest rate on US\$ account	4%
Annual premium to Administrator *	1%
Fees per guarantee issued to Administrator*	1%
*Total premium and fees charged to ESCOs	3/4%
Default rate on GEF deposit	5%

Exposure Forecast	1	2	3	4	5	6	7	Total Gtees
Number of Gtees issued	0	20	36	12	13	16	0	97
Exposure increased	0	9,000,000	16,200,000	5,400,000	5,850,000	7,200,000	0	43,650,000
Exposure repaid	0	0	-1,800,000	-5,040,000	-6,120,000	-7,290,000	-8,730,000	Total Loans
Net exposure	0	9,000,000	23,400,000	23,760,000	23,490,000	23,400,000	14,670,000	48,015,000

Exposure Amortized	1	2	3	4	5	6	7	Total
	0	0	0	0	0	0	0	0
	9,000,000	0	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	9,000,000
	16,200,000	0	0	3,240,000	3,240,000	3,240,000	3,240,000	12,960,000
	5,400,000	0	0	0	1,080,000	1,080,000	1,080,000	3,240,000
	5,850,000	0	0	0	0	1,170,000	1,170,000	2,340,000
	7,200,000	0	0	0	0	0	1,440,000	1,440,000
	0	0	0	0	0	0	0	
Total amortization p.a.	0	0	1,800,000	5,040,000	6,120,000	7,290,000	8,730,000	

PPGM Revenues	1	2	3	4	5	6	7
GEF deposit bal net of defaults	10,000,000	9,500,000	9,500,000	9,500,000	9,500,000	9,500,000	9,500,000
Interest income on GEF deposit	400,000	380,000	380,000	380,000	380,000	380,000	380,000
Interest available for due diligence	400,000	0	0	0	0	0	0
Interest available for Administrator	0	380,000	380,000	380,000	380,000	380,000	380,000
Fees for Administrator	0	90,000	162,000	54,000	58,500	72,000	0
Annual premium to Administrator	0	90,000	234,000	237,600	234,900	234,000	146,700
Max available for Administrator remuneration	0	560,000	776,000	671,600	673,400	686,000	526,700