THE WORLD BANK/IFC/M.I.G.A.

OFFICE MEMORANDUM

DATE: August 6, 1997

TO: Mohamed T. El-Ashry, Chief Executive Officer, GEF

RB

FROM: Robin Broadfield, Acting Chief, ENVGC

EXTENSION: 34355

SUBJECT: **Renewable Energy and Energy Efficiency Fund (REEF)**
Final Council Review/CEO Endorsement

1. Please find attached two copies of the draft GEF document for this project for the Secretariat's clearance to circulate to the Council and seek your endorsement.

2. As requested by the Council, the IFC's investments in the REEF Equity Fund and Debt Facility have been approved by the IFC Board prior to the submission of this document to the GEF. The details of these investments, which were approved by the IFC Board on June 25th, 1997, are outlined in paragraph 8 of the document.

3. As noted in paragraph 9, we propose a slight modification to the formula for release of the GEF funds, relative to the proposal previously endorsed by the Council. The intent of this modification is to accelerate the Fund's start-up. In place of the original proposal that the first $20 million of GEF resources be released when the REEF mobilizes $100 million in equity and/or debt resources, we now propose that the first $10 million of GEF funds be released once a target of $50 million in the Equity Fund has been met. The balance of the GEF funds would then be released on a prorata basis as we progress towards the original non-GEF capital target of $200 million. This change does not materially alter the project's design, but we think will enhance it's prospects of success.

4. We look forward to receiving word from the Secretariat that we can send the 75 copies for dispatch to the Council.

Attachments

cc. Messers/Mmes Duda, Rittner (GEFSEC); Boorstin, Riddle, Rubino, Younger, Nyirjesy (IFC); Vidaeus (o/r), Feinstein (o/r), Nikolov (ENVGC)

GLOBAL ENVIRONMENT FACILITY

GLOBAL

RENEWABLE ENERGY AND ENERGY EFFICIENCY FUND (REEF)

Project Document
September 1997

International Finance Corporation
Technical and Environment Department
Environment Division
Environmental Projects Unit

INTERNATIONAL FINANCE CORPORATION
GLOBAL ENVIRONMENT FACILITY

RENEWABLE ENERGY AND ENERGY EFFICIENCY FUND (REEF)

PROJECT DOCUMENT
TABLE OF CONTENTS

APPENDICES

INTERNATIONAL FINANCE CORPORATION
GLOBAL ENVIRONMENT FACILITY

RENEWABLE ENERGY AND ENERGY EFFICIENCY FUND (REEF)

GRANT SUMMARY

Project Title:	Renewable Energy and Energy Efficiency Fund (REEF)
GEF Focal Area:	Climate Change
Eligible Recipient Countries:	All GEF-Eligible Countries
GEF Financing:	US$10 to US$30 million
Other Financing:	US$50 to US$210 million from investors in REEF, including IFC US$100 to US$600 million for projects from other sources
Beneficiaries:	Private sector renewable energy and energy efficiency project sponsors, including independent power producers, energy services companies, energy end users and specialized financial intermediaries.
Terms:	Grant and non-grant (loan, guarantee, equity) financing for sub-projects; grants for project management and administration.
Executing Agency:	International Finance Corporation (IFC)
Estimated Starting Date:	January 1998
Project Duration:	Ten to thirteen years

I. EXECUTIVE SUMMARY

1. The Renewable Energy and Energy Efficiency Fund (REEF) will invest in private sector projects in the renewable energy (RE) and energy efficiency (EE) sectors in emerging markets. REEF will consist of an Equity Fund targeting US$110 million in capitalization and a Debt Facility with US$100 million in loan commitments. REEF is expected to invest its resources over a 5-year period and to liquidate the portfolio within 10 to 13 years of its first closing date. Investors in the Equity Fund will include International Finance Corporation (IFC) and various institutional and strategic investors targeting the RE/EE sectors on the basis of their commercial merits. positive impact on the global environment and other benefits. The Debt Facility will be funded by IFC and international commercial banks.

2. REEF will be managed by a Fund Management Company (FMC) formed by a consortium of Energy Investors Funds (EIF), Environmental Enterprises Assistance Fund (EEAF), E & Co and a major European international bank.

3. The Global Environment Facility (GEF) will provide up to US$30 million in grant support to help broaden REEF's scope of investment, enabling it to consider important RE/EE market segments and catalytic projects that, absent such support, are less likely to receive significant attention from a commercial investment fund, due to their small size, complexity, risk profiles and other factors that prevent them from generating an acceptable risk-adjusted rate of return. The GEF support will seek to finance the incremental cost and/or mitigate the incremental risk of investing in such projects.

4. The US$30 million GEF grant is expected to leverage investments of US$210 million in the REEF Fund and Debt Facility, which in turn will support projects with total costs of US$300-800 million, yielding **a leverage ratio on GEF funds ranging from twelve to one to up to twenty-seven to one** (10:1 to 27:1). This estimate does not take into account the strong potential for a multiplier effect from expansion or replication of successful projects.

5. The GEF funds will be used: (i) to provide direct co-financing to select REEF investee projects in the form of grant, debt guarantee, and/or equity financing (up to US$24 million), (ii) to support the FMC's incremental management costs of identifying, analyzing and investing in a portfolio of RE/EE projects (up to US$5-6 million during the 5-year investment period pursuant to annual budgets), and (iii) to cover IFC's eligible costs for co-administering the GEF support as GEF Executing Agency (up to US$1 million).

6. The GEF support will be administered by a four-member IFC-REEF-GEF Committee (IRGC) composed of one representative each from IFC's Technical and Environment Department, IFC's Power Department, the World Bank's Global Environment Division and a member selected from outside the World Bank Group and GEF. The IRGC will approve the terms of each GEF co-financing transaction on the basis of investment proposals developed by the FMC in conjunction with REEF's investments in the proposed projects. It will also consult with the GEF Secretariat when a new non-grant financial instrument is used for the first time under the co-financing arrangement.

7. The use of the GEF funds is consistent with the GEF Operational Strategy and Operational Programs in climate change. The projects and GEF co-financing instruments selected will be consistent with GEF Council policies regarding financing modalities and with specific investment guidelines to be adopted by the IRGC. REEF will also adhere to the World Bank Group Environmental Policies and Guidelines in all of its investment activities.

