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GEF/R2008-0016/1

June 12, 2008

Streamlined Procedure
For meeting of
Board: Thursday, June 26, 2008

FROM: Vice President and Corporate Secretary

Argentina - Energy Efficiency Project

Project Appraisal Document

Attached is the Project Appraisal Document regarding a proposed Trust Fund Grant from the Global Environment Facility to the Argentine Republic for an Energy Efficiency Project (GEF/R2008-0016). This project will be taken up at a meeting of the Executive Directors on **Thursday, June 26, 2008, under the Streamlined Procedure.**

Distribution:

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President
Bank Group Senior Management
Vice Presidents, Bank, IFC and MIGA
Directors and Department Heads, Bank, IFC and MIGA

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The World Bank

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Report No: 43840-AR

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT FROM THE

GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF US$ 15.155 MILLION

TO THE

ARGENTINE REPUBLIC

FOR AN

ENERGY EFFICIENCY PROJECT

May 29, 2008

Sustainable Development Department
Country Management Unit for Argentina, Chile, Paraguay and Uruguay
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS
Exchange Rate Effective (May 27, 2008)

Currency Unit = Argentine Peso
3.1401 = US$1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ADEERA	Electric Distribution Utilities Association of the Republic of Argentina (Asociación de Distribuidores de Energía Eléctrica de la República Argentina)
AEEF	Argentina Energy Efficiency Fund
CAS	Country Assistance Strategy
CFAA	Country Financial Accountability Assessment
CFL	Compact Fluorescent Lamp
CIM	Centrum Fur Internationale Migration und Entwicklung / Senior Expert Program
DSM	Demand Side Management
DGCAF	General Financial Management Directorate (Dirección General de Convenios de Asistencia Financiera)
EDELAP	Empresa Distribuidora La Plata
EDENOR	Empresa Distribuidora y Comercializadora Norte (Buenos Aires)
EDESUR	Empresa Distribuidora y Comercializadora Sur (Buenos Aires)
EE	Energy Efficiency
ENARGAS	National Gas Regulator (Ente Nacional Regulador del Gas)
ESCO	Energy Services Company
FA	Fiduciary Agent
GEF	Global Environment Facility
GHG	Greenhouse Gas
GoA	Government of Argentina
GTZ	Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
IFC	International Finance Corporation
IRAM	Argentine Institute for Standardization and Certification (Instituto Argentino de Normalización y Certificación)
M&E	Monitoring and Evaluation
MERCOSUR	Southern Common Market (Mercado Común del Sur)
PAEE	Energy Conservation and Energy Efficiency Program (Programa de Ahorro y Eficiencia Energética)
PIEEP	Program to Increase Energy Efficiency and Productivity in SMEs (Programa de Incremento de la Eficiencia Energética y Productiva en las PYMEs)
PRONUREE	National Program for the Rational and Efficient Use of Energy (Programa Nacional para el Uso Racional y Eficiente de la Energía)
PURE	Program for the Rational Use of Energy (Programa de Uso Racional de Energía)
PYMEs/SMEs	Pequeñas y Medianas Empresas/Small and Medium-Sized Enterprises
RFP	Request for Proposals
S&L	Standard & Labeling
SE	Secretariat of Energy (Secretaría de Energía)
TOE	Tons of oil-equivalent
UNDP	United Nations Development Programme
UTN	National Technological University (Universidad Tecnológica Nacional)
WB	World Bank

Vice President:	Pamela Cox
Country Manager/Director:	Pedro Alba
Sector Director:	Laura Tuck
Sector Manager:	Philippe Charles Benoit
Task Team Leader:	Xiaoping Wang

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ARGENTINA

ENERGY EFFICIENCY PROJECT

PROJECT APPRAISAL DOCUMENT

LATIN AMERICA AND CARIBBEAN

LCSEG

Date: May 29, 2008	Team Leader: Xiaoping Wang
Country Director: Pedro Alba	Sectors: General energy sector (100%)
Sector Manager: Philippe Charles Benoit	Themes: Climate change (P);Small and medium enterprise support (S)
Project ID: P090119	
Focal Area: Climate change	
Environmental Assessment: Partial	
Lending Instrument: Grant	

Project Financing Data

[ ] Loan [ ] Credit [X] Grant [ ] Guarantee [ ] Other:

For Loans/Credits/Others:
Total Bank financing (US$): 15.155 million
Proposed terms:

Financing Plan (US$m)

Source	Local	Foreign	Total
RECIPIENT	43.360	0.000	43.360
Global Environment Facility (GEF)	5.955	9.200	15.155
Joint Argentina-Germany Senior Expert Program (CIM)	0.740	0.000	0.740
Distribution Companies	40.000	0.000	40.000
Small and Medium Enterprises	0.180	0.000	0.180
Total:	90.235	9.200	99.435

Recipient:
Argentine Republic

Responsible Agency:
Secretariat of Energy
Av. Paseo Colón 171
Capital Federal, C1063ACB
República Argentina
Tel: 011-5411-4349-8632

Estimated disbursements (Bank FY/US$ million)

FY	2009	2010	2011	2012	2013	2014	2015		
Annual	0.60	5.49	5.55	1.25	1.25	0.42	0.555		
Cumulative	0.60	6.09	11.64	12.89	14.14	14.56	15.155		

Project implementation period: Start January 2, 2009 End: December 31, 2014

Expected effectiveness date: December 31, 2008 Expected closing date: June 30, 2015

Does the project depart from the CAS in content or other significant respects? ***Ref. PAD I.C.***	[ ]Yes [X] No
Does the project require any exceptions from Bank policies? ***Ref. PAD IV.G.*** Have these been approved by Bank management? Is approval for any policy exception sought from the Board?	[ ]Yes [X] No [ ]Yes [ ] No [ ]Yes [X] No
Does the project include any critical risks rated "substantial" or "high"? ***Ref. PAD III.E.***	[ ]Yes [X] No
Does the project meet the Regional criteria for readiness for implementation? ***Ref. PAD IV.G.***	[X]Yes [ ] No

Project development objective ***Ref. PAD II.C., Technical Annex 3***
The development objective of the project is to increase the efficiency in the use of energy by developing a sustainable and growing market for energy efficiency services and equipment in Argentina.

Global Environment objective ***Ref. PAD II.C., Technical Annex 3***
The global objective of the project is to reduce greenhouse gas emissions by removing the regulatory, financing, and informational barriers that prevent activities and investments in energy efficiency and energy conservation.

Project description *[one-sentence summary of each component]* ***Ref. PAD II.D., Technical Annex 4***
The project consists of three components: (1) development of the Argentina Energy Efficiency Fund (AEEF), and a related grant facility to finance preparation of a pipeline of projects; (2) development of a Utility EE program focused on efficient lighting; and (3) capacity building in the area of EE, as well as support for project management.

Component 1: Development of the Argentina Energy Efficiency Fund includes two activities: (a) the development of a pipeline of energy efficiency projects, to be financed through a grant facility; and (b) the development of the Argentina Energy Efficiency Fund (AEEF).

Component 2: Development of a Utility EE Program will: (a) support the acquisition and distribution of compact florescent lamps (CFLs), information dissemination, training and monitoring and evaluation of the energy saving benefits as well as the effectiveness in achieving equitable distribution to residential customers; (b) provide technical assistance for exploring new delivery mechanisms of EE services through utilities; and (c) analyze the specific language and cultural needs of the social groups benefited by the CFLs and incorporate the results of the analysis into the dissemination activities.

Component 3: Capacity building and project management will build capacity within the private and public sectors and strengthen the incentives for investments in energy efficiency.

Which safeguard policies are triggered, if any? ***Ref. PAD IV.F., Technical Annex 10***
Environmental Assessment (OP/BP/GP 4.01).

Significant, non-standard conditions, **if any**, for:
Ref. PAD III.F.
Board presentation: None

Grant effectiveness: None

Covenants applicable to project implementation:

1. The SE shall sign an Implementation Agreement with the corresponding SMEs under terms and conditions acceptable to the World Bank to implement feasibilities studies under Component 1.

2. The SE shall sign a Distribution Agreement with the participating Distribution Utilities on terms and conditions acceptable to the World Bank to implement the distribution, dissemination, training and M&E activities under Component 2.

3. The SE shall sign a Laboratory Agreement with the laboratories that will benefit from the project to implement the testing and certification activities under Component 3.

4. The SE shall ensure that the DNPROM is, at all times during project implementation, assisted by professional staff, including, *inter alia*, a project coordinator, a financial management specialist/liaison, a procurement specialist, and a monitoring and evaluation specialist.

5. The Recipient will create in the annual budget for SE for 2008 and maintain thereafter a specific budget line entry for the project so as to monitor the project's budget execution process in the Recipient Integrated Financial Management System (SIDIF).

ARGENTINA
Argentina Energy Efficiency Project

CONTENTS

A. STRATEGIC CONTEXT AND RATIONALE

1. Country and sector issues

1. Argentina is the fourth largest consumer of energy in Latin America, second only to Venezuela in per capita energy consumption. Total installed capacity in 2006 was 24,046 MW, 54 percent of which was thermal, 41 percent hydro power and 4 percent nuclear, with less than 0.1 percent renewable. It is one of South America's largest economies with a gross domestic product (GDP) that grew by 36 percent between 2003 and 2006 after the social and economic crisis and currency devaluation of 2002. This high level of economic growth has led to a corresponding increase in the demand for energy, which is projected to grow by more than 5 percent per year.

2. Argentina faces several key challenges in the energy sector, notably the urgent need to increase the current limited margins of installed capacity in generation, transmission and distribution facilities. In the short term, 800 to 1,000 MW of new generation capacity need to be added annually to keep up with the increasing demand. Argentina also faces numerous regulatory challenges, in part the result of the "pesification" of tariff and tariff freezes following the economic crisis of 2002.

3. The Government of Argentina (GoA) recognizes the need to move beyond the emergency framework put in place in the immediate aftermath of the 2002 economic crisis and has introduced measures designed to increase investment in new generation capacity. One example is the Energy Plus program, by which the energy demanded by large consumers above their 2005 level can be provided from new generation facilities at market prices. Moreover, Argentina has embarked upon a concerted effort to improve energy efficiency, thereby helping to reduce the need for incremental generation capacity, creating financial savings, and ultimately reducing greenhouse gas (GHG) emissions by reducing the need for fossil fuel-based generation. The emphasis on energy efficiency received an additional boost from the newly inaugurated administration which has made energy savings a key area of focus during its first months in office.

Evolution of Energy Efficiency Efforts 1990-2006

4. While energy sector reforms in Argentina during the 1990s made the power and gas sectors among the most competitive in South America, the efficiency gains in the production, transmission, and distribution levels were not accompanied by efficiency improvements on the demand side. This situation resulted in: (a) higher energy intensity for the Argentine economy, (b) higher energy costs and lower competitiveness for productive sectors, (c) greater energy consumption for consumers with increasingly higher costs as retail prices increase, and (d) relatively greater local and global pollution associated with the consumption of fossil fuels.

5. In the late 1990's, the lower and upper house of the Parliament passed energy efficiency legislation, but the momentum stalled in the face of the economic crisis in 2002. The crisis created a loss of confidence in the financial sector and a contraction of credit for investments

in new equipment, especially among small and medium enterprises. The devaluation of the Argentine peso increased the cost of imported equipment and parts.

6. GoA, through the Secretariat of Energy (SE), launched its first Energy Saving and Efficiency Program (PAEE) in 2003. The PAEE included a number of strategic areas, including development of the regulatory framework, institutional strengthening, awareness enhancement, economic incentives, financial mechanisms, energy efficiency (EE) research and development (R&D) and information systems regarding EE technologies. This was followed by the "Program for the Rational Use of Energy" (PURE) launched in 2004. PURE is an incentive-based program similar to the initiative developed by Brazil in 2001 during its energy crisis. In Argentina, electricity and natural gas users were required to save at least 5 percent in 2004 compared with their 2003 level of consumption; any consumption above the quota was subject to penalties and actual savings were rewarded. The program was extended in the ensuing years and incentives were strengthened. However, the impact of both programs has been limited, particularly in the residential sector.

Potential for improving energy efficiency and reducing greenhouse gas emissions

7. *Tariff incentives for energy efficiency.* Adequate price incentives exist in Argentina today to make energy efficiency investments profitable in both the electricity and natural gas sectors. Since 2002, the government has made gradual tariff increases. Electricity wholesale prices have been partially adjusted to reflect variations in seasonal costs. The increase in prices has been passed through to industrial and commercial users, whose tariffs have increased by over 60 percent since 2002. In the metropolitan area of Buenos Aires, industrial tariffs for large industrial consumers have been increased by 114 percent; further increases of electricity prices are expected over the course of 2008 as part of an agreement signed between the Government and the power utilities under federal regulation. In March 2008, electric tariffs for all categories of users, including residential users, were increased by 23 percent on average in the Province of Cordoba, and other provinces have approved similar increases recently. Wellhead gas prices have increased by about 135 percent since 2002, up to US$1/MMBtu. These increases have been passed through to industrial, commercial, and compressed natural gas (CNG) consumers, resulting in retail price increases of 30-90 percent since 2002. In addition, as mandated by the regulation that created the Energy Plus program, large consumers have to buy their incremental demand of energy above their 2005 level from new generation facilities at market prices. However, tariffs still remain low relative to the cost of supply.

8. *Energy efficiency potential.* The primary energy intensity of Argentina's economy has been increasing since 1998, and reached 6,172 Btu per US$ of GDP (2000 dollars) in 2005, which is approximately 3.5 times that of Japan, which has one of the lowest energy intensities in the world. Energy costs represent an important share of total costs for several types of industries, such as cement, paper, textiles, ceramics, etc. The use of efficient equipment by industry could reduce electricity consumption by 20 percent and fuel use by 15 percent on average. In the commercial and residential sectors as well as public lighting, average savings of 30 percent could be achieved. Associated energy savings would be equivalent to an avoidance of 5,700 MW in generation capacity.

9. *Greenhouse gas emission reduction potential.* Greenhouse gas (GHG) emissions in Argentina amounted to an estimated 282 million tons in 2000 (excluding GHG emissions from changes in land use), 46 percent corresponded to CO_2, 30 percent to CH_4 and 24 percent to N_2O. The energy sector was the main contributor to GHG emissions, representing 47 percent of the total. Although CO_2 intensity is moderate by developing country standards, most of the additional consumption in the coming years is expected to be supplied from fossil fuels. Based on reasonable rates of market penetration of EE technologies and practices (achieving 30 percent of total potential savings after the first ten years), annual reduction of CO_2 emissions could reach 14 million tons in 2015, equivalent to 5 percent of baseline emissions. Local benefits would include significant cost reductions for customers and deferred investments in power generation and gas transport.

Barriers to energy efficiency

10. Progress has been made in realizing the EE potential, for example, the increased penetration of CFLs through the Efficient Lighting Initiative (ELI)[1] and EE improvements in small and medium enterprises through the Project for Increasing Productive and Energy Efficiency in Small and Medium Enterprises (PIEEP). Nonetheless, these programs are small, demonstration in nature and have limited impacts. There exist a number of barriers to increased investment in energy efficiency in Argentina. Some of these barriers are similar to those in other countries, while others are specific to the financial situation and the regulatory framework in the country.

- *Lack of regulatory incentives to promote energy efficiency.* Even with high enough energy prices to justify investments in some sectors, the regulatory framework for electricity and natural gas often discourages utilities and many classes of consumers from making energy efficiency investments. A prime example is the inability for utilities to finance energy efficiency investments by allowing customers to repay through their utility bills.

- *Lack of adequate price signals to energy consumers, especially among residential consumers.* Partly as a result of the financial crisis, energy prices for some classes of consumers have been controlled and not allowed to reflect increases in the costs of energy supply. Some residential tariffs are too low to provide incentives for energy efficiency -- in fact, this type of distorted tariff provides an incentive for increasing consumption. Electricity and natural gas tariffs are still below 2001 levels, although they are being increased for many classes of consumers, especially industrial and commercial consumers.

- *Lack of information among residential consumers on the efficiency of energy equipment.* Failure to provide information on the lifecycle energy cost relative to the purchase cost of energy equipment or the energy efficiency of appliances is part of

[1] ELI was a three-year, US$15 million program of the International Finance Corporation supported by the GEF that substantially accelerated the development of the market for efficient lighting technology in Argentina, the Czech Republic, Hungary, Latvia, Peru, Philippines, and South Africa.

the reason why consumers tend to make their purchase decision only in terms of the initial price. Lack of reliable information on equipment efficiency also prevents the use of its low operational cost as a marketing instrument. The implementation of the standardization, testing, certification and labeling program (currently limited to refrigerators) needs to be accelerated in order to cover other appliances included in the program, in order to provide information and incentives to vendors and consumers.

- *Inadequate information and high transaction costs for enterprises to implement energy efficiency investments.* The lack of information among industrial consumers about EE technologies and experiences, and the high cost of the initial design and implementation of EE projects have compounded the difficulties for obtaining access to financing for energy efficiency.

- *Perceived high risk among banks to finance energy efficiency projects.* Access to financing has been difficult in the aftermath of the 2002 crisis, and energy efficiency projects are still perceived as high-risk initiatives, while there are doubts related to their actual profitability. In general, commercial banks are unsure of how to evaluate EE projects and their guarantee requirements, and several small and medium projects become unfeasible due to high transaction costs.

- *Infant ESCO industry.* There are only a few energy services consulting companies in Argentina and in most cases they do not function as real energy service companies (ESCOs) even though they are expected to pursue cost-effective energy efficiency investments.

The Government's current energy efficiency strategy

11. In December 2007, the Government launched the National Program for the Rational and Efficient Use of Energy (PRONUREE, Decree 140/2007). This Decree, which declared the rational and efficient use of energy to be in the national interest, is also part of the energy sector strategy to counter supply/demand imbalance. The PRONUREE, under the responsibility of the Secretariat of Energy, aims to be a vehicle for improving energy efficiency in the energy-consuming sectors and acknowledges that energy efficiency needs to be promoted with a long-term commitment and vision. It also acknowledges the connection between energy efficiency and sustainable development, including the reduction of greenhouse gas emissions. Finally, the Program recognizes the need for individual behavioral changes to be promoted with an educational strategy, with the public sector setting the example by assuming a leadership role in the implementation of energy conservation measures in its facilities. The decree is partly a result of its ongoing dialogue regarding EE with the World Bank and other donors, and its recognition of the benefits of EE on energy security and sustainable economic growth.

12. The PRONUREE includes short and long term measures aimed at improving energy efficiency in the industrial, commercial, transport, residential and service sectors and public buildings. It also supports educational programs on energy efficiency, enhanced regulations to expand cogeneration activities, labeling of equipment and appliances that use energy,

improvements to energy efficiency regulations, and broader utilization of the Clean Development Mechanism to support the development of energy efficiency projects.