8. The GEF support for REEF was endorsed in principle by the GEF Council in April 1996. The Council required that the IFC investment in REEF be approved by IFC's Board of Directors prior to submission of a Project Document to Council members prior to endorsement by its CEO. The IFC Board approved the proposed IFC investments in the REEF Equity Fund and Debt Facility on June 25, 1997. IFC will subscribe to an equity commitment of up to US$15 million of the Equity Fund's target US$110 million capitalization. IFC will also provide a US$20 million A loan and an US$80 million B loan as part of the Debt Facility's target US$100 million capitalization. IFC's commitment to the Equity Fund will be limited to US$10 million unless at least one other investor exceeds that amount.

9. The original proposal endorsed by the GEF Council contemplated that the first US$20 million in GEF funds would be made available once REEF mobilizes US$100 million in equity and/or debt capital from non-GEF sources. The remaining US$10 million in potential GEF support would be provided on a prorated basis in relation to the next US$100 million in non-GEF funding mobilized. In order to ensure the earliest possible start-up for REEF, IFC and the FMC are now targeting a first closing of at least US$50 million for the Equity Fund, with the balance to be raised within twelve months thereafter. The first closing of the Debt Facility may or may not be simultaneous with the Equity Fund's first closing. Once the fund is established, it is generally easier to raise additional capital. The availability of some GEF funds at the beginning of REEF's operating life would ensure that all aspects of the proposed investment strategy can be launched from the outset. **Therefore, it is now proposed that the first US$10 million of GEF funding be made available once the Equity Fund's minimum first closing target of US$50 million is met. An additional US $10 million of GEF funding would be made available when US$100 million in non-GEF capital is mobilized with the remaining US$10 million in GEF funding to be provided on a prorated basis thereafter until the non-GEF capital mobilization target of US$200 million is reached. Thus the project objective of raising US$100 million to US$210 million and the project's scope and overall design remain the same, but an intermediate step has been added to give REEF a better chance to reach the objective target size more quickly. GEF funds made available to REEF at each of the above-described investment levels will be allocated to the uses of GEF funds listed in paragraph 5 on a pro rata basis (i.e., to co-financing, fund management and administration costs).**

II. PROJECT BACKGROUND

Overview

10. This project stems from IFC's feasibility study focusing on the RE and EE markets in developing countries, which reviewed about 100 projects under development in 1995 with some US$2 billion in total costs[1]. The study confirmed that there is growing private investment activity in the target sectors in many developing countries and that a dedicated investment fund could achieve competitive returns while helping to accelerate the flow of commercial financing.

11. The study was followed by the detailed structuring of the proposed REEF Equity Fund and Debt Facility by IFC and the prospective management team. REEF is expected to pursue the following types of investments:

- grid-connected and "inside-the-fence" private power projects using wind, biomass, small hydro, geothermal, solar and other RE resources to sell power to electric utilities and other end users under power purchase agreements;

- private sector projects and companies supplying solar home systems, small central stations and other "distributed" RE applications in off-grid communities;

- energy service companies ("ESCOs") and end users themselves undertaking EE investments in such areas as industry, buildings, public lighting, and district heating; and

- in select cases, local manufacturers of RE/EE equipment and local financial intermediaries focusing on the RE/EE sectors.

12. From a commercial perspective, advantages of on-grid RE projects include their zero or low fuel costs and otherwise low operating costs and their smaller scale in relation to conventional energy projects, often providing for more rapid installation and replication. Off-grid RE technologies offer higher quality energy at an increasingly competitive cost in relation to diesel generators, kerosene lanterns, batteries and other conventional energy sources. EE projects typically use well-proven equipment and techniques and can offer attractive returns to all participants if well structured. All three sectors are in a relatively early stage of development, especially in emerging markets, which is one of the principal reasons for the establishment of REEF as a global, multi-sectoral fund. However, all three sectors have the potential for rapid commercial expansion in a wide range of countries throughout the developing world.

13. Achieving sustainable growth in the development and financing of RE and EE projects is a critical objective of the GEF Operational Strategy, since they offer direct alternatives to the combustion of fossil fuels, a major source of GHG emissions implicated in global warming phenomena. The expansion of power generation capacity through construction of fossil fuel plants remains the leading

---

[1] The study was funded by the governments of France, Germany, the Netherlands, Norway and the United States, and by IFC's Technical and Environment Department and Power Department.

solution to meeting energy needs in most developing countries, so that GHG emissions are expected to increase significantly in the years ahead. The FCCC seeks to address this threat through broad-based international cooperation, notably through financial support from the GEF for GHG-mitigating projects in eligible countries.

14. In addition to their positive environmental impact, RE/EE projects can add value to underutilized local energy resources and unexploited potential for energy savings, help defer new investments in larger-scale centralized energy generation and distribution capacity, diversify a country's energy profile and provide a hedge against currency and fuel price fluctuations, improve productivity and social conditions by introducing or raising the quality of energy supply in off-grid communities, and encourage local entrepreneurial participation.

RE/EE Market Profile

15. Grid-connected RE projects constitute the largest and most advanced market segment targeted by REEF. Private developers have gained considerable experience in the design, financing and operation of RE projects. For example, in the United States alone, nearly 10,000 MW of RE power plants are currently on-line or under construction (not including large hydro plants). Nonetheless, the RE market only accounts for about 1% of the estimated US$50 billion in annual investment in grid-connected power in developing countries, and is expected to increase its market share substantially over time. Favorable conditions in an increasing number of countries include growing experience with private power projects, market based power purchase prices, streamlined approval procedures for smaller projects and prior experience with and/or increased acceptance of RE technologies. The fastest growth recently has been in India and Central America, but on-grid RE projects are being pursued by qualified sponsors in many other markets. The investment potential in developing countries is estimated at US$3-5 billion over the next 5 years. Most on-grid RE projects are in the 5-30 MW range, with costs typically between US$1-2 million per MW (as compared to large thermal power plants with costs of US$0.5-1 million per MW but which typically have significantly higher fuel costs).

16. Off-grid RE businesses target the potential mass market of households, enterprises and communities in regions unlikely to be served by the grid in the foreseeable future (affecting some 1.5 to 2 billion people). The two major sub-sectors are: (a) small power plants, generally in the 50 kW to 5 MW range, with project sponsors typically seeking to develop a series of such projects, often with active community participation (e.g. as minority owners, guarantors or operators), and (b) commercial deployment of solar home systems (SHS), typically costing several hundreds or thousands of dollars each. Most of the SHS sales have been on a cash basis to higher-income clients in leading markets such as India, Indonesia, Kenya, Mexico and Brazil, but there is growing evidence that lower-income consumers are also willing and able to pay when suitable after-sale service and medium-term financing are in place. This market can only deepen as system prices decline. REEF expects to complement a growing number of other initiatives seeking to stimulate private entrepreneurship and the development of effective consumer financing schemes in these sectors (including GEF, IBRD, ADB and other projects).

17. **EE investment opportunities** are being pursued both directly by end users and by multinational and local equipment suppliers and energy service companies (ESCOs). Demand for EE projects is growing as a result of energy price reforms, EE and environmental regulations. increased industrial competition, government budget constraints, and other factors that make the high energy intensity of many non-OECD economies increasingly unsustainable. since energy consumption as a percentage of GDP can be several times higher than in OECD countries. IFC's market study conservatively estimates equity and debt investment potential for EE projects at US$2 billion over the next five years, without including the larger "passive sales" of EE goods and services. The investment and sales potential in this sector is typically measured in the hundreds of billions of dollars. Central and Eastern Europe and India are leading EE markets today, but considerable sector improvements are taking place in most developing regions. EE projects offer paybacks in the range of 1 to 5 years, often using simple and well proven technologies, such as meters and controls, efficient industrial motors, furnaces, boilers, lighting and appliances. However, EE financing is a specialized and relatively complex area. Since EE projects generate returns through energy cost savings, which are less visible than incremental revenues, ESCOs often seek to overcome client reticence by providing or arranging up to 100% "performance- based" debt or lease financing, to be repaid from measured energy savings. In addition, while large EE projects can be found in the industrial and energy sectors, much of the opportunity lies in the development and financing of smaller projects (e.g., US$100,000 to US$3 million).

Financing Needs and Constraints

18. IFC's feasibility study found that while there are numerous equity investment opportunities in these emerging sectors, more frequently there is insufficient debt financing. For on-grid RE projects, the scarcest resource is long-term debt, as it is for many private infrastructure projects. REEF's ability to provide some of this debt directly through the Debt Facility will help attract other lenders and generate more equity investment opportunities for REEF. Debt plays an even more important role in the EE and off-grid RE sectors, where many typical sponsors are energy service companies and/or equipment vendors. Their principal need is for more highly leveraged medium-term or revolving debt or lease financing for their clients, the energy end users.

19. RE and EE projects face difficult financing challenges. Relatively few commercial sources of financing worldwide have experience in these sectors, and even fewer have turned their attention to the opportunities in developing countries. Unique constraints relative to conventional energy projects include: the lack of familiarity with the technologies and/or project structures involved on the part of potential project sponsors, clients and financial institutions; the fact that the projects are typically smaller with proportionately higher transaction costs, so that they are generally beyond the direct reach of international sources of financing, and some may not obviously provide attractive returns; the generally low collateral value and high services content of many EE investments; and the need in some cases for longer-term financing than is generally available in a given market. For example, RE technologies generally have higher capital costs than conventional systems and therefore require long-term financing to capture the benefit of their typically lower operating costs. Adequate medium-term financing is also needed to overcome the "first cost" barrier facing lower-income purchasers of solar home systems, as well as to help persuade energy end users of the value of energy

efficiency investments, whose returns are measured not in terms of incremental revenues but of less visible cost savings.

20. In many instances, financing is also impeded by the lack of information on and unfamiliar risk profiles of prospective clients in important market segments, such as state-owned utilities, municipalities and rural consumers; by currency convertibility, devaluation and other economic risks; and by subsidized energy prices, high taxation and various administrative bottlenecks in many countries. Many of these constraints are not necessarily unique to the RE and EE sectors, but they impose additional structuring costs that can be absorbed more readily by larger, more conventional projects. In much the same way as other IFC-supported initiatives, REEF should help lower some of these barriers and encourage investment by other international and domestic financial institutions.

III. PROJECT OBJECTIVES AND RATIONALE FOR GEF FUNDING

Global Environment Objectives and Benefits

21. REEF will channel new financial resources to investments in privately-sponsored projects in the RE and EE sectors in non-OECD countries. The projects supported by REEF will generate global environmental benefits as a result of avoided GHG emissions. REEF is expected to catalyze further private investment in GHG-mitigating projects by helping to introduce proven RE and EE technologies and project structures in new markets, supporting new types of projects and engaging new sources of commercial financing.

Specific Project Objectives and Benefits

22. REEF's principal objective will be to generate a competitive risk-adjusted rate of return from geographically and sectorally diversified equity and debt portfolios. REEF's management team is expected to seek out sound investment opportunities being developed by highly qualified project sponsors and to work closely with local financial intermediaries and sources of expertise as it structures, implements, monitors and ultimately exits its investments. It is expected that the management team will seek to raise additional financing and expand its RE/EE investment activities on the basis of REEF's commercial success and a continuing strong pipeline of investment opportunities.

Rationale for GEF Funding

23. REEF responds to the GEF's objectives of promoting sustainable energy production and use. The use of the GEF funds is consistent with the GEF Operational Strategy and Programs which call for the GEF to support innovative measures to leverage additional finance from the private sector. It is estimated that the proposed US$30 million GEF grant could leverage investments of US$300-800 million from REEF and other sources, or 10 to 27 times the amount provided by GEF, assuming that REEF's investments will represent between 25% and 33% of project costs on average. These estimates do not take into account the strong potential for a multiplier effect from expansion or replication of successful projects.

24. There are virtually no major institutional investors focusing exclusively on the RE and EE sectors, even in developed countries. Commercial investment in these areas is generally pursued along with broader activities in the power, technology or other sectors and few of the active institutions have turned their attention to the opportunities in developing countries. Nevertheless, market development has reached a point where commercial investors can readily expect a fund dedicated to the RE and EE sectors to earn a competitive risk-adjusted rate of return. However, a conventional fund would normally focus on projects that are larger and/or have lower transaction costs and lower risk profiles than many of the RE and EE projects currently under development.