2. Rationale for Bank and GEF involvement

13. The GoA has requested Bank support for its EE efforts, which have now been incorporated into its PRONUREE program. The launching of the program reaffirms the GoA's strong commitment to EE. However, the experience of implementing previous EE programs has been modest and Bank involvement is important for achieving results under the PRONUREE. This project will help establish regulatory and policy measures, scale up the efforts to phase out inefficient lighting, disseminate information and develop financial risk reduction instruments needed to promote energy efficiency. It would be central to implementing a sound and effective EE program and represent one of the most important first steps in the development and transformation of the EE market. The Bank would be able to play an important role in this process with its comparative advantage in facilitating high-level policy dialogue and policy developments, leveraging EE financing and transforming consumers' behavior. Over the last decade, the Bank has accumulated substantial experience with energy efficiency projects in other countries. The lessons learned from similar projects in other countries (China, Brazil, Poland, Croatia, Bulgaria, etc.) will be applied to this project. A follow-up project supported through an IBRD loan is being planned and is expected to provide complementary financing to the Argentina Energy Efficiency Fund and to intensify the investments in EE, among others.

14. GEF participation is catalytic to the development of the proposed energy efficiency fund and to leveraging additional resources and reaching a critical mass for sustainability. GEF will assist in accelerating the implementation of the national program to phase out incandescent bulbs by 2011. This project is well aligned with the GEF "Ban the Bulb" initiative to transform the global market toward efficient lighting technologies through accelerated phase-out of inefficient lighting. GEF will also provide valuable technical assistance for the development of a supportive regulatory framework and policy incentives to promote more EE investments and strengthening the capacity of different actors in a nascent EE market. The global benefits from this project are significant; 10.7 million tons of CO2e are expected to be avoided due to energy savings by the end of the project.

3. Higher level objectives to which the project contributes

15. The project is fully consistent with the objectives of the 2006-2008 Country Assistance Strategy (CAS) for Argentina, in particular the objectives of sustained economic growth, environmental sustainability and climate change mitigation. Promoting energy efficiency has been shown to have positive economic and development benefits to an economy by lowering production costs and placing energy efficiency within the broader context of efficient production. As Argentina continues to grow economically, EE benefits include not only improving productivity and lowering the costs of energy supply, but also, to the extent that fossil fuel use is reduced, improving local air quality.

16. This project supports the GEF climate change focal area by reducing greenhouse gas emissions. The project is consistent with the GEF Operational Program No. 5: promote energy efficiency 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 GHG emissions. The project also fits the GEF-3 strategic priority S1: Transformation of markets for high-volume, commercial, low GHG products or processes and the GEF-4 strategic objectives SO-1: To promote energy-efficient technologies and practices in appliances and buildings, and SO-2: To promote energy-efficient technologies and practices in industrial production and manufacturing processes.

17. The project adopts a market transformation approach, including energy-efficient product standards and labels, marketing, awareness enhancement, capacity building and limited subsidies for the phase-out of inefficient incandescent bulbs. These activities together are expected to result in significant and lasting market penetration for compact florescent lamps (CFLs) and other energy efficient equipment. GHG reduction will be realized at relatively low program costs (about US$ 0.8 of GEF grant per ton of CO2 equivalent).

B. PROJECT DESCRIPTION

1. Lending instrument

18. This project is financed by a GEF grant and will be implemented over a six-year period.

2. Project development objective and key indicators

19. The development objective of the project is to increase the efficiency in the use of energy by developing a sustainable and growing market for energy efficiency services and equipment in Argentina. The global objective of the project is to reduce greenhouse gas emissions by removing the regulatory, financing, and informational barriers that prevent activities and investments in energy efficiency and energy conservation. These objectives will be achieved by: (a) developing a solid pipeline of bankable EE projects in the industrial and commercial sectors; (b) supporting an efficient lighting program implemented through electric utilities; and (c) strengthening the incentive framework for EE.

20. The key indicators for measuring achievement of the project objective are:

- GHG emissions reduced;
- number of bankable EE project proposals developed;
- number of EE standards and labels issued;
- number of CFLs used by residential customers; and
- enhanced awareness and knowledge of EE among energy consumers.

See Annex 3 for detailed indicators and targets.

3. Project components

21. The project consists of three components: (a) development of the Argentina Energy Efficiency Fund (AEEF), and a related grant facility to finance preparation of a pipeline of projects; (b) development of a Utility EE program focused on efficient lighting; and (c) capacity building in the area of EE, as well as support for project management.

22. **Component 1: Development of the Argentina Energy Efficiency Fund** *(Total estimated cost US$2.18 million, of which US$1.80 million from GEF)*

This component includes two activities: (a) the development of a pipeline of energy efficiency projects, to be financed through a grant facility; and (b) the development of the Argentina Energy Efficiency Fund (AEEF).

23. **Component 2: Development of a Utility EE Program** *(US$90.50 million, of which US$9.20 million from GEF)*

This component will support the acquisition and distribution of compact florescent lamps (CFLs), information dissemination, training and monitoring and evaluation of the energy saving benefits as well as the effectiveness in achieving equitable distribution to residential customers, provide technical assistance for exploring new delivery mechanisms of EE services through utilities, analyze the specific language and cultural needs of the social groups benefited by the CFLs and incorporate the results of such analysis into the dissemination activities.. The component will be implemented with the participation of the power distribution utilities and contribute to the national initiative designed to phase out incandescent bulbs by 2011 in Argentina. This activity is well aligned with the GEF "Ban the Bulb" initiative to transform the global market toward efficient lighting technologies through accelerated phase-out of inefficient lighting.

24. **Component 3: Capacity Building and Project Management** *(Total estimated cost US$6.75 million, of which US$4.15 million from GEF).*

This component will build capacity within the private and public sectors and strengthen the incentives for investments in energy efficiency. The component will include the following activities:

a. Studies to identify and evaluate the main barriers to the development of the energy efficiency market, and design of norms/programs to remove the identified barriers - *Total estimated cost US$0.30 million, of which US$ 0.25 million from GEF.*
b. Standardization, testing, certification and labeling program-*Total estimated cost US$1.34 million, of which US$ 1.19 million from GEF.*
c. Capacity building for ESCOs-*Total estimated cost US$0.87 million, of which US$ 0.45 million from GEF.*
d. Information, training and dissemination programs-*Total estimated cost US$1.55 million, of which US$ 1.05 million from GEF*

e. Monitoring and evaluation.-*Total estimated cost US$0.67 million, of which US$ 0.30 million from GEF.*
f. Project management -*Total estimated cost US$2.02 million, of which US$ 0.91 million from GEF.*

24. Table 1 provides a summary of the project costs by component and source of financing. A more detailed description of project components can be found in Annex 4.

Table 1. Project costs by component and source of financing (US$ million)

Components	GEF	GoA	Utilities	Others	Total
1) Development of the AEEF	1.800	0.200	0.000	0.180*	2.180
2) Development of a Utility EE program	9.200	41.300	40.000	0.000	90.500
3) Capacity Building and Project Management	4.155	1.860	0.000	0.740**	6.755
Total	**15.155**	**43.360**	**40.000**	**0.920**	**99.435**

* From project entities

** From the Senior Expert Program (CIM or Centrum Fur Internationale Migration und Entwicklung) jointly supported by the GoA and the German Technical Cooperation (GTZ). The CIM will finance three senior experts posted in the Secretariat of Energy.

4. Lessons learned and reflected in the project design

26. The following lessons have been learned from previous experience and have been reflected in the Project's design.

- *Promoting dissemination of information to support market mechanisms.* Lessons learned suggest that market mechanisms to promote cost-effective technologies and EE products have sustainable prospects as they allow market actors to make decisions based on products' commercial merits. One of the requirements for making these decisions is that sufficient and accurate information about the energy consumption of products be available and known to the consumers. Therefore, the project includes a certification and labeling program to assess the energy costs of major energy-consuming equipment, and the dissemination of this information to consumers.

- *Addressing financial barriers.* Aside from technical information, it is important for financial information to be available, such as through case studies of firms that have successfully invested in energy efficiency equipment or processes. One other barrier that has been demonstrated in other countries is the high transaction costs for identifying and preparing energy efficiency investments, especially for the purposes of securing financing. The project addresses this barrier in two ways: (i) strengthening the capacity of ESCOs in provision of energy efficiency related services, including identification of EE projects and materialization of EE investments and (ii) providing a grant facility for energy audits and feasibility studies to establish a pipeline of bankable EE projects.

- *Ensuring synergies with government policies.* The review of the lessons learnt from a series of World Bank Energy Efficiency Projects[2] shows that, from an operational point of view, it is essential to avoid mismatches between the solutions attempted and local institutional environments. The initial design of this project was based on an extensive diagnostic work on the current in-country financial systems, energy efficiency market conditions and energy efficiency technical assessment capacities. The project scope was adjusted and refocused during the appraisal stage to match the significant progress made by the Government in developing the national EE program that culminated in the 2007 Decree for PRONUREE.

- *Challenges of utility energy efficiency program.* Based on past GEF experience, sustainability of the utility energy efficiency programs is an important concern. Experience suggests that three key issues must be taken in consideration to ensure sustainability: (a) the incentives for the utility, (b) the know-how and the human resources of the utilities and the regulatory agencies to evaluate EE projects, and (c) the provisions to make the program sustainable. Other important lessons for utility EE programs are: (i) a supportive policy environment is essential for success; (ii) programs should be complemented with financing instruments; (iii) public campaigns are critical; and (iv) program implementation units must have managerial and financial autonomy. The project addresses these elements under Component 2 and related activities under Component 3.

5. Alternatives considered and reasons for rejection

27. The project team considered a number of alternative project models before settling on the current proposed structure described in section 3.

- *Design of a comprehensive EE program.* The project was originally envisioned to tackle all the barriers existing in Argentina for new and increased EE investments and to cover as many sectors as possible, including industrial, commercial, and residential sectors. However, during the last few years of project preparation, GoA has made important progress in EE and has developed a comprehensive National Program for Rational and Efficient Use of Energy launched in December 2007. The dialogue between the government and the Bank/GEF facilitated the development of the national program. However, given the relatively small size of the GEF support, it was agreed during the project appraisal stage that GEF resources should be focused on a few target areas which can be implemented quickly to achieve results. In the meantime, the Bank and the government have agreed to intensify their collaboration on EE by considering a new larger follow-on operation to be supported by an IBRD loan.

- *Direct Investments in Energy Efficiency.* Direct investments in energy efficiency have been used by the World Bank in other countries, usually for projects where the potential energy savings were a significant share of total energy use. This approach

[2] "Financing Energy Efficiency. Lessons from Brazil, China, India and Beyond", World Bank , 2008

was considered inappropriate for Argentina given the absence of a dominant energy-consuming sector where investments in EE could be profitably made and also due to the availability of capital in the domestic market. Rather, large EE potential has been identified in small and medium-sized enterprises and residential users where the investment projects will be small and the transaction costs will be high. Thus, the project attempts to establish and pilot different mechanisms for grouping small transactions and minimizing their perceived risks, including ESCO development, cost- and risk-sharing with utilities and financing facilities for EE investments.

- *Capitalize the EE fund with GEF support.* The initial concept for the project was to overcome the lack of financing for energy efficiency by financial institutions through the creation of a dedicated loan fund capitalized by the GEF. This alternative was rejected for two reasons: (a) given the legislative environment in Argentina, an EE fund would need to operate as an independent trust fund and the process of establishing such a trust fund would take a considerable amount of time; and (b) GEF support was relatively small (consideration given to only US$ 5.5 million). Given the advanced stage of preparedness of the GEF project, and so as to avoid delay in project approval and implementation, it was agreed with the GoA that it would continue to develop and capitalize the EE fund in parallel. The GoA may request complementary financing from the Bank through the new IBRD loan operation under consideration and from other sources of funding.

- *Exclusive Reliance on ESCO market development.* At present, the ESCO market in Argentina is insufficiently developed for ESCOs to be the sole driving force behind the project. Nonetheless, the development of for-profit ESCOs, including energy performance contracts, will be developed under the project and ESCOs are expected to play a key role in undertaking energy efficiency investments in small and medium enterprises.

- *Focus only on industrial and commercial users.* While the project expects to promote commercial investments in the industrial and commercial sectors through the technical assistance and AEEF components, these components would only indirectly affect the residential and commercial market for electricity without the involvement of key electricity distribution companies. Therefore, it was agreed with the GoA to include electricity utilities in the project and to leverage investments in energy efficient equipment through the utility program component. It is also expected that the involvement of major electric utilities will provide important political and social support for EE given their size and influence, and given the large share of residential and commercial electricity usage in total energy use in Argentina.

- *Inclusion of natural gas distribution companies.* Although gas usage and the efficient use of natural gas will be addressed indirectly through components 1 and 2, natural gas distribution companies are not a focus of component 3. For technical and financial reasons, there are lower incentives for saving natural gas compared to electricity. The decision was therefore made to focus the utility program on electricity.

C. IMPLEMENTATION

1. Partnership arrangements

28. The support being provided by GEF under this project is complemented with support from the joint Argentina-Germany Senior Expert Program (CIM). Continued support from the CIM program to the Secretariat of Energy regarding energy efficiency policies and strategies and program implementation (notably, financing of three EE experts during 2008-2010) will contribute to strengthening SE's capacity for implementation of this program. This would represent an in-kind contribution equivalent to US$740,000.

2. Institutional and implementation arrangements

29. The project will be implemented by the Energy Secretariat (SE), under the Ministry of Federal Planning (MINPLAN). The National Promotion Directorate (DNPROM) of the SE will be in charge of the overall project coordination. The DNPROM has strong technical capacity, and will be further strengthened with consultants to fulfill the procurement functions and liaison with the DGCAF on financial management. The General Financial Management Directorate (DGCAF) will assist in the Financial Management (FM) aspects of the project implementation. The FM responsibilities by DGCAF comprise budgeting, accounting and financial reporting including preparation of interim un-audited financial reports (IFRs), internal control; flow of funds and disbursements; and external auditing. The electric utilities and, in some regions, municipalities will participate in the implementation of Component 2 (Development of a Utility EE Program).

30. A Coordination Committee composed of the relevant public agencies (such as the Environment and Sustainable Development Secretariat, Domestic Trade Secretariat and the Industry and SMEs Secretariat) will provide advice on the policy and governance framework (rules, regulations, guidelines, etc.) related to the project activities. A Technical Committee, composed of representatives of other government agencies, will facilitate the interaction needed between the SE and other agencies involved in project implementation. Both the Coordination Committee and the Technical Committee will be chaired by the Energy Secretariat and will meet on an ad-hoc basis.

3. Monitoring and evaluation of outcomes/results

31. Monitoring and evaluation (M&E) will be a key part of the program and adequate budgets have been designated to fulfill this function. M&E systems are being developed for all components of the project in order to monitor key project and program indicators. The project management team within the Secretariat of Energy will be responsible for developing and implementing M&E, with the support of local authorities, enterprises, and electricity distribution utilities, including collecting project performance information and reporting and evaluating the impact and results of the project. Surveys will be carried out to gauge consumers' EE awareness and knowledge and behavioral changes at the mid-term and the end of the project. The M&E results will be analyzed to illustrate the effectiveness of the different mechanisms demonstrated in this project in achieving expected energy savings and identify areas for further support in the short- and medium-term.

4. Sustainability and Replicability

32. *Sustainability.* The program will achieve sustainability through the strong commitment by the GoA to EE, the creation of a regulatory framework that reflects the marginal costs of energy supply and allows consumers to save money through investments in energy efficiency, development of a pipeline of bankable EE projects, aggressive market penetration of efficient lighting products, as well as through changes in consumer's behavior with better access to information and quality EE services.

33. Energy efficiency has been an integral part of the GoA's energy sector strategy to improve energy supply and provision of quality energy services. The launching of the comprehensive PRONUREE program in December 2007 and the extensive efforts in implementing it (deploying 25 million CFLs in the next two years is one example) demonstrate the GoA's strong commitment to EE. Following the PRONUREE, the government is preparing an energy efficiency law.

34. An enabling policy environment to be established with the project support is conducive to sustaining the EE activities. The pipeline of potential projects generated under this project will be incorporated into a publicly accessible national database and will be marketed to the Argentina Energy Efficiency Fund and other potential financiers. The AEEF is expected to be capitalized with government funds and other sources of funding and may request complementary financing through a Bank loan. The ESCO industry is expected to be strengthened and to provide quality services in realizing these investment projects. The ESCOs themselves will be driven by the profits that can be made on energy efficiency investments. Once the cost savings and EE benefits are materialized in the companies pioneering EE investments with project support, this is expected to have a ripple effect among the targeted industrial and commercial sectors, resulting in sustainability.

35. The market penetration of efficient residential lighting will be strengthened first by the wide distribution of CFLs complemented with the orchestrated dissemination and information campaigns, and then by the national effort to step up the supply of CFLs in the market. With the project's support, the GoA will distribute two CFLs free of charge to all households in the country as an initial incentive complemented with information on the energy savings of CFLs and necessary training. As a result of project implementation, customers should be well informed of the energy savings benefits of CFLs and would have enjoyed the cost savings, thus changing their consumption behaviors by becoming permanent users of CFLs. The labeling program will remain active after project completion since it will be incorporated into the existing standardization program in Argentina, managed by the Argentine Institute of Rationalization of Materials (IRAM). It is estimated that attaching the IRAM quality seal adds a 10 percent market value to products, and it is already a key element in the marketing strategy of Argentine manufacturers and producers.

36. *Replication.* Different mechanisms demonstrated in this project for delivery of EE activities are expected to be magnified in the targeted sectors (industrial, commercial and residential lighting), and to expand into other sectors such as public lighting, efficient housing, efficient appliances, etc. The labeling and standards component will be integrated into Argentina's own consumer products program. The other components of the project are expected to have positive demonstration and market development benefits, but will not create permanent institutions that will require ongoing grant money. For example, for the participating electric utilities, the energy efficiency investments should demonstrate positive effects in delaying investment in distribution infrastructure, and will be aided through regulations on customer billing, as well as consumer goods labeling established under component 3.a of the project.

5. Critical risks and possible controversial aspects

37. The main risks factors and the proposed mitigation measures are outlined in Table 2 below.

Table 2. Critical Risk Matrix

Risk	Risk Rating	Risk Mitigation Measures
Lack of broad support by government agencies at national and local levels	M	• Upfront commitment. • Involvement of several government agencies.
Energy savings do not materialize or equipment does not perform as planned	L	• Focus on proven technologies and sub sectors such as efficient lighting. • Labeling and M&E programs.
Energy price signals do not encourage end user interest in implementing energy efficiency measures	M	• Price adjustments have been made since the 2002 pesification and freezing of tariffs, and are expected to continue. • Electricity and gas prices are close to costs for industrial and commercial customers. • EE investments make financial sense for residential customers even at current energy prices.
EE regulatory incentives to be designed with project support will not be enacted by GoA and/or regulators.	M	• Regulatory incentives will be designed early in project implementation and will build on GoA's 2007 decree expanding its EE efforts.
Failure to adopt necessary regulatory authorizations for the creation of the Trust Fund for the establishment of the AEEF.	M	• Discussion with GoA regarding actions to establish the AEEF and evaluation of necessary processes.
Project execution is not done in timely and efficient fashion.	M	• Establishment of Coordination and Technical Committees to provide ad-hoc advice and support as needed. • SE has successful experience on implementing WB-financed projects. In addition to the existing competent technical staff, the DNPROM in the SE will be staffed with FM and procurement personnel
Lack of expertise within the DNPROM to carry out procurement activities.	H	• The DNPROM will be staffed at all time by procurement personnel acceptable to the Bank.
Overall risk rating	M	

H = High; S = Substantial; M = Modest; L = Low

6. Grant conditions and covenants

38. During negotiations, the Bank received:

- A Project Procurement Plan acceptable to the Bank.
- A Project Operational Manual acceptable to the Bank.