25. **The GEF support will allow REEF's scope of investment to include promising RE and EE** projects that might otherwise receive little or no attention because they are smaller, riskier, more complex and/or newer in a given market. REEF will thereby make a greater contribution to RE and EE sector development prospects by mobilizing a greater number and wider variety of private sponsors and sources of commercial financing.

26. In the project review stage, GEF resources will enable the FMC to provide greater than normal advisory support to project sponsors in resolving structuring issues and in mobilizing the necessary financing for their projects. This activity can help reduce market barriers by demonstrating effective structuring techniques that can be adapted by other entrepreneurs and financiers pursuing similar projects. With respect to project financing *per se*, GEF funds will be applied in innovative ways to help reduce risks and otherwise improve marginal risk-adjusted rates of return that are preventing projects from going forward.

IV. PROJECT DESCRIPTION

REEF Investment Vehicles

27. REEF's capital and management structure and the GEF support seek to combine the diverse resources required to address the primary financing needs of the RE/EE sectors in a dynamic and cost-effective manner. REEF will consist of two investment vehicles: (i) a closed-end Equity Fund with a term of 10 years (with 3 possible one-year extensions for liquidation purposes only), with a target capitalization of US$110 million in equity commitments, and (ii) a parallel Debt Facility of US$100 million, to be used to extend loans of varying maturities to investee companies. Minimum commitments of US$50 million each will be targeted for a first closing of the Equity Fund and Debt Facility, respectively. The final closings are expected to occur within 12 months of the first closings. The Debt Facility will be organized as a "club" of participating lenders (commercial banks and IFC). Loans will be extended to projects in which the REEF Equity Fund invests pursuant to investment proposals resulting from detailed due diligence and structuring conducted by the FMC. It is expected that the banks' participation in a given project will be extended under the umbrella of an IFC B-Loan, where IFC acts as lender of record.

Potential Investors

28. A wide range of potential investors expressed an interest in REEF during the course of IFC's market research, including electric utilities and independent power producers, insurance companies

concerned about global warming, commercial banks contacted during the fund management selection and fund structuring process and multilateral and bilateral investment agencies. IFC will invest in both the Equity Fund and Debt Facility and will assist in raising investor commitments outside of the United States, including those from commercial banks participating in the Debt Facility.

The Fund Management Company

29. The team competitively selected by IFC to form the FMC is a consortium that combines extensive experience in equity fund management, commercial lending and the RE/EE sectors, including considerable experience in investing in small-and-medium size projects. The consortium includes Energy Investors Funds (EIF), Environmental Enterprises Assistance Fund (EEAF) and E & Co, expected to be joined by a major European international bank. EEAF and E & Co will focus on developing and managing REEF's investments in smaller projects. E & Co will also play a key role in developing proposals for the use of the GEF co-financing resources, given its experience in the use of concessional resources in private sector RE/EE projects.

30. EIF is an investment management company focused exclusively on the management of power sector investment funds and controlled by John Hancock Insurance and Indeck Capital Corporation. EIF's first two funds, established in 1988 and 1992 respectively, have invested US$325 million in 30 power projects (18 in renewable energy) and 13 power project development companies. Investors in EIF's funds have included banks, pension funds and insurance company affiliates. EIF has 19 professionals on staff, with offices in Boston and San Francisco.

31. EEAF is a non-profit entity dedicated to managing for-profit environmental investment funds in developing countries. Established in 1991, it has already invested in some 25 small projects, including 10 in the RE/EE sectors, and it currently has US$15 million under management, with funds provided by multilateral and bilateral agencies, foundations and private investors, including a US$800,000 line of credit from the IFC/GEF SME program. EEAF is also serving as venture capital advisor to the management of the proposed IFC/GEF Terra Capital Fund to be headquartered in Brazil. EEAF is based in Arlington, Virginia, with regional offices in Costa Rica, Indonesia and the Philippines.

32. E & Co is also a commercially-oriented non-profit entity dedicated to the RE/EE sectors in developing countries, sponsored by the Rockefeller Foundation and specialized in providing feasibility stage and early start-up venture capital financing. E & Co has made about 28 investments in both off-grid RE and smaller on-grid RE projects in 16 countries and has an active pipeline under consideration in over 20 developing countries. E & Co has field representation in Costa Rica, Bolivia, India, Nepal and Zimbabwe.

33. Professional staff from the FMC already have substantial experience in the target sectors and emerging markets countries. The consortium members will both allocate existing staff to the REEF management effort and recruit additional staff and consultants as needed. Management resources will be available from the principal offices of the FMC members and a proposed dedicated office in Washington, D.C.

Investment Policies and Approvals

34. REEF's principal investment objectives are long-term capital appreciation from the Equity Fund's equity and equity-type investments and current income from the dividend and interest earnings respectively of the Equity Fund and Debt Facility. Both vehicles will invest primarily in projects with total costs below US$50 million and the Equity Fund will seek to allocate at least 20% of its resources to smaller projects of less than US$5 million. REEF will seek to develop diversified portfolios in terms of both sectoral and geographic coverage. The proposed investment guidelines specify that the Equity Fund and Debt Facility will invest no more than 80% of their resources in one of the three principal target sectors (on-grid RE, off-grid RE and EE) and no more than 60% in a given region, defined as one of: (i) Asia, (ii) Latin America and the Caribbean, (iii) Africa and the Middle East, and (iv) Central and Eastern Europe and the Newly Independent States. The Debt Facility will have several additional investment criteria, including minimum debt service coverage ratios and maximum debt:equity leverage ratios at the project level.

35. REEF will not act as the principal sponsor of any project and will invest in projects where the sponsor has relevant experience and retains a significant financial interest. In recognition of the vital role being played by project developers in all three target sectors, notably in terms of aggregating smaller investment opportunities into financeable portfolios of projects, up to 15% of the Equity Fund portfolio could represent investments made in the feasibility and structuring stages of projects.

36. REEF will adhere to the World Bank Group's environmental policies and guidelines. IFC will assess the FMC's capability to carry out environmental reviews of each investee project and will periodically review REEF's and the FMC's activities in this respect. Staff of the FMC will be required to attend a standard IFC training program on the Bank's environmental policies and guidelines.

37. The Equity Fund will have an Investment Committee that will make investment and sales decisions by unanimous vote. IFC will have the right to appoint a representative to this Committee. Lending decisions by the Debt Facility will be subject to approval by each of the participants and no loan will be made to an investee company without a loan from IFC. The FMC will also have an internal investment committee that will recommend investments for the above-mentioned equity and debt approvals. As an incentive for the FMC to pursue smaller investments, this internal committee will be empowered to approve certain categories of Equity Fund investments below US$500,000.

38. The Equity Fund will have an Advisory Committee, consisting of members appointed by IFC, the FMC participants, other "core" investors (defined as investors committing significant investment to the fund) and one outside member unaffiliated with the managers and/or investors. The Advisory Committee will meet on an annual basis to review the fund's investment policies, strategies and performance and to approve any changes to the investment policies.

V. USES OF THE GEF SUPPORT

39. The GEF funds will be used to: (i) to provide direct co-financing for select REEF investee projects in the form of grant, debt and/or equity financing, (ii) support the FMC's incremental

management costs of investing in such projects, and (iii) cover IFC's eligible costs for co-administering the GEF support as GEF Executing Agency. (See project budget in paragraph 49 below.)

40. It is proposed that the first US$10 million in GEF funds be made available upon successful first closing of the REEF Equity Fund of at least US$50 million. An additional US$10 million of GEF funds would be made available to REEF once US$100 million in non-GEF funding is mobilized with the remaining US$10 million in GEF support be provided on a prorated basis in relation to the next US$100 million in capital raised for the Equity Fund and Debt Facility. Capital (equity or debt) will be defined as mobilized or committed to the fund when a signed letter of commitment to invest in the Equity Fund or to participate in the Debt Facility is received by the fund manager. GEF funds made available to REEF at each of the above-described investment levels will be allocated to the uses of GEF funds listed in paragraph 39 on a pro rata basis. The project objective, scope, design, and size (US$100 million to US$210 million in non-GEF investment) remain the same. However, an intermediate step has been added to give REEF a better chance to reach the objective target size quickly. Once REEF is established with a quick first closing of US$50 million, it is expected (based on IFC's experience with many other funds) that the fund manager will be able to more quickly raise additional capital. For this reason, first closings are common. There is little risk that the amount of non-GEF investment raised will be limited to US$50 million. It is in the fund manager's best interest to raise as large a fund as possible as quickly as possible. For an innovative fund like REEF, the management fee on a small fund of US$50 million is not sufficient to cover the manager's costs.

Co-Financing Facility

41. The bulk of the GEF support, up to US$24 million under REEF's full capitalization scenario, will be channeled directly to REEF investee projects as co-financing to help meet the incremental costs or risks involved when compared to non-GHG-mitigating alternative or "baseline" projects (see the Incremental Cost Analysis in Appendix A). Potential forms of GEF co-financing may include grants, loans, guarantees, equity or hybrid instruments. The specific financing modality used for a given project will seek to address as closely as possible the particular market barrier(s) or other disadvantage it faces, on a basis that can produce an acceptable risk-adjusted rate of return to its shareholders.

42. Only investments that meet the criteria below will be eligible for GEF co-financing support:

- Investments must be in countries that have ratified the FCCC and are eligible for World Bank/IFC financing.

- Investments must be in activities that are consistent with internationally agreed programs for sustainable development, achieve global environmental benefits and are consistent with a country's climate change action plan. The appropriate national GEF "country focal points" will be notified when a project in a particular country has been approved for GEF co-financing.

- Investments must be in projects in which the REEF Equity Fund and/or Debt Facility has made a formal commitment to invest.

- In accordance with the GEF Operational Strategy (February 1996) and its related Operational Programs for the climate change focal area, GEF support must be justified by: (a) a recognized market barrier, in the case of projects utilizing competitive technologies and/or applications thereof described in Operational Program #5 (most energy efficiency projects) and Operational Program #6 (most renewable energy technologies and applications), and/or (b) the opportunity to promote a technology or application that is not fully cost-competitive, as defined in Operational Program #7.

- Investments must be "close to market ready", in that they meet the criteria for professional, commercial investing, but for a particular market barrier or cost disadvantage that prevents them from obtaining all of the needed financing on terms that produce an acceptable risk-adjusted rate of return.

- Investments must be in attractive markets, GEF co-financing will not be applied to compensate for market distortions, including situations where: (a) energy prices are not close to long-run marginal costs, (b) import and other taxes are excessively high, (c) market demand is inherently weak and GEF support is unlikely to catalyze further commercial investment, and (d) very generous incentives already exist and should be pursued as a matter of priority by the project under consideration.

43. The FMC will develop detailed proposals for investment of the GEF co-financing resources and submit them for approval to a four-member IFC-REEF-GEF Committee (IRGC), composed of one representative each from IFC's Technical and Environment Department, IFC's Power Department, the World Bank's Global Environment Division and a member selected from outside the World Bank Group and GEF. The IRGC will approve the terms of each GEF co-financing transaction pursuant to guidelines that will take into account such factors as the size of the project, the nature and extent of the incremental costs and risks to be mitigated with GEF support, the potential for expansion and replication and other criteria. The IRGC will consult with the GEF Secretariat when a new non-grant financial instrument is used for the first time under the co-financing arrangement.

44. IFC will manage the co-financing funds in accordance with IRGC decisions in a manner that seeks to recover a reasonable amount of funds to be returned to GEF at the end of REEF's life, consistent with the purposes of REEF and the pioneering role of the GEF funds. The GEF co-financing guidelines will encourage the FMC to maximize the amount of co-financing that is extended to eligible projects on a non-grant basis. The objective is not simply to recover a reasonable portion of the GEF resources, but also to help demonstrate the financial sustainability of projects and thereby catalyze similar creative financing from other sources. As an incentive to focus on such opportunities and in keeping with commercial fund management practices, it is proposed that the FMC be entitled to retain a small share of the non-grant GEF co-financing effectively recovered from investee projects. This incentive provision is similar in principle to the incentive given to the FMC to manage and recover the commercial investment positions of the REEF and is similar in principle to the incentive given to intermediaries participating in the IFC/GEF Small and Medium Scale Enterprise Program. Without this incentive, experience suggests the FMC would likely focus on the more commercial part of the Fund's portfolio and would lack an adequate incentive to recover the GEF funds.