39. The main Grant covenants are:

- The SE shall sign an Implementation Agreement with the corresponding SMEs under terms and conditions acceptable to the World Bank to implement feasibilities studies under Component 1.
- The SE shall sign a Distribution Agreement with the participating Distribution Utilities on terms and conditions acceptable to the World Bank to implement the distribution, dissemination, training and M&E activities under Component 2.
- The SE shall sign a Laboratory Agreement with the laboratories that will benefit from the project to implement the testing and certification activities under Component 3.
- The SE shall ensure that the DNPROM is, at all times during project implementation, assisted by professional staff, including, *inter alia*, a project coordinator, a financial management specialist/liaison, a procurement specialist, and a monitoring and evaluation specialist.
- The Recipient will create in the annual budget for SE for 2008 and maintain thereafter a specific budget line entry for the project so as to monitor the project's budget execution process in the Recipient Integrated Financial Management System (SIDIF).

D. APPRAISAL SUMMARY

1. Economic and financial analyses

40. The economic analysis shows that energy efficiency is one of the least-cost options to secure energy supply in Argentina in the short- and medium-term, through the delay in construction of new generation plants and associated investments in transmission and distribution, particularly for meeting peak demand. With an investment of approximately US$ 100 million, the project would reduce the peak demand by approximately 4.7% of the total demand by 2014, allowing the postponement in construction of potentially 1,430 MW in incremental generation capacity, with a corresponding savings of about US$ 1,850 million in investments needed for generation, transmission and distribution.

41. Financial viability is built upon the current levels of energy tariffs and investment costs that make the selected EE activities financially attractive for the consumers and the participant entities implementing the project components. Current and future tariffs, including ongoing surcharges for additional consumption, are expected to provide a solid foundation for the sustainability of the EE activities supported under the project. The financial analysis has been performed for the replacement of incandescent bulbs with CFLs under Component 2. CFLs use 75% less electricity than the equivalent incandescent lamps

given the same amount of lumen outputs, each saving 164 kWh per year. As a result, the replacement of incandescent bulbs with CFLs has an average internal rate of return of 12% to 35% and a repayment period of 24 to 36 months, depending on the tariff levels for customers in different consumption categories. The repayment period is much shorter than the life of CFLs.

42. The reduction of energy use during the day by the utilization of more efficient lamps represents important savings for the customers, but a loss of income by the utilities. However, the loss of income by the utilities is compensated by the reduced purchase of energy in the wholesale market and the postponement of investments in generation, transmission and distribution.

43. The incremental cost of the GEF alternative has been estimated to be US$91.628 million, and the global environmental cost for which GEF resources are requested is US$15.155 million. The substantial domestic incremental costs would be covered through increased investments by electricity customers through the utility program. Global incremental costs occur for those measures needed to stimulate investments in industry, commerce, public, and residential sectors and to support the national incandescent bulb phase-out program, as well those measures for improvements in the regulatory framework, capacity building, information (including risk perceptions and pilot programs).

44. Accumulated GHG emissions reductions directly resulting from the project are expected to reach 10.7 million tons of CO2e by 2014, associated with savings of 17,257 GWh of electricity, and postponement of the construction of 1,429 MW in generation capacity.

45. More detailed information regarding the economic and financial analysis is set out in Annex 9.

2. Technical

46. The technical assessment has been performed in terms of the level of project intervention in the marketplace, e.g., leaving the task of advancing the EE cause to the market forces alone or supporting their participation by funding barrier removal activities. Minimum interventions could be less costly but more time consuming. This project adopts a proactive approach that has proven more effective based on international experience.

47. CFLs are a proven energy efficient technology which consumes only one quarter of electricity compared to incandescent bulbs given the same lighting services. Switching from incandescent bulbs to CFLs is one of the most cost-effective ways to save electricity and reduce global greenhouse gas emissions. Argentina was one of the first countries in introducing CFLs by participating in the GEF-IFC Efficient Lighting Initiative (ELI) and the market penetration of CFLs has been increasing. However, a concerted effort at the national level is needed to accelerate the phase-out of incandescent bulbs.

48. Barriers affecting the market penetration of EE appliances, equipment and materials (AE&M) will be addressed through information and capacity building activities that will

support a standard and labeling (S&L) program. Such an approach has been shown to be one of the most cost effective EE improvement tools available. For the first phase of this program, AE&M will be selected on the basis of size of the market share, potential efficiency gains, and acceptance of main stakeholders, to ensure rapid implementation and maximum local and global benefits. For the selected appliances and equipment, mandatory labels and minimum standards will be developed and implemented.

49. In the case of EE services, the most active agents in the marketplace were approached during project design, including ESCOs[3] and utilities. The main barriers identified included the lack of financial support and technical assistance to help prepare bankable EE projects, provide EE services, and implement the utility EE programs. To design the financial supporting instruments several options were evaluated, with the participation of commercial banks, local financial specialists and interested ESCOs. The main conclusions of this exercise were: (a) the need for a dedicated EE fund to provide critical support for EE investments, (b) the financial instruments offered by this facility should be flexible in order to adapt to the changing conditions of the financial system in Argentina, (c) grants should be made available to facilitate preparation of EE projects; (d) market knowledge and the proximity to clients necessitates the involvement of commercial banks for channeling support to EE investments, and (e) the EE fund should focus on high-return and relatively small projects, including the commercial sector, public buildings, and small and medium enterprises (SMEs).

50. The technical assistance instruments are designed to facilitate implementation of EE programs in order to help eliminate other barriers that hinder the delivery capacity of ESCOs and utilities. The main activities in this area will aim to support ESCOs development, utility program development, and dissemination activities.

3. Fiduciary

51. A financial management assessment of the arrangements for the proposed project was carried out in accordance with OP.BP 10.02 and applicable guidelines.[4] The assessment conclusion is that the SE through DGCAF has adequate financial management arrangements in place that meet minimum Bank requirements. The assessed FM risk for this project is Moderate. A detailed risk assessment is presented on the Risk Section of Annex 7.

52. An assessment of the capacity of the agency that would implement procurement actions for the project has been carried out. The assessment reviewed the organizational structure for implementing the project and the interaction between the technical unit and the implementing agencies. Procurement activities will be carried out by the Project Coordination team to be integrated into the DNPROM.

[3] In the Argentinean context, ESCOs include engineering firms that provides EE technical advice and/or implement projects with limited financing from manufacturers of EE equipment.
[4] Financial Management Practices in World Bank-financed Investment Operations, issued by the FM Sector Board on November 3, 2005

4. Social

53. No negative social impact is anticipated to result from the project. The project is expected to facilitate the emergence and growth of a robust national EE industry. By investing in energy saving measures, private sector SMEs will be able to reduce their operating costs and improve competitiveness in domestic and international markets. As a result, the population could benefit through increased employment. EE projects in the municipal and commercial sectors are expected to make basic public services more affordable and of better quality, improving the comfort of the general population. Demand-side EE investments in the residential sector may bring significant social benefits by mitigating the impact of possible increases in residential energy prices while improving the comfort level. The 1997 household expenditure survey showed that expenditure on electricity, fuels (excluding transport) and water represent close to 5.5 percent of total expenditures. The general population will benefit from the positive environmental impacts of the project. Overall, higher end-use efficiency creates a positive link between environmental and social outcomes.

54. Key project stakeholder groups are as follows: (i) SMEs mostly in the industrial and the service sector, municipalities and housing cooperatives/associations; (ii) ESCOs and EE consulting firms; (iii) electric utilities and their customers; (iv) academic entities and laboratories, and (v) local environmental and EE advocacy groups and NGOs. The project components have been discussed with a broad cross section of stakeholders. Broad-based participation and public involvement are incorporated in the project design. Organized outreach and public information campaigns are included in the TA component. Discussions have been held with numerous electric utilities as potential participants in the project. One of the major energy efficiency programs upon which this project builds is the PIEEP project for improving energy efficiency and productivity in small and medium enterprises. The project has been discussed with the key stakeholders involved in the PIEEP project.

5. Environment

55. This is a category "C" project with no major negative environmental impacts. The project will result in substantial improvements in both local and global environment. By the end of the project, 17,257 GWh are expected to be saved, 1,429 MW of new generation capacity to be postponed, and 10.7 million tons of CO2e of GHG emissions to be reduced. Estimates of the energy efficiency and global environmental benefits are provided in Annexes 9 and 14.

6. Safeguard policies

56. The only safeguard policy that this project triggers is the Environmental Assessment (OP/BP/GP 4.01). The project will have no adverse impact on the indigenous population. However, project beneficiaries among existing residential customers of the distribution utilities involve different social groups, including indigenous people. To ensure that all social groups have equitable access to the benefits under component 2 of the Project, a number of measures will be taken as described in Annex 10.

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	[X]	[]
Natural Habitats (OP/BP 4.04)	[ ]	[X]
Pest Management (OP 4.09)	[ ]	[X]
Cultural Property (OPN 11.03, being revised as OP 4.11)	[ ]	[X]
Involuntary Resettlement (OP/BP 4.12)	[ ]	[X]
Indigenous Peoples (OD 4.20, being revised as OP 4.10)	[ ]	[X]
Forests (OP/BP 4.36)	[ ]	[X]
Safety of Dams (OP/BP 4.37)	[ ]	[X]
Projects in Disputed Areas (OP/BP/GP 7.60)*	[ ]	[X]
Projects on International Waterways (OP/BP/GP 7.50)	[ ]	[X]

7. Policy Exceptions and Readiness

57. The project complies with all applicable Bank policies and requires no policy exception.

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

Annex 1: Country and Sector Background

ARGENTINA: Energy Efficiency Project

A. Country and sector context

1. Argentina is the fourth largest consumer of energy in Latin America, second only to Venezuela in per capita energy consumption. Total installed capacity in 2006 was 24,046 MW, 54 percent of which was thermal, 41 percent hydro power and 4 percent nuclear, with less than 0.1 percent renewable. It is one of South America's largest economies with a gross domestic product (GDP) that grew by 36 percent between 2003 and 2006 after the social and economic crisis and currency devaluation of 2002. This high level of economic growth has led to a corresponding increase in the demand for energy, which is projected to grow by more than 5 percent per year.

2. Argentina faces several key challenges in the energy sector, notably the urgent need to increase the current limited margins of installed capacity in generation, transmission and distribution facilities. In the short term, 800 to 1,000 MW of new generation capacity need to be added annually to keep up with the increasing demand. Argentina also faces numerous regulatory challenges, in part the result of the "pesification" of tariff and tariff freezes following the economic crisis of 2002.

3. The Government of Argentina (GoA) recognizes the need to move beyond the emergency framework put in place in the immediate aftermath of the 2002 economic crisis and has introduced measures designed to increase investment in new generation capacity. One example is the Energy Plus program by which the energy demanded by large consumers above their 2005 level can be provided from new generation facilities at market prices. Moreover, Argentina has embarked upon a concerted effort to improve energy efficiency, thereby helping to reduce the need for incremental generation capacity, creating financial savings, and ultimately reducing greenhouse gas (GHG) emissions by reducing the need for fossil fuel-based generation. The emphasis on energy efficiency received an additional boost from the newly inaugurated administration which has made energy savings a key area of focus during its first months in office.

4. Important issues remain in the energy sector that might hinder service quality and sector development in the near future. Overall energy prices are still below costs, and there are significant price distortions among different energy sources. Furthermore, private investment in the sector will require re-establishing incentives and trust among private investors. Insufficient investment in all segments of the sector exacerbates supply constraints and would continue to have impacts on service quality in the short to medium term. The risk of insufficient electricity supply was confirmed in the winter of 2007, when it was necessary to impose restrictions on the consumption of large users in order to guarantee supply to residential consumers.

B. Energy intensity and savings potential

5. In Argentina, residential, commercial and industrial sectors represent 87 percent of electricity consumption and 48 percent of natural gas consumption (Figures 1.1 and 1.2). Given their large shares of energy consumption and relatively low energy efficiency, these three sectors are natural targets for implementing energy efficiency activities.

Figure 1.1. Argentina : Electricity consumption by sector, 2006

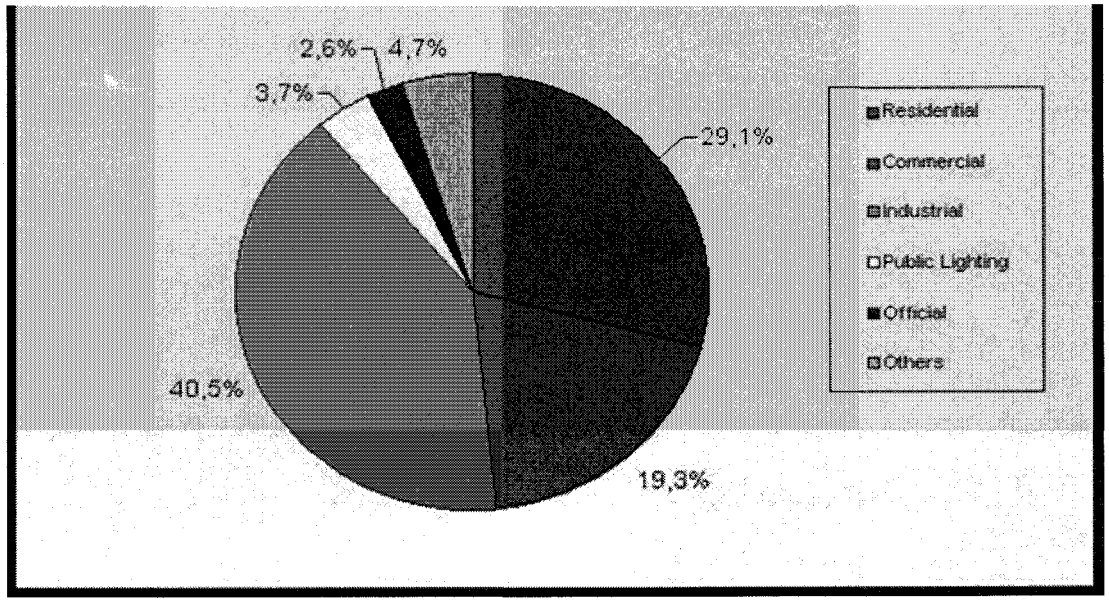
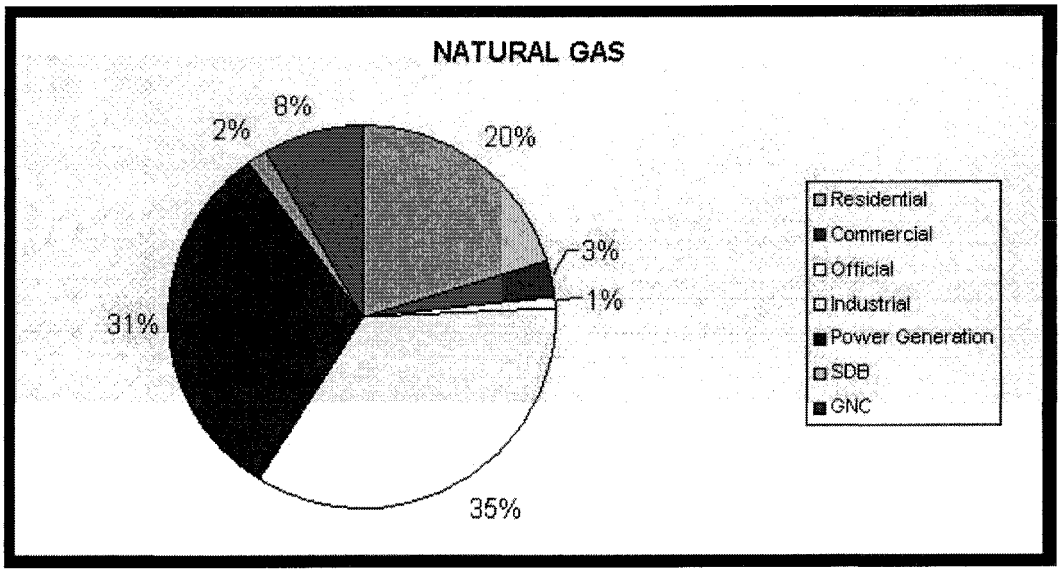


Figure 1.2. Argentina: Natural gas consumption by sector, 2006



6. Argentina's primary energy intensity has been increasing since 1998 and reached 6,172 Btu per US$ of GDP (2000 dollars) in 2005, about two thirds of the United States' energy intensity, but 3.5 times that of Japan which has the lowest energy intensity in the world. Carbon intensity was 0.13 kg/US$2000, about half of the US's carbon intensity. In addition, as shown in Table 1.1, energy costs represent an important share of total costs for several types of industries, providing a strong incentive to reduce energy costs.

Table 1.1. Energy consumption in main industrial sub-sectors in Argentina

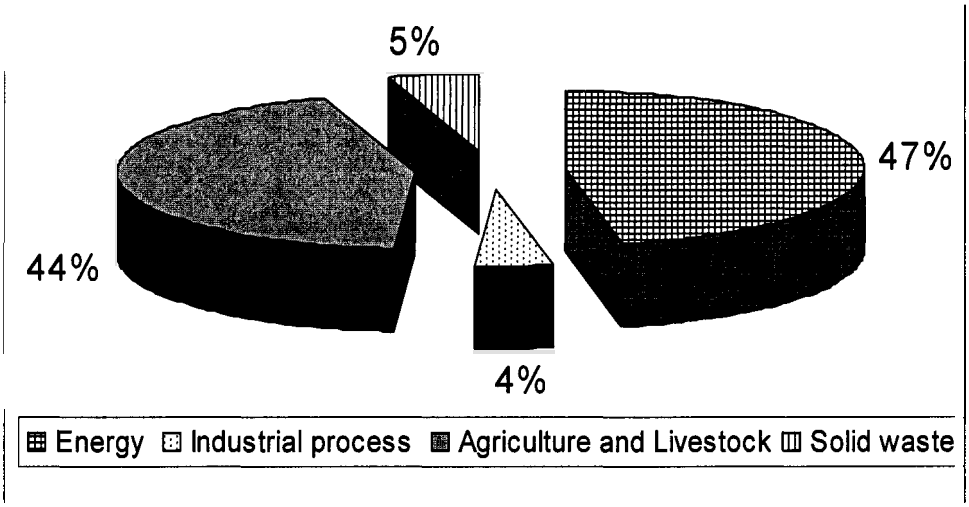
Activity	Energy / Total Costs (%)	Energy / Total Industrial Energy
Basic chemical	18.4	6.9
Ceramics (structural)	21.7	3.2
Cement	21.7	3.2
Iron and Steel	6.8	6.7
Plastic and rubber	13.4	5.3
Non ferrous metals	12.5	2.6
Ceramics (non-structural)	14.0	1.4
Glass	13.8	1.4
Paper and Fiber	11.7	2.4
Metal foundries	10.8	2.1
Wood and wood products	8.1	2.3
Fertilizers	9.1	2.9
Timber mills	9.0	1.4
Sugar	8.9	1.3
Petroleum refining	3.5	5.5
Plastic products	3.8	3.7
Slaughterhouses and meat processing	1.5	3.8

7. It is estimated that the use of already-available efficient technologies in industry alone could reduce electricity consumption by 20 percent and fuel use by 15 percent. Cogeneration opportunities would amount to 900MW. In the commercial sector, improved lighting and air conditioning technologies could lead to estimated potential savings of 30 percent in electricity and 15 percent in fuels. In addition, if mercury vapor lamps were replaced by sodium lamps for public lighting, a 30 percent reduction in electricity use could be achieved. Households could reduce their consumptions by up to 30 percent by replacing inefficient lamps and appliances. Efficient technologies in water and sanitation could also save up to 50 percent in electricity costs. These energy savings, if fully realized, would be equivalent to an avoidance of 5,700 MW in generation capacity.

8. Greenhouse gas emissions in Argentina amounted to an estimated 282 million tons in 2000 (excluding GHG emissions from changes in land use). In 2000, 46 percent of these

emissions corresponded to CO_2, 30 percent to CH_4 and 24 percent to N_2O. As shown in Figure 8 below, the energy sector was the main contributor to GHG emissions, with 47 percent of total emissions. Although CO_2 intensity is moderate by developing country standards, most of the additional consumption in the coming years is expected to be supplied from fossil fuels. Based on reasonable rates of market penetration of EE technologies and practices (achieving 30 percent of total potential savings after ten years), annual reduction of CO_2 emissions could reach 14 million tons in 2015, equivalent to 5 percent of baseline emissions. Local benefits would include significant cost reductions for customers and deferred investments in power generation and gas transport.

Figure 1.3. GHG emissions in Argentina by sector



C. Government Strategy for EE

9. While energy sector reforms in Argentina in the 1990s made the power and gas sectors among the most competitive in South America, the efficiency gains in the production, transmission, and distribution levels were not accompanied by efficiency improvements on the demand side. This situation resulted in higher energy intensity for the Argentine economy, higher energy costs and lower competitiveness for productive sectors, greater energy consumption for consumers with increasingly higher costs as retail prices are raised, and greater local and global pollution associated with the consumption of fossil fuels.

10. In the late 1990's, the lower and upper house of the Parliament passed energy efficiency legislation, but the momentum stalled in the face of the economic crisis in 2002. The crisis created a loss of confidence in the financial sector and a contraction of credit for investments in new equipment, especially among small and medium enterprises. The devaluation of the Argentine peso increased the cost of imported equipment and parts, and put pressure on the government to control electricity tariffs, especially among residential consumers to avoid additional erosion of purchasing power.

11. The Government of Argentina, through the Secretariat of Energy, launched its first Energy Saving and Efficiency Program (PAEE) in 2003. The PAEE included a number of strategic areas, including regulatory framework, institutional structure, awareness enhancement, economic incentives, financial mechanisms, EE research and development (R&D) and information system on EE technologies. This was followed by another program PURE (Program for the Rational Use of Energy) launched in 2004. PURE is an incentive-based program similar to the initiative developed by Brazil in 2001 during its energy crisis. In Argentina, electricity and natural gas users were required to save at least 5% in 2004 compared with their 2003 level of consumption; consumption above the quota was subject to penalties and actual savings were rewarded. The program was extended in the following years and incentives were strengthened. However, the impact of both programs has been mixed, in particular among the residential users.

12. In December 2007, the GoA approved the National Program for the Rational and Efficient Use of Energy (*Programa Nacional de Uso Racional y Eficiente de la Energía* or PRONUREE) (Decree 140/2007), which declared the rational and efficient use of energy to be in the national interest and part of the energy sector strategy. The Program, under the responsibility of the Secretariat of Energy, aims to be a vehicle for improving energy efficiency in the energy-consuming sectors and acknowledges that energy efficiency needs to be promoted with a long-term commitment and vision. It also points out the connection between energy efficiency and sustainable development, including the reduction of greenhouse gas emissions. Finally, the Program recognizes the need for individual behavioral changes to be promoted by a communication strategy, with the public sector setting an example by assuming a leading role in the implementation of energy conservation measures in its facilities.

13. The Decree distinguishes between short-term and medium to long term measures, which in turn are targeted to the following sectors: industry, commerce and services, education, cogeneration, energy efficiency labeling, energy efficiency regulation, transport, housing and climate change (through the CDM). These activities are listed below.

14. Short-term activities include:

- Start the preparation of a broad program for Education, Awareness and Information Campaign, targeted to the general public and to school-age children.
- Launch necessary steps that lead to the mass replacement of incandescent bulbs by low consumption bulbs at the household level.
- Launch necessary steps to establish an energy efficiency labeling regime aiming to develop and implement minimum energy efficiency standards to the production, import and/or commercialization of energy-consuming equipment.
- Support Agreements with bank associations, industrial and commercial organizations, etc. to extend the energy efficiency measure to be implemented in the Public Administration in the short term.
- Support Agreements between energy distribution companies, universities, technology agencies and business organizations aiming to improve energy efficiency.

- Support Agreements with member countries in the Southern Common Market (MERCOSUR) in order to promote common energy efficiency policies and strategies.

15. Medium and long-term activities include:

(i) Industry

- Draw up an Energy Efficiency Program for the Industrial Sector aiming to increase its competitiveness.
- Launch the necessary steps to obtain a voluntary commitment to the Program from the larger industrial energy consumers.
- Develop joint actions with the participating companies in order to establish consumption profiles, perform energy assessments, identify improvement opportunities and execute them, and implement management programs.
- Develop dissemination, scaling-up and monitoring activities for a follow-up of the results of the executed actions.
- Design and develop cross-cutting technology programs targeted to different industrial sectors which contribute to the development of an energy efficiency market. These programs will include the creation of Energy Service Companies (ESCOs) and the support for the implementation of efficient technologies.
- Launch the necessary steps to implement a financing mechanism aiming to facilitate investment in energy efficiency projects in Small and Medium Enterprises (SMEs).
- Seek adherence to the Program from the provincial districts and the Autonomous City of Buenos Aires.

(ii) Commercial Sector and Services

- Develop an Energy Efficiency Program for the Commercial and Services Sector aiming at exploiting the existing opportunities. The Program will include the creation of standards relating to lighting, heating and cooling, refrigeration, water use, etc.
- Collaborate in the formulation and review of building regulations and codes that include energy efficiency considerations.

(iii) Education

- Launch the necessary steps to incorporate into educational plans contents relating to energy efficiency, renewable energy and environment.
- Launch the necessary steps to create post-graduate courses in energy efficiency in the National Universities.

(iv) Cogeneration

- Develop a medium-term plan to exploit the country's cogeneration potential.
- Implement an appropriate regulatory framework to support the development of cogeneration projects.
- Invite the provinces, the Autonomous City of Buenos Aires and the industrial and financial sectors to join the Government's effort in increasing electricity supply in the most efficient way.
- Invite generation and distribution companies to develop cogeneration projects.

- Encourage the creation and development of new ESCOs that will develop cogeneration projects as well as offer the necessary related services, engaging the country's scientific, technological and engineering resources.

(v) Energy Efficiency and Labeling

- Establish maximum levels of energy consumption or minimum requirements of energy efficiency for equipment manufactured and/or commercialized within the country.
- Propose a timetable for the banning of the production, import and commercialization of incandescent bulbs.

(vi) Energy Efficiency regulation

- Evaluate the regulatory and tariff options in order to establish permanent mechanisms for the promotion of energy efficiency among the electricity distribution and natural gas companies that are subject to federal regulation.

(vii) Public Lighting and Traffic Lighting

- Contribute to make public lighting and traffic lighting more efficient across the country.
  - Promote the development and implementation of replacement methodologies for public and traffic lighting systems, as well as the creation of a database that gathers the main characteristics of these systems.
  - Launch the necessary steps for the development and implementation of regulations aiming to improve energy efficiency for public and traffic lighting systems.
  - Assess the advisability of installing energy saving equipments and systems in the public and traffic lighting systems.

(viii) Transport

- Promote energy savings in the transport sector through the expansion and improvement of management in collective transport.
- Design a Responsible Driving National Program, targeted to passenger and freight drivers.
- Participate, together with sectoral institutions, in the design of a motor vehicle labeling program that evaluates existing energy consumption standards and aggress on minimum standards with the automobile industry.
- Evaluate the design of a program for maintenance of public service vehicles.
- Design a campaign to spread awareness of the energy and environmental impacts associated to the intensive use of vehicles.

(ix) New buildings

- Launch the necessary steps for the design of an energy certification system.
- Develop cooperation agreements with construction associations, architect and engineer associations, and universities.

- Bring in energy efficiency in buildings as a housing quality criterion in engineering and architecture schools.
- Launch the necessary steps to regulate the thermal conditioning in housing, establish thermal isolation requirements for ceilings, surroundings, windows and ventilation according to the different thermal regions in the country.
- Include the optimal use of solar energy in the architectural design phase and planning of the buildings (both for heating and lighting).
- Initiate joint actions with the Science, Technology and Innovation Ministry in order to promote technology development and innovation in construction methods and materials.

(x) Buildings in use

- Develop an incentive system to reduce energy consumption.
- Design a strategy for a broad implementation of solar water heating systems, especially for outlying settlements.
- Implement a national program for housing isolation that includes ceilings, surroundings and openings.

(xi) Climate Change

- Asses the role to be played by the Clean Development Mechanism (CDM) – additional to international carbon markets- to support the development of energy efficiency projects, especially under the regime of the programmatic CDM.
- Develop a plan for the potential development of this financing source and for international technical cooperation.

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

ARGENTINA: Energy Efficiency Project (FY08)

Table 2.1. World Bank Ongoing Energy-Related Projects in Argentina

Project ID	Project Name	Summary	Sector	DO Rating	IP Rating
P006043, P045048	Renewable Energy in the Rural Market Project (PERMER)	The main objective of the project is to provide rural areas with reliable electricity supply in a sustainable manner using renewable energy technologies, when feasible.	Energy	Satisfactory	Satisfactory
P006010 P102316	the Provincial Agricultural Development Project (PROSAP)	The main development objectives of this project are to: a) increase and diversify agricultural production and exports; b) increase and stabilize the agricultural incomes of small and medium size commercial farms; c) improve basic agricultural support service effectiveness to increase the international competitiveness of agricultural products; d) improve rural productive infrastructure to reduce production and marketing costs; e) strengthen national and provincial institutional capacity to formulate and analyze sectoral development policy; and f) rationalize public investments and promote an expanded private sector role in agricultural development. The subprojects will include rural energy infrastructure among others.	General agri/fish/forestry sec; Central government admin; Sub-national government admin; Roads & highways; Water supply, Rural energy infrastructure	Satisfactory	Satisfactory
P069097	Argentina CDM Technical Assistance	This Technical Assistance aims to assist developing countries build their capacities to enable them to realize their GHG mitigation potential along with global environmental benefits trough development of carbon markets. In the LAC Region, the LCSEN unit is entrusted with the coordination of this program. The objective is to: (i) provide technical assistance for the design of the Argentine Carbon Facility and (ii) assist Argentina to fully participate in the carbon market.	Multi-sector; Carbon Finance		

Table 2.2. World Bank Energy-related Projects in Argentina Completed within the Last Five Years

Project ID	Project Name	Summary	Sector
P083982	AR Economic Recovery Support Structural Adjustment Loan (ERSAL)	Support Argentina's efforts to consolidate economic recovery and ensure long-term growth and employment creation through the expansion of domestic enterprise. Among its various activities, it includes	Public Administration, Law and Justice; Industry and Trade
GEF-IFC	Efficient Lighting Initiative (ELI)	Reduce barriers to penetration of efficient lighting in the residential sector.	Energy
GEF-IFC	Efficient Street Lighting	Improve efficiency of municipal street lighting, save energy and reduce GHG emissions	Energy

Table 2.3. Energy-related Projects in Argentina by Other Agencies

Project Name	Summary	Agency
PIEEP	Help SMEs efficiently use their productive resources, from an energy and environmental standpoint	GTZ
URE	Introduce energy saving behaviour, design an energy efficiency program and draft an energy savings law	European Union
ARGURELEC (ALURE Program)	Promote the rational use of energy in regulated markets	EU
Energy Efficiency	Improve industry competitiveness through reduction of energy costs; strengthening of CIPURE	JICA
Regional labelling program (under preparation)	Improve regional EE labelling	GEF-UNDP
Second National Communication to UNFCCC	Assess energy efficiency options and quantify associated emission reductions	GEF

Annex 3: Results Framework and Monitoring

ARGENTINA: Energy Efficiency Project

Table 3.1. Results Framework

PDO/GEO	Project Outcome Indicators	Use of Project Outcome Information
Increased and sustained improvements in energy efficiency.	Amount of GWH saved and MW deferred Amount of natural gas and other fuels saved	Lower-than-expected energy savings and emission reductions may signal deficiencies in insufficient incentives for utilities or industries or residential consumers and deficiencies in the implementation of the dissemination and capacity strengthening program, which would require adjustments in project design – in particular at the time of project mid-term review.
Reduction of greenhouse gas emissions through addressing of barriers to energy efficiency markets.	Project-related GHG emission reduction in tons of CO_2 equivalent	
Intermediate Outcomes	**Intermediate Outcome Indicators**	**Use of Intermediate Outcome Monitoring**
Component 1: A pipeline of bankable EE projects established	Number of feasibility studies and energy audits carried out Number of proposals for bankable EE projects developed	Lower than expected number of bankable EE projects developed might be due to insufficient marketing and information campaigns of the EE potential and the opportunity of using project grants for developing bankable project proposals. More intense promotion of the grant facility would be needed.
Component 2: Increased market penetration of CFLs	Number of CFLs distributed by electricity utilities and in use.	Lower-than-expected CFLs in use would require changes to the implementation scheme for phase out of incandescent bulbs.
Component 3: Regulations, norms and standards for energy efficiency are developed	Issuance of regulations, norms and standards	Non issuance would require to strengthen political commitment for project
Energy equipment standards and labeling processes have been strengthened	Number of energy equipment labels	Delays in S&L implementation and lower-than-expected penetration of labeled equipment might require stronger commitment from energy equipment, manufacturers, importers and dealers, as well as increased efforts in customer information.
ESCOs capacity and supply of EE services have increased	Number of project-supported ESCOs that promote EE projects	Limited number of firms functioning as ESCOs would require revisiting design of support and incentives for ESCOS or relying more on other instruments supported by the project (utilities, financial institutions).
Users are better informed on potential & options for EE investments, and implement EE investments or behavior change	EE knowledge, investment and behavior change by residential and industrial users	Poor information or EE behavior by certain type of users would require redesigning the information and dissemination strategy for these users. The induced, indirect effect of the project will also be estimated through this indicator

Table 3.2. Arrangements for Results Monitoring

Project Outcome Indicators	Baseline	Target Values						Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	YR6	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Accumulated amount of GWh saved	0	2,007	4,616	7,364	10,360	13,647	17,257	Annual	Annual and quarterly progress reports	SE compiling data provided by electric distribution companies, and other participants in the Technical Committee.
Amount of MW deferred	0	767	1,284	1,304	1,339	1,375	1,429			
Accumulated amount of natural gas and other fuels saved (thousand of TOE)	0	15	46	92	169	262	373			
Accumulated project-related avoided emissions (million tons of CO_2)	0	1.1	2.7	4.3	6.2	8.3	10.7			

	Intermediate Outcome Indicators	Baseline	Target Annual Values						Data Collection and Reporting		
			YR1	YR2	YR3	YR4	YR5	YR6	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Component 1	Number of feasibility studies and energy audits carried out	0	0	60	66.0	72.0	78.0	84.0	Annual	Sub-projects completion reports; annual and quarterly progress reports	SE compiling data provided by electric distribution companies, AEEF, and other participants in the Technical Committee.
	Number of proposals for bankable EE projects developed	0	0	54.0	59.0	65.0	70.0	76.0			
Component 2	Number of CFLs distributed and installed by electricity utilities (million CFLs)*	5.0	5.0	10.0	5.0	-	-	-	Annual	Annual progress reports. Annual reports by utilities, and UTN.	SE compiling data provided by electric distribution companies, and other participants in the Technical Committee.
Component 3	Number of energy equipment labels issued	1.0	2.0	2.0	3.0	3.0	4.0	4.0	Annual	Annual and quarterly progress reports.	SE compiling data provided by electric distribution companies, and other participants in the Technical Committee
	Number of project-supported ESCOs promoting EE projects	0	5.0	10.0	15.0	15.0	20.0	20.0			
	Issuance of regulations, norms and standards	0	0	1.0	1.0	2.0	2.0	2.0			
	EE knowledge and behavior change by residential and industrial users	Low	Increasing over time						Beginning, mid-term and end of the project	Survey	SE is responsible for the survey with assistance of consultancies.

*** Under the framework of PRONUREE the implementation of which this project supports.**

Annex 4: Detailed Project Description

ARGENTINA: Energy Efficiency Project

1. The objective of the project is to increase the efficiency in the use of energy by developing a sustainable and growing market for energy efficiency services and equipment in Argentina. This will be achieved through three components: (a) development of the Argentina Energy Efficiency Fund (AEEF), and related grant facility to finance preparation of a pipeline of projects; (b) development of a Utility EE program focused on efficient lighting; and (c) capacity building in the area of EE, as well as support for project management.

Component 1: Development of the Argentina Energy Efficiency Fund *(Total estimated cost US$2.18 million, of which US$1.80 million from GEF)*

2. This component includes two activities: (i) the development of a pipeline of bankable energy efficiency (EE) projects; and (ii) the development of the Argentina Energy Efficiency Fund (AEEF).

3. *Grant Facility for the development of a pipeline of energy efficiency projects.* Lack of support for identification and preparation of EE projects is viewed as a significant constraint to EE investments in Argentina. This facility will share the cost of performing audits and preparing studies for bankable EE projects.

4. Under this grant facility the GEF will provide US$ 1.80 million to co-finance approximately 360 feasibility studies for EE investments (including energy audits) in different sectors and regions in the country. GEF is expected to finance 90% of the cost of these studies and the beneficiaries or other sources are expected to finance the rest. The potential beneficiaries will be small and medium sized enterprises (SMEs) from different economic sectors. The Energy Secretariat will identify the sectors in which these studies will be carried out and will work together with the corresponding chambers of commerce, trade associations and SMEs to promote the grant facility and to solicit proposals. Once the beneficiaries are identified, the Energy Secretariat will group the proposals and contract ESCOs or universities to carry out the studies on a competitive basis. It is anticipated that each contract will include approximately 20 studies in a certain sector. The Energy Secretariat will be responsible for signing the contracts with the consultants (an ESCO or university), supervising the consultants' work, reviewing the results of the studies and making the payments. The Secretariat will share the results with each one of the beneficiaries; in the meantime, it will also create a data base on potential energy savings in different economic sectors.