Management Costs

45. The FMC will earn market-based compensation for the management of the Equity Fund portion of REEF, including an annual management fee designed to cover the FMC's reasonable operating costs and incentive compensation for achieving the market rates of returns targeted by the Equity Fund (see Appendix A for additional information). However, an FMC investing in a diversified range of projects and markets in the RE and EE sectors can be expected to incur higher than normal costs for a number of reasons. With average investments likely to be under US$5 million, the Fund's portfolio may consist of 30 or more projects. Since commercial investment funds typically invest in no more than 15-20 projects, the Fund's personnel requirements are likely to be greater than usual. The potentially wide range of markets, technologies, projects and financing techniques also calls for a broad base of skills within the FMC and regular use of outside specialists. The pioneering nature of many RE/EE transactions currently under development and the inadequate attention to date from commercial sources of financing is also likely to require that the FMC provide greater than normal project structuring, technical assistance and advisory support to project sponsors.

46. Up to US$5-6 million of GEF grant funds will therefore be used to cover the FMC's incremental costs of identifying, analyzing, investing in and adding value to projects qualifying for GEF co-financing support and of meeting additional monitoring and reporting requirements arising from the GEF support. The GEF grants will cover the additional staff, consultants, travel and other costs associated with these activities. The FMC's staff is expected to include several professionals specifically focusing on EE, off-grid RE and/or smaller on-grid RE projects (e.g. below US$5 million total cost). It is anticipated that the grant support will be disbursed to the FMC during its 5-year investment period on the basis of annual budgets approved and closely monitored by the IRGC. The IRGC will assess the appropriateness of all incremental costs funded by GEF.

Reporting

47. The FMC will submit an annual report to the IRGC covering: (i) the status of the GEF co-financing portfolio, (ii) the performance of the GEF-supported projects in terms of meeting GEF objectives, and (iii) related environmental and other benefits being generated by the projects. It is expected that the reporting work will be carried out largely by the FMC and the investee companies themselves. The reporting will be consistent with GEF's own monitoring and evaluation practices and information disclosure requirements. The IRGC may also call upon independent experts as needed for technical assistance and for verification, evaluation and interpretation of reported results. Any incremental costs of reporting will be covered by the GEF co-financing support.

Administration

48. IFC will administer the GEF funding as GEF Executing Agency, acting in accordance with decisions of the proposed IRGC (see para. 6 and 43). IFC's costs of administering the GEF funds over 10 years are estimated at US$1 million. Following completion of the final GEF endorsement process and the Fund's mobilization process, the GEF funds will be made available to IFC from the GEF Trust Fund through the World Bank's Trust Funds Division. Commitments against these funds will be made in accordance with IFC's arrangement with the World Bank as GEF Implementing Agency.

Project Budget

49. The uses of the GEF funds at three possible levels of GEF involvement are outlined in the Project Budget table below. In addition, the sources of annual budgetary support to the FMC are listed in the second table. The tables are based on the following assumptions:

a) Capital commitment levels: (i) the initial US$50 million is the first closing of the Equity Fund; (ii) US$100 million capital commitment level includes the initial US$50 million Equity Fund and US$50 million mobilized for the Debt Facility; and (iii) the US$210 million commitment level includes a US$110 million Equity Fund and a US$100 million Debt Facility.

b) Uses of GEF funds: Use of GEF funds at the US$10 million and US$20 million GEF funding levels are adjusted proportionally from the total potential allocations at the US$30 million funding level.

c) Recovery and return on GEF funds: The worst case scenario assumes that none of the GEF co-financing invested in sub-projects as loans, equity or guarantees is recovered (i.e., all loans and all equity are a total loss and all guarantees are exercised). A best case scenario is based on the following assumptions: (i) 30% of the GEF co-financing is advanced as loans, 30% as loan guarantees, 30% as equity, and 10% as grants; (ii) reasonable or conservative assumptions on interest, capital gains, and dividends; (iii) a provision for losses; and (iv) an incentive payment to the FMC.

d) Sources of funds for FMC budget: (i) the FMC's annual management fee charged to the Equity Fund is expected to be 2.5% of the Equity Fund's capital commitments; (ii) the FMC is not expected to receive fees from the Debt Facility; and (iii) the GEF funding for fund management will be disbursed to the FMC during the first five years of REEF's operation--thus on average one fifth of the total amount will be disbursed to the FMC per year for years 1-5. The GEF contribution to the fund management costs is discussed further in paragraphs 9 and 10 of Appendix A.

Project Budget at Varying Fund Sizes

(in million US$)

	Initial US$50 million of Capital Commitments	US$100 million of Capital Commitments	US$210 million of Capital Commitments
Funding Levels	-		
Equity Fund	50.00	50.00	110.00
Debt Facility	0.00	50.00	100.00
Total GEF Funding	10.00	20.00	30.00
Uses of GEF Funds:			
Co-Financing	7.67 - 8.00	15.33 - 16.00	23.00 - 24.00
Fund Management	1.67 - 2.00	3.33 - 4.00	5.00 - 6.00
IFC Administration	0.34	0.67	1.00
Recovery and Return on GEF Co-financing Funds	0 - 9.00	0 - 18.00	0 - 27.00

Annual Operating Budget of the Fund Management Company for Years 1-5

(in Million US$)

	Initial US$50 million of Capital Commitments	US$100 million of Capital Commitments	US$210 million of Capital Commitments
Sources of Funds for FMC Annual Budget Years 1-5			
Fee from Equity Fund	1.25	1.25	2.75
Grant from GEF (1/5th per year of GEF Fund Mgt. total)	0.33 - 0.40	0.67 - 0.80	1.00 - 1.20
Total Annual Budget	1.58 - 1.65	1.92 - 2.05	3.75 - 3.95

VI. SUSTAINABILITY AND PARTICIPATION

50. REEF will bring together an investor group and management team with a clear commitment to RE and EE market growth through profitable private investment. It will support RE and EE project sponsors who are actively engaged in client and market education as they promote cost-effective and environmentally sound approaches to meeting and managing energy demand. REEF's investments will support national climate change action strategies in a concrete way by engaging utilities, municipalities, rural populations and other EE and off-grid RE clients more deeply in selecting the best options for a more sustainable energy future. All of these factors will help build a commercial investment track record and accelerate the growth of the RE and EE sectors on a sustainable long-term basis.