5. Development of the AEEF. The project will provide technical support for the development of the AEEF which, in turn, will fund EE projects, including those identified and prepared with the assistance of the grant facility. Extensive analysis has been carried out in terms of the need, the objective and operational principles of such Fund in the context of Argentina. However, given the regulatory environment in Argentina, there is need to evaluate

different options and design an appropriate institutional structure with the aim to obtain the needed approval for the creation of the AEEF in a reasonable timeframe. This subcomponent will be financed by the government, and no GEF fund is allocated to its implementation. The central objective of the AEEF is to demonstrate the commercial viability of investment in energy efficiency by reducing the risk perception that currently impedes such investments. The AEEF would cost share with the commercial banks the risks of lending to EE projects. The AEEF will operate under the following principles: (i) maximize the financing of energy efficiency investments, leveraging capital resources as much as possible; (ii) preserve its capital base, through commercially-oriented operation, in order to maintain resources for revolving use; and (iii) publicize its operating results so that businesses are increasingly willing to invest in energy efficiency and commercial banks become increasingly willing to undertake lending transactions. The government will capitalize the AEEF and will seek complementary financing under a follow Bank loan for EE.

Component 2: Development of a Utility EE Program. *(Total estimated cost US$90.50 million, of which US$9.0 million from GEF)*

6. This component will finance the acquisition and distribution of CFLs as part of the Government's national program and provide technical assistance for exploring new delivery mechanisms of EE services through utilities. It will be implemented with the participation of the power distribution utilities, and will contribute to the national program designed to phase out incandescent bulbs by 2011.

7. The national phase-out program will include a dissemination campaign to educate residential customers on the advantages of replacing incandescent bulbs with CFL and providing two CFLs to each residence, for a total of about 25 million lamps, in three years. Inefficient incandescent lamps will be replaced by more energy efficient lamps. In parallel, the GOA will support the conversion of a local assembling factory for incandescent bulbs in order to eliminate local production of inefficient lamps and start production of CFLs before the phase-out date.

8. This project will contribute to the financing of 25 million CFLs that will be distributed by the utilities to residential customers and will support the information dissemination, training and monitoring and evaluation activities for the phase-out program. The GEF and the government budget resources will co-finance the bulk purchase of CFLs, and the government budget resources will finance M&E activities and the distribution companies will co-finance the distribution of CFLs as well as related dissemination and training. The Project will finance a study to analyze the specific language and cultural needs of the social groups benefited by the CFLs and the results of the study will incorporated into the dissemination activities.

9. This project is well aligned with the GEF "Ban the Bulb" initiative to transform the global market toward efficient lighting technologies through accelerated phase-out of inefficient lighting. The dissemination activities under this component are related to the information and dissemination campaign in Component 3. However, the former will be carried out by the utilities with the residential users as the target group, and the latter will be carried out by the Energy Secretariat with a broader focus on energy efficiency. With the GEF support, this component will also provide technical assistance to explore new modalities and mechanisms for facilitating EE activities in Argentina.

10. The Energy Secretariat will have overall responsibility in the implementation of this program. The Government has signed a framework agreement with the Electric Distribution Utilities Association of the Republic of Argentina (ADEERA) whose members mainly consist of the distribution companies. In this agreement it is foreseen that the national government will acquire the efficient lamps and provide them to the distribution companies that participate in the program. The distribution companies will bear the logistic costs of distribution of the new lamps and replacement and disposal of the old ones, provide training to and sensitize the users on EE. The municipalities in some regions will also participate in this program, publicizing and enhancing public awareness of the program. Finally, it is expected that the SE, with the assistance of the National Technological University, will monitor the process, verify the replaced lamps and estimate the energy saving benefits to be realized.

11. At the end of its implementation in 2010, the results of this component are expected to be:

- 25 million CFLs distributed and in use to reduce the incandescent lamps
- Awareness of CFLs and its energy –saving benefits enhanced
- Reduction in electricity consumption by 2,355 GWh/year
- Reduction in peak electricity demand by 1,246 MW
- Reduction in GHG emissions by 1,290,000 tCO_2e/year

These results will last beyond 2014 after the project life.

Component 3: Capacity Building and Project Management *(Total estimated cost US$6.75 million, of which US$4.15 million from GEF).*

12. This component will build capacity within the private and public sectors and strengthen the incentives for investment in energy efficiency. It includes the following sub-components:

a. Studies to identify and evaluate the main barriers to the development of the energy efficiency market, and design of norms/programs to remove the identified barriers *(Total estimated cost US$0.30 million, of which US$ 0.25 million from GEF).* The project aims to support GOA in improving the regulatory and institutional framework needed and remove barriers to developing the energy efficiency market in Argentina. Activities would include, but not limited to, studies to improve the regulatory framework and electric tariff structures (especially for residential consumers) and tax or financial incentives for EE activities. It will also analyze and design measures to remove the existing barriers to energy efficiency in residential buildings and for cogeneration.

b. Standardization, testing, certification and labeling program *(Total estimated cost US$1.34 million, of which US$ 1.19 million from GEF).* This component will support the establishment of a comprehensive program for energy efficiency standards and labeling of key energy consuming equipment, including home appliances, industrial equipment and building materials. This activity will include the modernization of the certification laboratories that will take part in the program, the institutional strengthening of the standardization bureaus and regulatory and enforcement activities.

Since 2003, the Energy Secretariat, through the National Office for Promotion (DNPROM), has been developing different activities towards the implementation of the Quality Program for Energy Appliances (PROCAE) with the participation of IRAM, the bureau of national standards. The labeling system implemented under PROCAE has four stages:

Stage 1: Design of the voluntary IRAM standard for energy efficiency labeling
Stage 2: Elaboration of a mandatory energy efficiency labeling program
Stage 3: Creation of a testing laboratory structure and implementation of the program
Stage 4: Taxation and control of the labeling program

Thanks to PROCAE, the mandatory labeling program for refrigerators is already in force, while the program for lamps is expected to be in force soon. However, the Energy Secretariat has acknowledged the existence of difficulties in the different stages of the program. Briefly, those difficulties are:

- Stage 1: An excessive amount of time is required to develop the standards for each appliance. This is due to a lack of knowledge and information of the representatives participating in the Energy Efficiency Subcommittee at IRAM, a lack of resources within IRAM and the existence of difficulties to solve critical problems in the definition of the standard for each appliance.
- Stage 2: There are problems in the elaboration and publication of the resolution that implements the mandatory labeling, which derive in long delays in the standards entering into force. This is due to lack of human and financial resources

from the Domestic Trade Secretariat, a lack of personnel with the required technical expertise and a lack of knowledge about the market. There are also difficulties to establish a schedule adjusted to the requirements of the Energy Secretariat, to the available testing laboratories and to the demand for products to be tested.

- Stage 3: The current structure of recognized and accredited laboratories faces difficulties in dealing with the necessary investments to adapt their equipment to the products to be tested. This generates long delays in the process of implementation.
- Stage 4: The lack of adequate resources for energy efficiency issues within the Domestic Trade Secretariat generates great difficulties for taxation and control. In addition, the lack of end-user awareness makes it difficult to implement indirect taxation schemes on the energy efficient products.

Strategic lines to strengthen PROCAE:

- Strengthening the capacity of the organizations that participate in the labeling program. The Project will support IRAM and the Domestic Trade Secretariat by hiring experts that provide advice in (a) the study of energy efficiency norms and regulations, (b) the development and systematization of a permanent database which is periodically updated[5], (c) market studies for the implementation of regulations, (d) improvement of the institutional framework and of the inter-relations among the participating agents, and (e) strengthening of the taxation and control activities.
- Elaboration of a system of minimum energy efficiency standards and of complementary instruments for market transformation. This will include, for example, periodic revisions of the energy efficiency categories, programs for the acquisition of efficient appliances and/or equipment substitution.
- Strengthening of the Laboratories structure. The Project will contribute to the technological development of the laboratories through capacity building and advisory activities, as well as activities targeted at facilitating access to financing.
- Assistance to equipment manufacturers, both to increase the efficiency of the equipment and to facilitate access to financing.

c. ESCO capacity building *(Total estimated cost US$0.87 million, of which US$ 0.45 million from GEF)* Emerging Argentine ESCOs have strong technical capabilities, and have begun marketing efforts, but do not have as yet experience with the contractual and financial issues that are vital to securing financing and implementing performance contracts. Project resources will be used for (a) training and to support dissemination and use of standardized or reference contractual instruments (performance contracts and independent verification protocols) with the support of qualified consultants and experts, (b) capacity building through energy efficiency specialization programs in universities and (c) promotional financing of Preliminary Energy Diagnosis (PED) in SMEs, which would build on the experience of the PIEEP project and would be defined by the Energy

[5] This database will contain the more relevant technical characteristics for the certified appliances in order to facilitate market monitoring.

and Industry Secretariats. It has been estimated that this last activity (PED) will provide financing for 62 studies in a two-year period with an average unitary cost of US$3,200.

d. Information, training and dissemination programs *(Total estimated cost US$1.55 million, of which US$ 1.05 million from GEF).* Creation and dissemination of case studies can overcome a critical barrier to energy efficiency investments within the residential, commercial and industrial markets (with a special program for small and medium enterprises, component 3c of the project) and the public sector (with special programs for public buildings and public lighting, component 2 of the Project). This component will focus on the benefits to consumers that result from energy efficiency projects and the dissemination of this information to consumers. The component will also provide support to the AEEF for dissemination of EE best practices – particularly in SMEs, conduction of EE diagnosis and dissemination of information on EE financing options to financial institutions and other actors involved in the AEEF.

The programs that will be implemented through this subcomponent are:

- Program for dissemination of the AEEF: This program will enhance the interest in EE projects both for building an initial project pipeline and for later financing. It will consist on the promotion of the achievements of energy efficiency in the industry through seminars and exhibitions where participants in the AEEF (businessmen, ESCOs and banks) share their experiences. Materials for dissemination of the AEEF will have to be designed and produced.
- Program for capacity building in the industry and commercial sectors: This program aims to communicate to SMEs (industrial and/or commercial) the experiences and recommendations that arise from the Preliminary Energy Diagnosis.
- Program for dissemination of energy efficiency in the public sector: These activities are directed to the employees of the public administration and will be complemented with specialized seminars for the workers that manage directly service provision and equipment purchase in public buildings.
- Dissemination of the energy efficiency program among the Distribution Utilities: Workshops in which different companies will share their experiences will be organized in order to disseminate the results obtained by the companies that participate in component 2.
- Information and awareness campaign: This will include messages on energy efficiency basics in communication media.
- Project Documentation: Materials for the dissemination of the Energy Efficiency Project in Argentina will be elaborated through this activity. Materials will include the design and update of the project's website.
- Dissemination of energy efficiency in schools: This will include pilot experiences directed at training teachers and students.
- Dissemination of PROCAE: Training workshops directed at sellers of electric appliances and massive dissemination campaigns targeted at the general public will serve to reinforce the impact of the labeling program

e. Monitoring and evaluation *(Total estimated cost US$0.67 million, of which US$ 0.30 million from GEF).* This subcomponent will support the monitoring and evaluation activities. The Energy Secretariat, through the Energy Efficiency Coordination Unit, will be in charge of those activities. Besides general project monitoring and evaluation activities, this subcomponent will include ex-post audits of the studies the received support from the grant facility and of the activities included in the Distribution Utilities Program.

f. Project Management *(Total estimated cost US$2.02 million, of which US$ 0.91 million from GEF).* This subcomponent will facilitate coordination activities during the execution of the Project by the Energy Secretariat, through the Energy Efficiency Coordination Unit. The Coordination Unit will be integrated with the Promotion and Renewable Energy Department with support from consultants. The Energy Efficiency Coordination Unit will received specific assistance for financial administration, procurement tasks and energy efficiency technical aspects as they relate to the Project. In addition, this subcomponent will support project Coordination and Technical Committees.

Since the Project will require the formalization of numerous contracts, it will be essential to rely on the adequate expertise in order to fulfill these tasks within the existing deadlines. In addition, it will be necessary to rely on experts in financial administration that facilitate the interaction of the Project with the people responsible for financial administration within the Energy Secretariat and the rest of the project participants (companies participating in component 2). For more details, see Annex 6.

Table 4.1 shows how the project components will address energy efficiency in the residential, commercial, industrial and public sectors.

Table 4.1. Project components and sectors involved

Sectors	Components		
	1. Argentine Energy Efficiency Fund	2. Distribution Utilities Program	3. Capacity Strengthening and Project Management
Residential			
Electricity		X	X
Natural Gas			X
Commercial			
Electricity	X		X
Natural Gas	X		X
Industrial			
Electricity	X		X
Natural Gas & LPG	X		X
Fuel oil, gasoil, etc.	X		X
Public Sector			
Electricity			X
Natural Gas			X

Table 4.2 summarizes the existing interrelations among the activities in component 3 (Capacity Strengthening and Project Management) and components 1 (Argentine Energy Efficiency Fund) and 2 (Distribution Utilities Program).

Table 4.2. Interrelations among Project Components

		Component 1: Argentine Energy Efficiency Fund	Component 2: Distribution Utilities Program
Component 3: Capacity Strengthening and Project Management	Policy and Regulation		X
	ESCOs	X	
	Labeling		X
	Dissemination and Capacity Building	X	X
	Coordination, Monitoring and Evaluation	X	X

Annex 5: Project Costs

ARGENTINA: Energy Efficiency Project

Total project cost (US$ Million)

		GEF	GOA	Utilities	Others	TOTAL
Component 1: Development of Argentina Energy Efficiency Fund		**1.800**	**0.200**	**0.000**	**0.180**	**2.180**
1.a	*Grant Facility - Feasibility studies for pipeline development*	1.800			0.180	1.980
1.b	*Development of Energy Efficiency Fund*		0.200			0.200
Component 2: Development of a Utility EE Program		**9.200**	**41.300**	**40.000**	**0.000**	**90.500**
2.a	*Replace incandescent bulbs with CFLs*	8.700	41.300	25.000		75.000
2.b	*Distribution and dissemination*			15.000		15.000
2.c	*Technical assistance for development of new EE mechanisms*	0.500				0.500
Component 3: Capacity Building and Project Management		**4.155**	**1.860**	**0.000**	**0.740**	**6.755**
3.a	*Policy and Regulation*	0.250	0.050			0.300
3.b	*Labeling*	1.190	0.150			1.340
3.c	*ESCOs*	0.450	0.420			0.870
3.d	*Dissemination and training*	1.050	0.500			1.550
3.e	*Monitoring and evaluation*	0.300			0.370	0.670
3.f	*Project management*	0.915	0.740		0.370	2.025
	Total Baseline Cost	**15.155**	**43.360**	**40.000**	**0.920**	**99.435**
	Physical Contingencies					
	Price Contingencies					
	Total Project Cost	**15.155**	**43.360**	**40.000**	**0.920**	**99.435**
	Total Financing Required	**15.155**	**43.360**	**40.000**	**0.920**	**99.435**

Annex 6: Implementation Arrangements

ARGENTINA: Energy Efficiency Project

A. Overall organization

1. The Argentine Republic will be the recipient of the GEF grant. The Energy Secretariat (SE), which is dependent on the Ministry of Federal Planning, will implement the Project activities under its responsibility. The Distribution Utilities will be responsible for the distribution of the lamps, the provision of training and dissemination activities under component 2. The National Promotion Directorate (DNPROM) of the SE will coordinate the implementation of the Project.

2. To facilitate project implementation, it is expected to establish a Coordination Committee and a Technical Committee under the leadership of the SE. The Coordination Committee would include the public agencies that support this Project, including the Environment and Sustainable Development Secretariat, the Industry and SMEs Secretariat and the Domestic Trade Secretariat. The Technical Committee would include representatives from the agencies that are directly related to project implementation and will enable the interaction among the different actors and facilitate agreements on essential technical aspects.

B. Component 1: Development of the Argentine Energy Efficiency Fund (AEEF)

3. The Energy Secretariat will be responsible for implementing the grant facility and the development of the AEEF. For the grant facility, the SE will identify the sectors in which these studies will be carried out according to pre-established eligibility criteria and will work together with the corresponding chambers of commerce, trade associations and SMEs to promote the grant facility and to solicit proposals. Once the beneficiaries are identified, the Energy Secretariat will group the proposals and contract ESCOs or universities to carry out the studies on a competitive basis. In order for the studies to be carried out, the SE and the beneficiary are expected to sign an implementation agreement, including, but not limited to, the following terms: 1) 10% of the cost of the study shall be born by the beneficiaries or other sources than the GEF funds; 2) the beneficiaries shall provide full cooperation and data needed for the consultants to carry out the studies; and 3) the SE will provide 90% of the cost of the studies with the funding from this project and share the study results with the beneficiaries without reservation.

C. Component 2: Development of a Utility EE Program

4. The Energy Secretariat will have overall responsibility in the implementation of this program. The Government has signed a framework agreement with the Distributors Association of the Argentina Republic (ADEERA) whose members mainly consist of the distribution companies. In this agreement it is foreseen that the national government will acquire the efficient lamps and provide them to the distribution companies that participate in the program. The distribution companies will bear the logistic costs of distribution of the new lamps and replacement and disposal of the old ones, provide training to and sensitize the users on EE. During the implementation of this project, the SE will sign a specific Distribution Agreement with each participating distribution utility to ensure the proper implementation of this component. The municipalities will also participate in this program, working together with some of distributing

companies, particularly in the information and dissemination and activities. Finally, it is expected that the *Universidad Tecnológica Nacional (*UTN) will monitor the process and verify the replaced lamps and estimate the energy saving benefits to be realized.

D. Component 3: Capacity Building and Project Management

5. The Energy Secretariat will be in charge of implementing all activities under this component.

6. The *Normalization, Testing, Certification and Labeling Program* will be implemented with the participation of the actors currently involved in the Energy Efficiency Labeling System included in the Program for Energy Equipment Quality (PROCAE).

7. The current Labeling System has four stages:

Stage 1: Design of the voluntary IRAM standard for energy efficiency labeling

DNPROM asks IRAM to study a technical energy efficiency standard for a specific appliance according to Resolution Ex SICyM No. 319/99. In response to this petition, IRAM, in the framework of the Energy Efficiency Subcommittee, creates a working group in which all the interested parties (e.g. manufacturers and importers, testing laboratories, certification organizations, National Government Authorities –Energy Secretariat, Domestic Trade Secretariat, and Industry Secretariat-) participate. The working group produces an outline for an energy efficiency labeling standard. The outline is reviewed by the Standards General Committee within IRAM, which eventually approves the new IRAM standard and its publication. Once published, the standard can be voluntarily applied by the interested manufacturers and importers.

Stage 2: Elaboration of a mandatory energy efficiency labeling program

According to Resolution Ex SICyM No. 319/99, the Energy Secretariat requires that the Domestic Trade Secretariat enforces, through a new resolution, the mandatory energy efficiency labeling for the appliances under the scope of the new IRAM standard. In response to this petition, the Domestic Trade Secretariat will create a working committee to develop a new resolution for enforcing the mandatory labeling. The working committee will be composed by representatives of the Energy Secretariat, IRAM and the Domestic Trade Secretariat. Once the new resolution is approved, the EE labeling will become mandatory.

Stage 3: Creation of a testing laboratory structure and implementation of the program

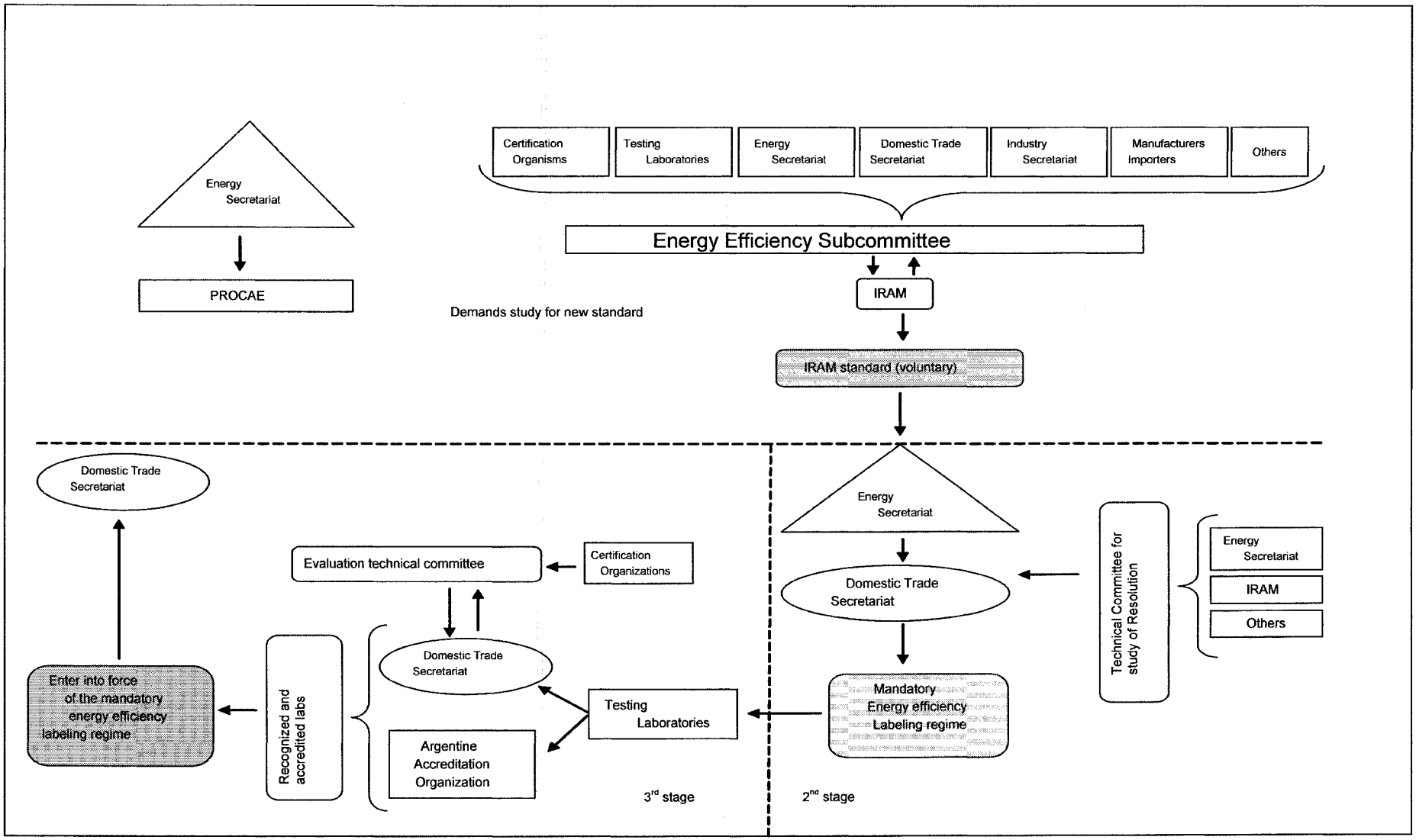
The Domestic Trade Secretariat, together with the Argentine Accreditation Organization (OAA), accredits the interested laboratories.

Stage 4: Monitoring and control of the labeling program

The Domestic Trade Secretariat is in charge of carrying out the necessary steps to ensure compliance with the mandatory energy efficiency labeling regime.

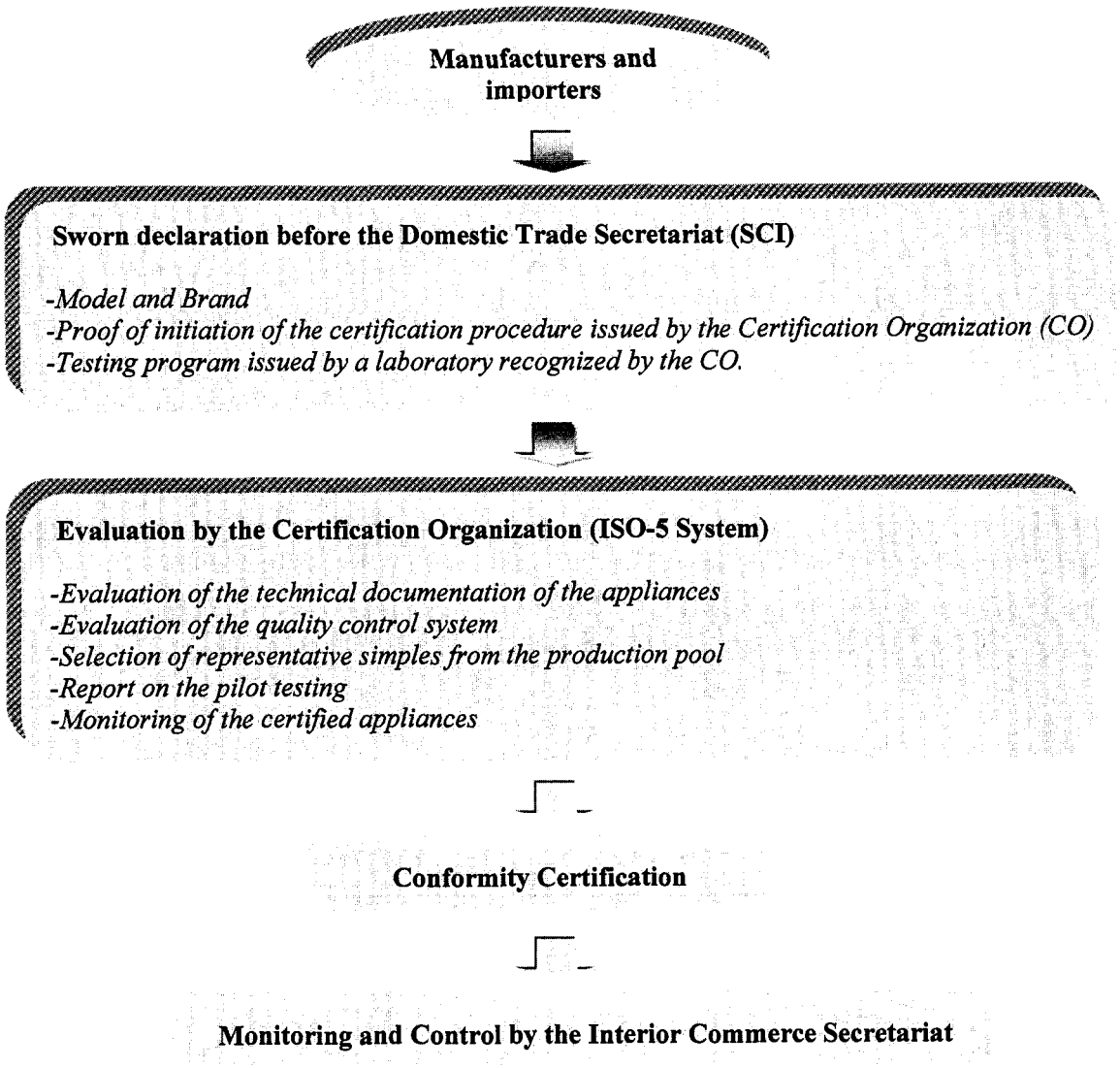
Figure 6.2 depicts a simplified scheme of the labeling system under PROCAE

Figure 6.2. PROCAE scheme



8. *Certification System.* The following figure depicts the certification system to be followed by manufacturers and importers in order to obtain an energy efficiency label.

Figure 6.3. Certification scheme



9. Activities to improve and increase the effectiveness of the current Energy Efficiency Labeling and Standardization Program. To improve the current Energy Efficiency Labeling and Standardization Program, the project will develop a regulatory framework with focus on the following aspects:

- Proposal for new regulatory mechanisms – complementary to Resolution Ex-SICyM No. 319/99- that define:

  - the institutional structure of the energy efficiency labeling and normalization activities
  - the Energy Secretariat as the implementing authority
  - the mandate to request minimum performance standards and other instruments for market transformation such as periodic revision of the efficiency categories
  - minimum performance standards
  - joint programs with other public administration agencies and market actors

- Formalization of the role and cooperation agreements among the participating public administration agencies (e.g. through inter-Ministry agreements).

- Creation of a Strategy Committee for the Transformation of the Energy Consuming Appliances and Equipment (CETM) Market. This Committee would be led by the Energy Secretariat and would bring together all the stakeholders and interested parties for the discussion of market transformation strategies. Such strategies may include the (periodic) revision of the efficiency categories, minimum performance standards, regulation, incentives for manufacturers, plans to renovate the equipment pool existing in the market, etc. The participating stakeholders and actors would include: government bodies, IRAM, INTI, manufacturers and their associations, testing laboratories, consumers' organizations, NGOs and academic institutions.

- Provide technical assistance and financial support to reduce the time required by the IRAM's Energy Efficiency Subcommittee to study and release new energy efficiency standards, i.e. standards for electric engines, washing machines, gas appliances and other equipment.

- Communication campaigns, consumer awareness campaigns and training activities for equipment sellers.

Annex 7: Financial Management and Disbursement Arrangements

ARGENTINA: Energy Efficiency Project

Executive Summary and Conclusions

1. A financial management (FM) assessment of the arrangements for the proposed project was carried out in accordance with OP.BP 10.02 and applicable guidelines.[6] The assessment conclusion is that the Secretariat of Energy (SE) through its General Financial Management Directorate (DGCAF) has adequate financial management arrangements in place that meet minimum Bank requirements. The assessed FM risk for this project is **moderate**. A complete risk assessment is presented on the Risk Section.

2. During Negotiations, the DGCAF presented to the Bank an acceptable Operational Manual which included an FM Section with administrative procedures for project implementation, including the Chart of Accounts and draft formats of the annual Financial Statements and Interim Financial Reports (IFRs) for monitoring and evaluation purposes.

Country issues

3. The Argentine Country Financial Accountability Assessment (CFAA) indicates that overall control risk of public finances at federal level could be considered moderate. The overall Bank portfolio fiduciary risk has increased from moderate at the time of the 2004 CAS to substantial in late 2005. The CAS[7] states that at federal level the FM portfolio risk is moderate.

4. Fiduciary Action Plan. The Argentina CAS includes a Fiduciary Action Plan (FAP) to help strengthen the operating environment for Bank projects in Argentina. Regarding FM the Plan aims at: (i) improving timeliness of external audit compliance for Bank-financed operations;(ii) increasing strategic focus and coverage of supervision tools assessing fiduciary risk in operations; and (iii) complementary actions such as support streamlining and harmonization of FM processes and reliance on country systems when these meet adequate fiduciary standards.

5. Project fiduciary measures link to the objectives of the FAP. The following measures are part of the project FM arrangements to contribute to meeting the objectives of the FAP:

- Use of country system. The National Government system specially designed for the execution of multilateral financed operations, which is legally required (UEPEX) will be utilized to maintain the project accounts. UEPEX provides a good ex-ante internal control framework and is in line and better integrated with the national budget execution process.
- Continuous support to AGN efforts to ensure timely audit compliance for the project. Upon audit findings, follow up on the Recipient's action plans to address the auditors' recommendations.

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[6] Financial Management Practices in World Bank-financed Investment Operations, issued by the FM Sector Board on November 3, 2005

[7] Argentina CAS. Period 2006-2008; May 4, 2006. B. Fiduciary Assessment. Financial Management

- FM supervision to ensure continuous adequacy of financial management arrangements, evaluate project internal control and update assessed risk. At least one on-site visit integrating the project team is planned for the first year.

Risk Assessment and Mitigation

6. The risk assessment process aims at identifying FM risks so as to take appropriate measures mitigating identified project risks. This enables the Bank make decisions on the appropriate level of supervision intensity allocating FM resources in a manner consistent with assessed risks. Proposed mitigating measures are intended to adequately deal with the identified risks.

Table 7.1. Risk Assessment and Mitigation Measures

Risk	Risk Rating	Risk Mitigating Measures embedded in Project Design	Condition
Inherent Risk			
▪ Country Level	Moderate	Fiduciary Action Plan (FAP)	No
▪ Entity/Project Level Qualified and experienced FM staff in WB-financed operations.	Moderate		No
Control Risk			
▪ Budgeting	Low	A specific line for the project in SE annual budget maintained during project implementation	Grant dated covenant
▪ Accounting	Moderate	Use of Government system (UEPEX) designed for multilateral financed projects.	No
▪ Internal Control	Moderate		No
▪ Funds Flow	Moderate		No
▪ Financial Reporting	Moderate	Use of Government system (UEPEX)	No
▪ Auditing	Moderate	Continuous support to AGN to ensure timely audit compliance	No
Overall Residual Risk rating	**Moderate**		

Strengths and Weaknesses

7. Strengths: DGCAF has qualified and experienced FM staff that is acquainted with the Bank fiduciary policies and procedures. Use of the Government tool for multilateral-financed projects (UEPEX system) to maintain the accounting records of the project can also count as an asset.

8. Weaknesses: No major weaknesses were identified.

Implementing Entity

9. The Energy Secretariat (SE), which is dependent on the Ministry of Federal Planning, will implement the Project activities under its responsibility. The National Promotion Directorate (DNPROM) of the SE will coordinate the implementation of the Project. The General Financial Management Directorate (DGCAF) will assist the DNPROM in the Financial Management (FM) aspects of the project implementation; comprising budgeting, accounting and financial reporting including preparation of interim unaudited financial reports (IFRs), internal control; flow of funds and disbursements; and external auditing. DGCAF has already been responsible for the FM functions of the Renewal Energy in the Rural Markets Project (P006043, P045048); Loan 4454 – AR/TF20548.

Budgeting

10. Budget execution in Argentina is recorded in the Federal Government integrated budget and accounting system (SIDIF, *Sistema Integrado de Información Financiera*) and subject to control exercised by the National Budget Office (ONP). As part of the FM functions, DGCAF will be responsible for project budget development and execution in the SIDIF. A separate budgetary line in the Secretariat's annual budget will be set to allocate budgetary resources and keep track of the project execution specifying the sources of funds. DNPROM will estimate the project budget resources needs and will request DGCAF to include the budget resources for the project in the SE annual budget. DGCAF has skilled and experienced FM staff capable of fulfilling the project budgetary needs.

Internal Control and Internal Auditing

11. The Energy Secretariat is subject to internal audit of the General Syndicate of the Nation (SIGEN) which is the Federal Government's internal audit agency under the jurisdiction of the executive branch. SIGEN supervises and coordinates the actions of Internal Audit Units (IAUs) in all federal agencies, approves their audit plans, conducts research and independent audits, systematizes the information from its own reports and those produced by the IAUs. If deemed necessary, internal audit reports will be reviewed during Bank supervision.

Funds Flow and Disbursement Arrangements[8]

12. The following Disbursement Methods may be used under the Grant:

[8] Disbursement thresholds should be confirmed by the Finance Officer during Negotiations

- Reimbursement
- Advance
- Direct Payment

13. To facilitate project implementation DGCAF will operate a segregate Designated Account (DA) in US dollars. As it is customary in Argentina, the Designated Account will be opened in *Banco de la Nación Argentina* (BNA). DGCAF will manage the DA and will be also responsible for preparing the bank account reconciliation on a monthly basis. Funds deposited into the DA as advances will follow the Bank's disbursement operating policies and procedures described in the Disbursement Letter. Withdrawals from the DA will be solely made for payments of eligible expenditures. As these expenditures arise, funds will be converted to local currency and deposited into a dedicated payment account open in BNA in pesos from which payments will be made as incurred. The proposed ceiling for advances to the DA is US$ 500,000 sufficient to cover the highest point of disbursements of the project.

14. Supporting documentation for recording expenditures under the advance and reimbursement methods will be:

- Records evidencing eligible expenditures (e.g., copies of receipts, supplier/consultants' invoices) for payments for Works and Goods against contracts valued at US$ 200,000 or more; Consulting Firms against contracts valued at US$ 100,000 or more; and USD 50,000 for Individual Consultants and non-consultant services.
- Statements of Expenditures (SOEs) for all other expenditures/contracts, including Operational Costs and Training. All consolidated SOEs documentation would be maintained by DGCAF for post-review and audit purposes for up to one year after the final withdrawal from the Grant account.
- List of payments against contracts that are subject to the Bank's prior review.

15. Direct Payments supporting documentation will consist of records (e.g.: copies of receipts, supplier/ contractors invoices). The minimum value for applications for direct payments and reimbursements will be US$ 100,000.

16. The project incorporates the Bank's policy on eligibility for Bank financing [9] since the country's financing parameters for Argentina have been approved by the Bank Regional Vice-Presidency.

17. The proceeds of the Grant will be disbursed against the following disbursement categories:

[9] See OP 6.00, *Bank Financing.*

Table 7.2. Allocation of GEF Grant Proceeds

Category[i]	Amount of the Grant Allocated (expressed in USD)	Percentage of Expenditures to be Financed (inclusive of Taxes)
(1) Consultants Services under Component 1(a) (i) of the Project	1,800,000	90%
(2) Goods under Component 2 (a) (i) of the Project	8,700,000	100%
(3) Works, Goods, Non-Consultant Services, Consultants' Services and Training under Components 2(b) (ii) (c) and (d) and 3 of the Project (as the case may be)	4,570,000	100%
(4) Operating Costs under Component 3 (f) of the Project	85,000	100%
TOTAL AMOUNT	15,155,000	

18. Retroactive financing. The Bank will reimburse the expenditures incurred up to one year prior to the date of the Grant Agreement but on or after June 1, 2008. These expenditures should not exceed USD 3 million.

The project will continue to access Bank's Client Connection web page to get the Withdrawal Form from the web and to perform on a periodic basis the reconciliation between its bank account and resources received from the different sources.