51. Given the relatively small project sizes, the REEF's success will depend on and can be instrumental in encouraging co-investment and value-added support from local commercial and development banking institutions, small business and rural consumer financing entities, community and consumer groups, NGOs and others committed to developing the RE and EE sectors. The smaller projects can also obtain business planning and finance mobilization assistance from various SME support programs, including IFC's several regionally-operated Project Development Facilities.

52. REEF will offer many opportunities for stakeholder participation. It will have access to an extensive network of organizations and individuals who are willing and able to direct its attention to specific investment opportunities and to provide *ad hoc* advice. These sources of "deal flow" and broader support include host country utilities, RE and EE trade associations, NGOs, foundations, development banks, government and donor agencies, and others. Many such organizations were consulted during IFC's feasibility study and many members of IFC and FMC staff are also actively involved in these networks. Any activities to monitor the environmental and economic benefits of REEF investee projects will also offer opportunities for consultation with local utilities, communities and other client bases, with host country authorities responsible for implementing country strategies on climate change, as well as with other host government agencies and international institutions and experts working in the area of energy sector development and environmental protection.

VII. LESSONS LEARNED

53. IFC is a leading investor in the emerging private power markets in developing countries, through direct loan and equity financing, syndicated loans and participation in several infrastructure investment funds. While most of the activity concerns large conventional power plants, IFC has also financed a number of small hydro, biomass and geothermal projects and is appraising potential investments in wind power plants. IFC has invested in energy conservation projects and is considering investments in the off-grid renewable energy sector. This experience confirms that well-designed projects in these areas can be commercially viable under price and other conditions prevailing in various markets. However, given the small project sizes relative to other IFC power sector investments, IFC is seeking opportunities--in addition to its direct financing activities--to channel resources through other financial intermediaries who can reach such projects cost-effectively: not only the proposed Fund, but also local commercial banks and leasing companies. The lessons learned from IFC's extensive participation in venture capital and investment funds and from its leadership role in

private power project financing have been incorporated in the proposed structure of REEF and the design of the proposed GEF support.

VIII. PROJECT RISKS

54. **Mobilization Risk:** The REEF Equity Fund and Debt Facility may not achieve their respective capitalization targets totaling US$210 million. Risk factors include the relatively early stage of development of the target sectors, small project sizes, potential investment in a wide range of countries with different risk profiles and the relative lack of experience among commercial banks with debt facilities of the type envisioned. However, prior to any formal marketing having been conducted, the initiative has drawn considerable interest from a wide variety of potential investors. The mobilization risk is also mitigated by IFC's participation and by the prospective use of GEF funds to broaden the scope of available investment opportunities and to cover a portion of the larger-than-ordinary fund management costs.

55. **Debt Facility:** Since sub-loans under the Debt Facility must be approved by each participating lender through the Debt Facility Investment Committee, there can be no assurance that all of the Debt Facility will be drawn down and used by REEF within the Debt Facility's life. Furthermore, the ability of each participant bank to opt out of a given loan could result in less than US$100 million being made available to REEF. This risk will be mitigated by the clear definition in advance of the range of transactions that will be considered and specific criteria to be met. In addition, penalties may be applied to Debt Facility participants who reject two or more proposed transactions that are approved by IFC.

RENEWABLE ENERGY AND ENERGY EFFICIENCY FUND (REEF)

Appendix A
Incremental Cost Analysis

Global Environment Objectives and the Baseline

1. The proposed GEF support for REEF is designed to help expand the market for commercial financing of RE and EE projects in emerging market countries, thereby accelerating the pace and improving the sustainability of development of these sectors. An international investment fund seeking to earn a risk-adjusted commercial rate of return would normally focus on projects that are larger and/or have lower transaction costs and lower risk profiles than many RE and EE projects currently under development. The impact of such larger projects may be less than that of smaller, riskier and/or more complex projects in terms of the deeper market penetration needed for accelerated RE/EE sector development. Support for such projects could have a strong multiplier effect on private investment and sales in potentially large market segments currently in earlier stages of development.

2. Absent the successful implementation of GHG reduction strategies, GHG emissions are expected to rise from 6.5 Gigatonnes (Gt) per year in 1995 to 11.1 Gt in 2025. A massive expansion of the RE and EE sectors, among other developments, will be needed to stabilize concentrations of GHGs in the atmosphere, the long-term objective of the FCCC. According to the Inter-Governmental Panel on Climate Change, stabilization could eventually require an estimated 60-70% cut in annual GHG emissions relative to today's emissions levels.[2]

Alternative with GEF Support

3. The GEF funds will help: (i) complete the financing required for the development and/or implementation of eligible projects that are unlikely to proceed in timely fashion without support from concessional sources due to unacceptable incremental costs or risks, and (ii) defray the incremental management costs of investing in such projects.

4. As a result of the GEF support, REEF is likely to invest in a larger number and greater diversity of projects in a wider range of countries than a conventional fund, to provide greater than normal advisory support to project sponsors, and to have a stronger demonstration effect with respect to the commercial investment opportunity and the documentation of environmental and economic benefits of RE and EE private sector projects.

Incremental Costs and Risks

5. GEF funds will be used to fund incremental costs of: a) the REEF's additional higher administrative costs of processing and supervising a portfolio of renewable energy and energy

[2]Inter-Governmental Panel on Climate Change, *Climate Change 1992: The Supplemental Report to the IPCC Scientific Assessment*, Cambridge University Press, Cambridge, UK

efficiency projects, and b) for co-financing the incremental costs of the smaller, riskier, and more innovative projects financed by REEF.

Management and Administration

6. The incremental costs related to the management of REEF are the additional operating costs expected to be incurred by the FMC due to REEF's anticipated investments in projects that would not normally be considered by a commercial investment fund due to their small size, complexity and/or other factors previously mentioned. In addition, the FMC, IFC and the investee companies will incur incremental costs in administering the GEF funds. Removal of barriers at the level of the fund (these incremental management and administrative costs) is consistent with GEF Operational Programs #5 and #6 on barrier removal.

8. A private equity fund manager typically charges an annual fee to the fund of 2% to 3% of committed capital to cover fund management costs (if the fee is higher than this, it becomes difficult to attract investors to the fund due to the adverse impact on their expected returns). This fee covers staff, consultants, travel, overhead and other costs associated with making investments and managing the portfolio. However, an FMC investing in a diversified range of projects and markets in the RE and EE sectors, with attention to smaller and/or pioneering projects, can be expected to incur higher than normal costs for a number of reasons (see para 46 above).