Accounting and Financial Reporting

19. The project accounting records will be maintained by DGCAF using the UEPEX system, an in-house information tool developed by the Federal Government which use is mandatory for multilateral-financed operations at federal level and is considered adequate for accounting purposes. Public sector accounting standards in Argentina will be followed. The public sector accounting rules are comprehensive and consistent with international public standards. Said standards are set by the Accountant General Office, *Contaduría General de la Nación* (CGN). In order to have a clear picture of all proceeds and expenditures for each component the chart of accounts will reflect disbursement categories, project components and sources of financing. The financial statements for the project will be prepared by DGCAF in line with the Bank requirements. DGCAF will also prepare semiannual Interim Financial Reports (IFRs) for monitoring purposes that will be part of the Project progress reports, as follows:

i) A financial section stating for the period and cumulatively (project life) cash receipts by sources and uses by main expenditures classification as well as beginning and ending cash balances; and a statement of accumulated investments by project component with a comparison between actual and planned expenditures.
ii) An output monitoring section considering the Project components, that: (a) sets forth physical progress in project's implementation, and (b) explains variances between the actual and previously forecast implementation target.

20. Draft formats of the interim and annual financial statements to be prepared by the project will be reviewed by the Bank and then incorporated into the Operational Manual. IFRs review will be conducted by the assigned FMS during project supervision missions.

External Auditing Arrangements

21. The annual financial statements of the project will be audited by Argentina's Supreme Audit Institution, *Auditoría General de la Nación (AGN)* or an independent auditor, following terms of reference and conducted in accordance with auditing standards acceptable to the Bank as well. It was agreed that AGN will be acceptable as an external auditor for the project as long as it meets at all times the criteria of independence, technical competence, quality and timeliness in the opinion of the Bank. The annual audit will cover all funding and expenditures reported in the project financial statements and will be submitted to the Bank within six months after the end of the reported period. For audit purposes the fiscal year will be the calendar year. For the first and last years of project execution, it is acceptable to the Bank that audits be performed within an 18-month period. Acceptable audit reports were submitted to the Bank in previous project implemented by the SE while Bank requirements were generally complied with. The following chart identifies the audit reports that will be required to be submitted by the project and the due date for submission.

Table 7.3. Audit Reports' Schedule

Audit Report	Due Date
1) Project Financial Statements	June 30 of each year
2) Special Opinions	June 30 of each year
• SOE an opinion on the eligibility of expenditures reported	
• Designated Account	

Action Plan

22. The following table addresses pending steps on the FM aspects of the project.

Table 7.4. Financial Management Action Plan

Action	Responsible Entity	Completion Date
1. Request a specific budgetary line in SE Annual budget to follow Project execution.	DGCAF-DNPROM	To be included in 2008/2009 annual budget of the SE
2. Development of the FM Section of Operational Manual which will include: a) Chart of accounts; b) IFR format agreed with the Bank;	DGCAF-DNPROM	Completed

Supervision Plan

23. DGCAF's prior experience in implementing a Bank-financed operation has been taken into consideration to define the FM supervision plan. Supervision scope will be adjusted by the assigned FMS according to the fiduciary performance and updated risk. The table below illustrates FM supervision objectives, tasks and timing planned for this project.

Table 7.5. Financial Management Supervision Plan

Type	Timing	Mechanism	Objective
Visit.	At least once a year.	Integrating project team supervision missions.	Review FM system and controls. Update assigned risk. Review DA Account Reconciliation. Follow up on External Audit issues. Review IFR information consistency. SOE review as needed.
Audit Review.	Annually.	Over the Audit Report submitted to the Bank.	Review Audit Report.

Annex 8: Procurement Arrangements

ARGENTINA: Energy Efficiency Project

A. General

1. Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004 – Revised October 2006; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004 – Revised October 2006, and the provisions stipulated in the Legal Agreement. The various items under different expenditure categories are described in general below. For each contract to be financed by the GEF Grant, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank in the Procurement Plan. The Procurement Plan will be updated at least every six months or as required to reflect the actual project implementation needs and improvements in institutional capacity.

2. **Procurement of Works**: There will be minor specialized works as part of the carrying out of the energy efficiency standardization, testing and certification program under Component 3 of the Project. The use of ICB is not foreseen. Contracts for works would be procured using shopping when the estimated cost is less than US$350.000.

3. **Procurement of Goods:** Goods procured under this project would include Compact Fluorescent Lamp (CFL). All goods estimated to cost over US$ 500.000 shall be procured by International Competitive Bidding (ICB) using the Bank's SBD. Contracts for goods estimated to cost less than US$ 500,000 per contract, may be procured in accordance with the National Competitive Bidding (NCB) using National SBD agreed with or satisfactory to the Bank. Contracts for goods estimated to cost less than US$100,000 per contract, may be procured using Shopping.

4. **Procurement of non-consulting services:** All contracts for services not related to consultant services, such as: printing services, organization of workshops and dissemination activities may be procured under the same methodologies and thresholds specified for goods.

5. **Selection of Consultants:** Consultant services procured under this contract are expected to include: (i) under *Component 1*: ESCOs or eligible's universities to carry out the feasibility studies for EE investments and a consultant firm to evaluate technically the projects that seek the support of the AEEF (Project Evaluation Unit), (ii) under *Component 2*: design the communication and technical capacity building campaigns and (iii) under *Component 3*: technical assistance on the regulatory framework and tariff structures and the tax or financial incentives for EE activities, training and technical auditors.

6. Short lists of consultants for services estimated to cost less than $500.000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines. Specialized advisory services would be provided by

individual consultants selected by comparison of qualifications of at least three candidates and hired in accordance with the provisions of paragraph 5.1 to 5.3 of the Consultant Guidelines. Individual consultants may be selected sole-source with prior approval of the Bank in accordance with provisions of paragraphs 5.4 of the Consultants Guidelines.

7. **Operating Costs**: To be procured using the implementing agency's administrative procedures, which were reviewed and were found acceptable to the Bank. This includes transportation fares, travel expenses and per diem, either related to training.

8. The procurement procedures and SBDs to be used for each procurement method, as well as model contracts are presented in the Operational Manual.

B. Assessment of the agency's capacity to implement procurement

9. Procurement activities will be carried out by National Promotion Directorate (DNPROM) of the SE. Even though the SE has successful experience in implementing Bank financed projects, the DNPROM does not have staff with experience to manage procurement issues and experience in Bank procedures. The corrective measures are the following: i) hire a procurement staff at all time in the DNPROM, and ii) have an Operational Manual, acceptable to the Bank, prior to the effective date.

10. In consideration of the issues mentioned above, the overall project procurement risk is High, and the project would require post-review twice a year. The risk would be reduced with the implementation of the recommended measures and the strengthening of the staff.

C. Procurement Plan

11. The Procurement Plan for the first 18 months of the project implementation identifies about 25 procurement activities; most of them are hiring of consultant firms and individual consultants. In the initial plan there is only one ICB for goods and minor non-consultant services for workshops and dissemination activities. The Procurement Plan will be updated every six months or as required to reflect the actual project implementation needs and improvements in institutional capacity. The Procurement Plan will be made available in the SEPA web (www.iniciativasepa.org).

D. Frequency of Procurement Supervision

12. In addition to the prior review supervision to be carried out from Bank offices, as a result of the capacity assessment of the Implementing Agency, it is recommended to carry out two supervision missions each year to visit the field to carry out post review of procurement actions. The Bank's ex-post review shall cover no less than 1 of 5 contracts signed.

E. Details of the Procurement Arrangements Involving International Competition

13. **Goods and Non Consulting Services**

(a) List of contract packages to be procured using ICB

Ref. No.	Contract (Description)	Estimated Cost $ million	Procurement Method	P-Q	Domestic Preference (yes/no)	Review by Bank (Prior / Post)	Expected Bid-Opening Date
1	Acquisition of Compact Fluorescent Lamp (CFL).	8.70	ICB	No	No	Prior	2009

(b) Contracts estimated to cost above US$500,000 per contract, the first two (2) processes procured under each procurement method and all direct contracting will be subject to prior review by the Bank.

14. **Consulting Services**

(a) List of consulting assignments with short-list of international firms. Not envisioned.

(b) Consultancy services estimated to cost above US$200,000 per contract, the first three (3) processes under each selection method and all single source selection of consultants (firms) will be subject to prior review by the Bank.

F. Special Procurement Provisions

15. The following shall apply to the procurement under the project:

- all procurement shall be done using standard bidding documents, standard requests for proposals, model bid evaluation forms, model proposal evaluation forms and contract forms previously agreed with the Bank. As for consultant services contracts, only the types of contracts listed in Section IV of the Consultant Guidelines may be used.

- procurement of goods, works, Non-Consultant Services and consultants' services (in respect of firms) shall be carried out using: (i) standard bidding documents and standard requests for quotations/proposals (as the case may be), all acceptable to the World Bank, which shall all include, *inter alia*, a settlement of dispute provision; (ii) model bid evaluation forms, and model quotations/proposals evaluation forms (as the case may be); and (iii) model contract forms, all acceptable to the World Bank;

- a two-envelope bidding procedure shall not be allowed in the procurement of goods, works and Non-Consultant Services;

- after the public opening of bids for goods, works and Non-Consultant Services, information relating to the examination, clarification and evaluation of bids and recommendations concerning awards, shall not be disclosed to bidders or other persons not officially concerned with this process until the publication of contract award. In addition, bidders and/or other persons not officially concerned with said process shall not be allowed to review or make copies of other bidders' bids;

- after the public opening of consultants' proposals, information relating to the examination, clarification and evaluation of proposals and recommendations concerning awards, shall not be disclosed to consultants or other persons not officially concerned with this process until the publication of contract award (except as provided in paragraphs 2.20 and 2.27 of the Consultant Guidelines). In addition, consultants and/or other persons not officially concerned with said process shall not be allowed to review or make copies of other consultants' proposals;

- bidders or consultants shall not, as a condition for submitting bids or proposals and/or for contract award: (i) be required to be registered in Argentina; (ii) have a representative in Argentina; and (iii) be associated or subcontract with Argentine suppliers, contractors or consultants;

- the invitations to bid, bidding documents, minutes of bid openings, requests for expressions of interest and the pertinent summary of the evaluation reports of bids and proposals of all goods, works, Non-Consultant Services and consultants' services, as the case may be, shall be published in the web page of the Recipient's Office of National Procurement (Oficina Nacional de Contrataciones), and in a manner acceptable to the World Bank. The bidding period shall be counted from the date of publication of the invitation to bid or the date of the availability of the bidding documents, whichever is later, to the date of bid opening;

- the provisions set forth in paragraphs 2.49, 2.50, 2.52, 2.53, 2.54 and 2.59 of the Procurement Guidelines shall also be applicable to contracts for goods, works and Non-Consultant Services to be procured under National Competitive Bidding procedures;

- references to bidders in one or more specialized magazines shall not be used by the Recipient, through SE, in determining if the bidder in respect of goods whose bid has been determined to be the lowest evaluated bid has the capability and resources to effectively carry out the contract as offered in the bid, as referred to in the provision set forth in paragraph 2.58 of the Procurement Guidelines. The provision set forth in paragraph 2.58 of the Procurement Guidelines (including the limitation set forth herein) shall also be applicable to contracts for goods to be procured under National Competitive Bidding procedures;

- witness prices shall not be used as a parameter for bid evaluation, bid rejection or contract award;

- the Recipient, through SE, shall: (i) supply the SEPA with the information contained in the initial Procurement Plan within 30 days after the Project has been approved by the World Bank; and (ii) update the Procurement Plan at least every six months, or as required by the World Bank, to reflect the actual project implementation needs and progress and shall supply the SEPA with the information contained in the updated Procurement Plan immediately thereafter;

- consultants shall not be required to submit bid or performance securities;

- contracts of goods, works and Non-Consultant Services shall not be awarded to the "most convenient" bid, but rather to the bidder whose bid has been determined: (i) to be substantially responsive; and (ii) to offer the lowest evaluated bid, provided that said bidder has demonstrated to the Recipient, through SE, to be qualified to perform the contract satisfactorily; and

- the types of contracts described in Section IV of the Consultant Guidelines shall be the only types of contracts to be used by the Recipient, through SE, in connection with the contracting of consultants' services provided by a firm and to be financed with the proceeds of the Grant.

G. Procurement-related Covenants

16. The Recipient will be staffed at all times by a Procurement Specialist acceptable to the Bank.

Annex 9: Economic and Financial Analysis

ARGENTINA: Energy Efficiency Project

A. Main criteria for the selection and design of the project components

1. The first evaluation criterion is economic and financial viability. An early decision was made in terms of selecting only affordable and financially viable EE activities to eliminate the need for subsidies, rebates or similar price incentives that could be costly and that would not be sustainable at the end of the project life. As a result economically and financially viable activities will be undertaken, allowing the project to concentrate in the facilitation of these activities in the marketplace with incremental support for barrier removal.

2. Financial viability is analyzed based on the current levels of energy tariffs and PURE surcharges. The selected EE activities must be financially viable for the consumers and the participating entities to implement them. Current tariffs and ongoing surcharges for additional consumption are expected to provide a solid foundation for the sustainability of the EE activities and avoiding the need for subsidies or rebates.

3. The second evaluation criterion involves the level of project intervention in the marketplace, e.g., leaving the task of advancing the EE cause to the market forces alone or supporting their participation by funding barrier removal activities. Minimum interventions could be less costly but more time consuming, while a proactive approach has proven more effective based on international experience.

4. Barriers affecting the market penetration of EE appliances, equipment and materials (AE&M), will be addressed through information and capacity building activities that will support a standards and labeling (S&L) program. Such an approach has been shown to be one of the most cost effective EE improvement tools available. For the first phase of this program, AE&M will be selected on the basis of size of the market share, potential efficiency gains, and acceptance of main stakeholders, to ensure rapid implementation and maximum local and global benefits. For the selected appliances and equipment, mandatory labels and minimum standards will be developed and implemented.

5. In the case of the EE services, the most active agents in the marketplace were approached during project design, including ESCOs[10] and utilities, and main barriers were identified to be the lack of financial support and technical assistance to help prepare bankable EE projects, provide EE services, and implement the utility EE programs. To design the financial supporting instruments several options were evaluated, with the participation of commercial banks, local financial specialists and interested ESCOs. The main conclusions of this exercise were: (a) the need for a dedicated EE fund to provide critical support for EE investments, (b) the financial instruments offered by this facility should be flexible in order to adapt to changing conditions of the financial system in Argentine, (c) grants should be made available to facilitate preparation of

[10] In the Argentinean context, ESCOs include engineering firms that provides EE technical advice and/or implement projects with limited financing from manufacturers of EE equipment.

EE projects; (d) market knowledge and the proximity to clients necessitates the involvement of commercial banks for channeling support to EE investments, and (e) the EE fund should focus on high-return and relatively small projects, including the commercial sector, public buildings, and small and medium enterprises (SME), the latter following the PIEEP approach explained elsewhere in this project brief.

6. The technical assistance instruments are designed to facilitate implementation of EE programs in order to help eliminate the other main barriers that hinder the delivery capacity of ESCOs and utilities. The main activities in this area will aim to support ESCOs development, utility program development, and dissemination activities.

7. Based on the above criteria, the project will support investments in energy efficient goods and services by (i) developing the Argentine Energy Efficiency Fund (AEEF), to facilitate financing of activities aimed to increase the efficiency of energy use in the industrial, commercial, and public sectors, including proactive support to ESCOs; and (ii) supporting utility-based EE activities, and (iii) supporting market transformation activities by building regulatory and institutional capacity, including the implementation of a Standards and Labeling (S&L) program, to improve availability of energy efficient appliances, equipments and services in the marketplace. Total project investments are estimated at US$ 99.435 million, including a GEF grant of US$15.155 million estimated on the basis of the incremental cost analysis.

B. Global and local benefits

8. In order to estimate CO_2 emissions, the dispatching of the interconnected system was simulated, taking into consideration the incorporation of the new plants planned to be built during the period of the analysis. The dispatching criteria used by the operator of the wholesale power market CAMMESA, which consists in assigning priority to the power plants with the lowest marginal costs, were used in the simulation. The main results are: priority is always given to the dispatch of thermal plants, which defines the marginal costs and the marginal emissions of CO_2 per kWh generated. The marginal emissions were estimated to be 584 grams of CO_2 per kWh produced. This value was used to estimate the reduction in emissions.

9. By the end of the project in 2014, 373,000 tons of oil equivalent (TOE) and 17,257 GWh of electricity are expected to be saved. Accumulated emissions of CO_2e would be reduced by 10.7 million tons compared with the baseline without project.

10. The project market transformation activities are expected to continue beyond the project life, as part of the broader Argentina Program for Rational and Efficient Use of Energy (PRONUREE) by the Government of Argentina. Also as a consequence of the operation of the EE equipment to be installed during project implementation, accumulated energy savings of 1.36 million TOE and 40,680 GWh and an accumulated emission reduction of 26.7 million tons of CO2e are expected by 2019; accumulated energy savings of 3.8 million TOE and 74,167 GWh and an accumulated emission reduction of 53.0 million tons of CO2e are expected by 2024. The ratio between the dollar amount of the GEF grant and the CO2 avoided would amount to US$ 1.42 per ton of CO2e in 2014, US$ 0.57 per ton of CO2e by 2019 and US$ 0.29 per ton of CO2e by 2024.

11. Annual electricity savings in 2014 are estimated to be 3.6 TWh, equivalent to 2% of total projected consumption for the same year. This should enable the power sector to postpone investments in incremental capacity, as the result of the reduction of total demand. The amount of the deferred investments in supply facilities will depend in part on the generation mix, the scheduling of new facilities, and the timing of installation of the energy efficient equipment under the project. A conservative estimate, assuming a reduction of the demand equivalent to the energy savings, would represent approximately 600 MW in 2014 (equivalent to approximately 2% of the projected total installed capacity of 30.4 GW in 2014), with corresponding savings in transmission and distribution investments. This would allow for the postponement of about US$ 780 million in supply facilities (i.e., US$ 1,300 per installed MW, including generation and associated transmission and distribution facilities) by 2014. The postponed investments provide a useful approximation of the economic benefits; the net present value (at a 12% discount rate) would be US$ 387 million and the IRR would be 117%. The timely and complete execution of the CFL program should result in a more significant reduction in peak demand due to the very high simultaneity factor of the lamps. In this case, the reduction of peak demand is projected to reach about 4.7% of the total potential demand without the project. The corresponding postponement of potential construction of new generation capacity would be about 1,430 MW by 2014, 1,760 MW by 2019, and 2,140 MW by 2024. Estimated corresponding postponement in investments would amount to approximately US$ 1,850 million in 2014, US$2,290 million in 2019, and US$2,780 million in 2024.

C. Economic and financial analysis for efficient lighting

12. The investment component of the project (under Component 2) consists in installing 2 CFLs of 15 and 19 watts to replace 2 incandescent lamps of 60 and 75 watts primarily for low-consumption residential users which consume less than 300 kWh bimonthly and represent 46percent of the total residential customers. The replacement will also be offered to residential users that consume more than 300 kWh bimonthly, albeit with lesser of a priority. These two categories of users differ in the tariff, and the tariff for low consumption consumers is much lower (Table 9.1).