9. The estimated budget for managing the REEF is between US$3.75 and US$3.95 million per year, or 3.4% to 3.6% of the Equity Fund's target equity capital of US$110 million, based on projections deemed consistent with IFC's experience with investment funds in emerging markets and more specifically with investment in small-and-medium size enterprises and projects. The expected annual management fee of 2.5% of capital will therefore be supplemented by up to US$1 to US$1.2 million per year in GEF grant support (at REEF's US$200 million in capital commitment level) to cover the additional operating costs associated with investment in projects eligible for GEF co-financing. It is anticipated that the grant support will be disbursed to the FMC during its 5-year investment period on the basis of annual budgets approved and closely monitored by the IRGC. The IRGC will assess the appropriateness of all incremental costs funded by GEF. If the costs incurred by the FMC in excess of 2.5% of committed capital are not deemed to be justified by IFC, subsequent disbursements of GEF funding to the FMC will be reduced accordingly.

10. Note that the Debt Facility portion of REEF does not figure into estimation of the FMC's budget (as outlined in paragraph 49 above). Each participating lender in the Debt Facility will likely charge front end and commitment fees to each project receiving debt. Although fee arrangements will depend upon the final negotiations concerning the Debt Facility, the FMC is not likely to receive fees from the Debt Facility. The FMC may charge the investee company or project a closing fee for putting together the debt portion of the investment.

11. As an incentive to focus on the GEF portion of the REEF portfolio and in keeping with commercial fund management practices, it is proposed that the FMC be entitled to retain a small share (to be negotiated with the FMC) of the non-grant GEF co-financing effectively recovered from investee projects (see paragraph 44 above for further explanation). This incentive is an incremental

cost. The incentive will not be paid unless non-grant GEF co-financing funds are recovered from projects. The incentive amount paid to the FMC (and the amount of the incremental cost) will therefore depend upon the amount recovered from projects and the FMC incentive share.

Co-Financing

12. In the case of incremental risks and costs for the project co-financing, the GEF funds will support projects that are commercially viable or nearly so, but that would produce unacceptable risk-adjusted rates of return without some degree of concessional support. It is expected that the bulk of the GEF co-financing will take the form of loans, guarantees, equity investments, and grants for transaction costs (consistent with GEF Operational Programs #5 and #6). In addition grants may be used for capital cost buy-downs involving technologies described in Operational Program #7 where a grant is the only instrument reasonably capable of delivering the incentive needed to produce an acceptable risk:return ratio for the project.

13. The project sponsors will be required to make a proposal to the FMC and the IRGC justifying why they are asking for the particular type, terms, and amount of GEF support. The form and terms of GEF co-financing in REEF investment projects will be developed and approved in accordance with investment guidelines to be adopted by the IRGC, in keeping with the criteria set out in paragraph 42 of this Project Document. The FMC and IRGC will review a number of factors in determining the amount in terms of GEF funding, including: (i) the regular ways that investment funds and IFC do business with investee companies; (ii) a consideration of a reasonable target risk-adjusted rate of return on equity (RARR) of the project; (iii) the pricing of the debt and equity co-financing available to the project; (iv) the amount and type of commercial funding available to the project; (v) the relationship of the GEF co-financing to the estimated level of incremental risk and cost associated with a possible investment taking into consideration the expected risk-adjusted rates of return and costs of alternative (non-GHG abating) projects; (vi) the desire to ensure that the project sponsors, other financiers and other participants have a strong commercial incentive not only to invest in the supported projects but also to expand their efforts in the target RE and EE sectors to the fullest of their capabilities; (vii) the form of the investment which should correspond as closely as possible to the particular market barrier creating the need and justification for the GEF support, such as a loan that extends the repayment period if the market barrier is lack of access to long-term credit, or a partial guarantee if the impediment is the credit profile of a particular client or class of clients, as is often the case in EE and off-grid RE transactions; and (viii) cost-effective use of the GEF funds.

14. There is no firm basis for estimating a priori the amount of actual incremental cost to be met by the GEF funds used for project co-financing since the bulk of the GEF co-financing will be in the form of loans, loan guarantees, and equity investments. Incremental costs in this context are defined as GEF funds going to the sub-projects that are not recovered and returned to the GEF. It will only be after a period of eight to thirteen years (after REEF has exited investments) that good information on actual outcomes will be available. Theoretically, the amount of incremental cost could range from a worst case scenario of up to US$24 million (the total amount of GEF co-financing) if all loans, equity investments and guarantee arrangements are a total loss to the percentage of co-financing advanced in the form of grants (for example US$2.4 million if 10% of co-financing goes to grants). Under a best case scenario, there is a possibility under reasonable assumptions that the amount of funds repaid to

GEF from loans and equity investments and income thereon, and unutilized guarantees and will exceed the US$24 million in GEF co-financing.

Appendix B
Summary of Disbursement Arrangements

The GEF grant of up to US$30 million will be made available to IFC from the GEF Trust Fund through the World Bank's Trust Funds Division. Disbursements are expected to take place as follows:

> Co-financing: invested during the course of REEF's normal five-year investment period as needed for projects approved by the IRGC.
>
> FMC Costs: paid semi-annually in advance to the FMC during its first five years of operation, pursuant to budgets approved by the IRGC.
>
> Administration: drawn down as required over a ten-year period.

As discussed in paragraphs 9 and 40 above, it is proposed that the first US$10 million in GEF funds be made available upon successful first closing of the REEF Equity Fund of at least US$50 million of non-GEF capital an additional US$10 million in GEF support be provided when US$100 of non-GEF capital is mobilized, with the remaining US$10 million of GEF funds provided on a prorated basis in relation to the next US$100 million in capital raised for the Equity Fund and Debt Facility.

Appendix C
REEF Implementation Timetable

Time taken to prepare project	2.5 years
IFC management approval granted to project concept	December 1994
Launching of feasibility study	March 1995
GEF Council initial endorsement	April 1996
Selection of REEF fund management team	July 1996
Completion of REEF structuring and appraisal	May 1997
Approval of IFC investment by IFC Board of Directors	June 1997