Table 9.1. Tariffs for Residential Users in the Greater Buenos Aires Area

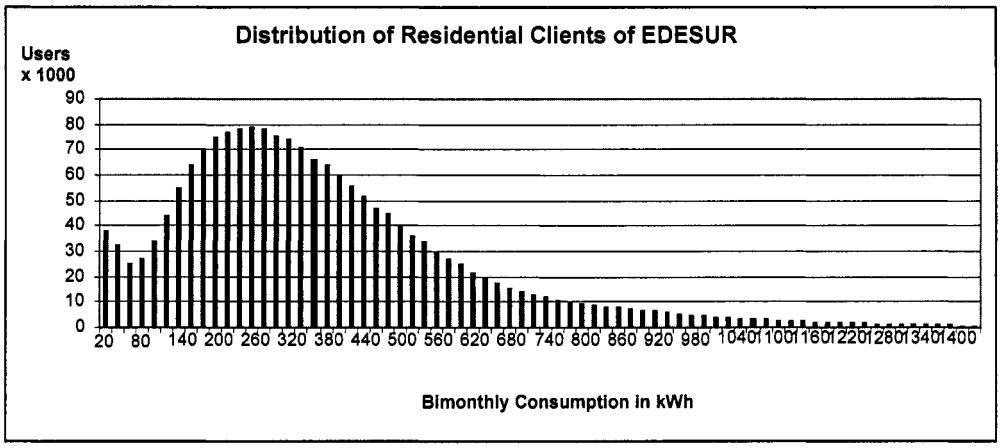
Capital Federal y Gran Buenos Aires			**EDESUR**		**EDENOR**		**EDELAP**	
Customer 1	kWh-bim < 300	Fixed charge	4.56	A$/bim.	4.57	A$/bim.	4.46	A$/bim.
		Variable charge	0.08	A$/kWh	0.08	A$/kWh	0.08	A$/kWh
Customer 2	kWh-bim > 300	Fixed charge	16.63	A$/bim.	16.65	A$/bim.	16.28	A$/bim.
		Variable charge	0.04	A$/kWh	0.04	A$/kWh	0.04	A$/kWh

* EDESUR, EDENOR and EDELAD are local distribution utilities.
**A$/Bim= Argentine pesos bimonthly

13. The average use of electricity by residential customers in Argentina is estimated as follows: lighting (39 percent), refrigerator (29 percent), TV and video players (12 percent) and others (20

percent). As almost 50 percent of all residential users use less than 300 kWh every two months, the savings from the use of EE lamps represent a high percentage of current electricity bills. The distribution of the residential consumption in one of the participating utilities EDESUR is indicated in Figure 9.1.

Figure 9.1. Distribution of Residential Consumption



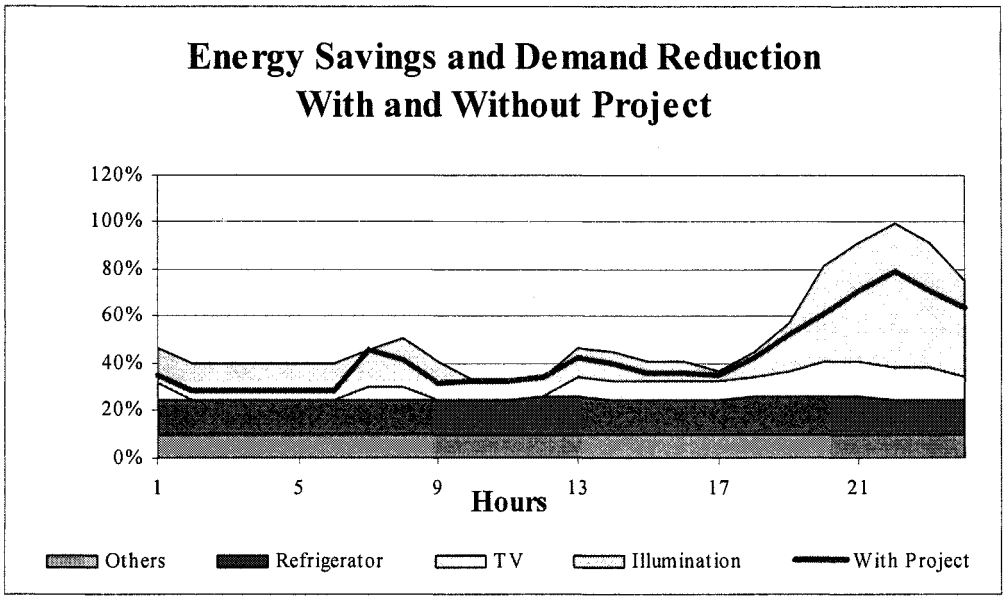
14. As shown in Table 9.2, CFLs use 75 percent less electricity than the equivalent incandescent lamps given the same lumen outputs and 9 hours of use per day, each saving 164 kWh per year.

Table 9.2. Comparison of electricity consumption of different lamps

Type of lamps	Lifetime	Lamp Efficiency	Average Wattage
	Hours	Lm/W	W
Incandescent	940	8-12	68
CFL	4500	40-70	17

15. Financial viability of this program requires that the savings to the final users, which represent the loss of income by the utilities, be compensated by the reduced purchase of energy in the wholesale market and the postponement of investments in supply facilities. The reduction of energy use during the day by the utilization of more efficient lamps represents important savings for the customers (Figure 9.2). The associated reduction of demand at peak time is beneficial for the utility because it allows it to postpone investments in network expansion.

Figure 9.2. Replacing incandescent lamps with CFLs: Energy Savings and Peak Reduction



16. Programs to replace incandescent bulbs with CFLs have an average internal rate of return (IRR) of 12 percent to 35 percent and repayment period of 24 to 36 months.

Annex 10: Safeguard Policy Issues

ARGENTINA: Energy Efficiency Project

1. The GEF grant will support three main activities: (1) grant facility for feasibility studies, (2) replacement of incandescent bulbs with CFLs, and (3) technical assistance for capacity building and project management. The WB's environmental category assigned to the project is C.

2. The environmental impacts of the project will be mainly related to the specific EE investments supported under Component 2 of the project to replace incandescent bulbs with CFLs. No significant negative environmental impacts will be caused by the project. As will be stipulated in the Distribution Agreements between the participating electric distribution utilities and the Energy Secretariat, the electric utilities will be responsible for distribution of CFLs and recollection of used incandescent bulbs. The utilities will also be responsible for proper disposal of the used bulbs in compliance with Argentinean environmental law, policies and procedures and with the World Bank safeguards policy (OP/BP/GP 4.01). Argentina has made significant progress in adapting its Environmental Impact Assessment (EIA) system to international norms. Specific disposal measures will be required and included in the project's operational manual.

3. Under Component 3 of the project, one of the activities is to help strengthen the operational capacity of the certification laboratories, including acquisition and installation of lab equipment. In most cases it is expected that this activity involves the purchase of goods because the Bank considers that the term "goods" includes equipment and "related services", such as installation. However, in some cases, depending the function and size of the equipment, it may be necessary to adapt or modify buildings in order to install the equipment. It is expected that the work for modifying or adapting the buildings, in case it is needed, is small in contract value and can be procured under Non-consultant Services. Prior to the carrying out of such specialized works, the SE will carry out an environmental screening, and if needed as determined by the World Bank, will develop an environmental management plan for each of the works. The environmental assessment required for this type of works is very simple - for example, this requirement can be met by a manual for contractors with good environmental practices to be followed for such services, can be made part of the contract for such small works. The project's Operational Manual provides that the contractors shall follow local environmental laws and regulations in Argentina in carrying out these types of contracts, and also specify that the manual for contractors shall be part of any such small works contracts. In such cases, as per the experience learned from other Bank projects in Argentina, the local environmental practices are usually quite good and similar to Bank recommended standards.

4. Among the environmental benefits of reducing energy consumption through energy efficiency projects are: the reduction in local air pollutants (particulates, SO_X, NO_X, HC), and the reduction of greenhouse gas emissions, specifically CO_2. Energy savings and GHG reduction resulting from the investments to be supported through the project will be monitored and reported under the project.

5. No negative social impact is anticipated to result from the project. The project is expected to facilitate the emergence and growth of a robust national EE industry. By investing in energy saving measures, the private sector SMEs will be able to reduce their operating costs and

improve competitiveness in domestic and external markets. Thus, the population could benefit through increase in employment. EE projects in the municipal and commercial sectors are expected to make basic public services more affordable and better quality, improving the comfort of the general population. Demand-side EE investments in the residential sector may bring significant social benefits by mitigating the impact of possible increases in residential energy prices while improving the comfort level. The 1997 household expenditure survey showed that expenditure on electricity, fuels (excluding transport) and water represent close to 5.5% of total expenditure. The general population will benefit from the positive environmental impacts of the project. Overall, higher end-use efficiency creates a positive link between environmental and social outcomes.

6. Key project stakeholder groups are as follows: (i) SMEs mostly in the industrial and the service sector, municipalities and housing cooperatives/associations; (ii) ESCOs and EE consulting firms; (iii) electric utilities and their customers; (iv) academic entities and laboratories, and (v) local environmental and EE advocacy groups and NGOs. The project components have been discussed with a broad cross section of stakeholders. Broad-based participation and public involvement are incorporated in the project design. Organized outreach and public information campaigns are included in the TA component. Discussions have been held with numerous electric utilities as potential participants in the project. One of the major energy efficiency programs upon which this project builds is the PIEEP project for improving energy efficiency and productivity in small and medium enterprises. The project has been discussed with the key stakeholders involved in the PIEEP project.

7. In order to ensure that all social groups, including indigenous people, have equitable access to the benefits under component 2 of the project, a number of measures will be taken. First, the project will finance a study to map the best available census data on the location of indigenous populations onto the distribution networks of each electric power utility and analyze the specific language and cultural needs of the social groups benefited by the CFLs. Second, the participating utilities will prepare a distribution plan showing the work plan to distribute the CFLs as well as to carry out the dissemination activities to educate the residential customer on the use and the energy saving benefits of CFLs, taking into account the findings of the national study on the cultural and linguistic needs of social groups. These plans are subject to the approval by the SE before any CFLs can be passed to the utilities. The criteria for developing and approving these plans shall be described in the Operational Manual. Third, the SE will prepare a mid term progress report after 50% of the CFLs have been distribution and, if necessary, prepare and implement a time-bound action plan to ensure all social groups benefiting from the CFLs program in a equitable manner.

Annex 11: Project Preparation and Supervision

ARGENTINA: Energy Efficiency Project

	Planned	Actual
PCN review	October 2004	Oct. 14, 2004
Initial PID to PIC	January 2005	January 20, 2005
Initial ISDS to PIC	January 2005	January 20, 2005
Appraisal	February 2008	February 2008
Negotiations	April 2008	May 2008
Board/RVP approval	May 2008	June 2008
Planned date of effectiveness	December 2008	
Planned date of mid-term review	September 2011	
Planned closing date	June 2015	

The key institution responsible for preparation of the project is Secretariat of Energy in Argentina. A GEF project preparation grant for US$ 345,000 (TF055036) was received and used for project preparation by the recipient to contract consulting services for the following preparation activities: (a) study on the regulation, tariff signals and economic incentives for the efficient use of energy, (b) design of the EE Investment Fund and evaluation of financial institutions, (c) design of a utility program, (d) design of a national standardization and labeling program and of an ESCO development program, and (e) a baseline study of the energy market, incremental cost of the project and estimated emission reductions. The grant was successfully executed by the Energy Secretariat. All planned outputs were completed and consultant performance was satisfactory, with significant transfer of technical knowledge to the government.

Bank staff and consultants who worked on the project included:

Name	Title	Unit
Xiaoping Wang	Task manager	LCSEG
Todd Johnson	Senior energy specialist	LCSEG
Luis M. Vaca-Soto	Power Engineer, Consultant	LCSEG
Lucia Spinelli	Energy specialist, Consultant	LCSEG
Almudena Mateos	Energy specialist, Consultant	LCSEG
Alejandro Solanot	Financial management analyst	LCSFM
Ana María Grofmacht	Procurement analyst	LCSPT
Andres Mac Gaul	Senior Procurement specialist	LCSPT
Reynaldo Pastor	Senior Counsel	LEGLA
Fowzia Hassan	Operational Analyst	LCSEG
Fernanda Pacheco	Program Assistant	LCSEG
Ana Kuschnir	Team assistant	LCC7C

Bank funds expended to date on project preparation:

1. Bank resources: US$ 274,052
2. Trust funds: GEF PDF B (TF55036): US$ 345,000
3. Total: US$ 619,052

Estimated Approval and Supervision costs:

1. Remaining costs to approval: US$30,000
2. Estimated annual supervision cost: US$90,000

Annex 12: Documents in the Project File

ARGENTINA: Energy Efficiency Project

"Argentina Energy Efficiency Project" prepared by Fundación Bariloche and Lestard/Franke consultants. November, 2005.

Estimates of energy savings and CO2 emission reductions by project component (Excel spreadsheet)

"World Bank GEF Energy Efficiency Portfolio Review and Practitioners' Handbook", World Bank Environment Department, January 2004.

Private Sector Participation in Market-Based Energy-Efficiency Financing Schemes: Lessons learned from Romania and International Experiences, ESMAP, November 2003

"STAP Review of the Argentina Energy Efficiency Project" by Howard Geller, December 2, 2005.

ELI – Argentina – Final Report, February 2004.

"IFC/GEF Argentina Efficient Street Lighting Program. Final Report", by IIEC, Shir Ashar, and Denise Knight. April 2002.

"Energy consumption in the industrial sector", Fundación Bariloche / GTZ, march 2004.

Encuesta Nacional de Costos de los Hogares, 1996/97, INDEC.

Inventario de GHG, Fundación Bariloche, Septiembre 2005

Several Progress and Final Reports prepared by GTZ-PIEEP project.

Estudio de regulaciones, tarifas e impuestos, by Jorge Lapeña y Asociados, November 2007.

Diseño del Fondo de Inversiones en EE y Evaluación de Instituciones Financieras, by GREEN MAX CAPITAL ADVISORS (CJ ARON ASSOCIATES), November 2007.

Apoyo al diseño de programas de Eficiencia Energética en Empresas Distribuidoras de Energía Eléctrica, by ECONOLER INTERNATIONAL, November 2007.

Diseño de un Programa de Etiquetado y Normalización de Eficiencia Energética y de un Programa de Desarrollo de ESE, by AES PAISES BAJOS, March 2008.

Estudio de la línea de base del mercado energético y su alternativa, el costo incremental del Proyecto, y la reducción esperada de las emisiones, by FUNDACION BARILOCHE/LF& Asociados, March 2008.

Annex 13: Statement of Loans and Credits

ARGENTINA: Energy Efficiency Project

			Original Amount in US$ Millions						Difference between expected and actual disbursements	
Project ID	FY	Purpose	IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
P090993	2007	AR-Essential Public Health Functions	220.00	0.00	0.00	0.00	0.00	172.96	-47.04	0.00
P095514	2007	AR Lifelong Learning Project	200.00	0.00	0.00	0.00	0.00	200.00	0.00	0.00
P095515	2007	AR (APL2) Prov Maternal-Child Health	300.00	0.00	0.00	0.00	0.00	276.53	42.59	0.00
P095569	2007	AR APL2 National Highway Asset Mgt	400.00	0.00	0.00	0.00	0.00	400.00	0.00	0.00
P099051	2007	AR- SANTA FE ROAD Infrastructure	126.70	0.00	0.00	0.00	0.00	126.67	61.30	9.97
P099585	2007	AR-Cordoba-Road Infrastructure	75.00	0.00	0.00	0.00	0.00	68.00	54.00	0.00
P101170	2007	AR 2nd State Modernization	20.00	0.00	0.00	0.00	0.00	20.00	1.93	0.00
P105288	2007	AR APL2 Buenos Aires Infrastructure	270.00	0.00	0.00	0.00	0.00	270.00	0.00	0.00
P070448	2006	AR Subnational Gov Public Sec Modernizat	40.00	0.00	0.00	0.00	0.00	38.33	15.57	0.00
P060484	2006	AR Basic Municipal Services Project	110.00	0.00	0.00	0.00	0.00	104.73	18.76	0.00
P070963	2006	AR Rural Education Improvement Project	150.00	0.00	0.00	0.00	0.00	133.82	38.79	-16.03
P055483	2006	AR-Heads of Household Transition Project	350.00	0.00	0.00	0.00	0.00	63.43	25.43	0.00
P093491	2006	AR (APL2)Urban Flood Prev.&Drainage	70.00	0.00	0.00	0.00	0.00	70.00	66.20	0.00
P092836	2006	AR Inst. Strengthening - ANSES II TA	25.00	0.00	0.00	0.00	0.00	21.48	8.98	0.00
P089926	2006	AR Solid Waste Management Project	40.00	0.00	0.00	0.00	0.00	38.79	10.52	0.00
P088220	2005	AR (APL1)Urban Flood Preven&Drainage	130.00	0.00	0.00	0.00	0.00	131.95	85.88	0.00
P088032	2005	AR(CRL1)Buenos Aires Infrastr SIDP(1APL)	200.00	0.00	0.00	0.00	0.00	107.44	96.10	0.00
P070628	2005	AR-Provincial Road InfrastructureProject	150.00	0.00	0.00	0.00	0.00	144.55	95.43	0.00
P088153	2004	AR National Highway Asset Management	200.00	0.00	0.00	0.00	0.00	16.12	15.13	0.00
P071025	2004	AR-Provincial Maternal-Child Hlth Inv Ln	135.80	0.00	0.00	0.00	0.00	53.64	18.71	0.00
P064614	2001	AR- Second Secondary Education Project	56.99	0.00	0.00	0.00	0.00	3.15	3.15	3.15
P006043	1999	AR RENEW.ENERGY R.MKTS	30.00	0.00	0.00	0.00	0.00	10.20	10.20	8.78
P006041	1998	AR SMALL FARMER DV.	75.00	0.00	0.00	0.00	0.00	45.00	0.00	0.00
P039584	1997	AR B.A.URB.TSP	200.00	0.00	0.00	0.00	0.00	103.45	3.45	3.45
P006010	1997	AR PROV AG DEVT I	125.00	0.00	0.00	0.00	0.00	30.15	-6.85	-6.85
		Total:	3,699.49	0.00	0.00	0.00	0.00	2,650.39	618.23	2.47

ARGENTINA
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
2000	ASF	3.76	0.00	0.00	3.85	3.76	0.00	0.00	3.85
1998	AUTCL	4.28	0.00	0.00	0.00	4.28	0.00	0.00	0.00
2004	Aceitera General	50.00	0.00	20.00	30.00	50.00	0.00	20.00	30.00
2006	Arcor	70.00	0.00	0.00	210.00	70.00	0.00	0.00	210.00
2000	BACS	0.00	6.25	0.00	0.00	0.00	6.25	0.00	0.00

2006	BACS	50.00	0.00	0.00	0.00	13.25	0.00	0.00	0.00
1999	Banco Galicia	57.79	0.00	0.00	40.91	57.79	0.00	0.00	40.91
2005	Banco Galicia	40.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00
1997	Bunge-Ceval	0.00	0.00	5.00	0.00	0.00	0.00	5.00	0.00
2006	CAPSA	50.00	0.00	0.00	20.00	50.00	0.00	0.00	20.00
1995	CEPA	3.00	0.00	0.00	1.20	3.00	0.00	0.00	1.20
1998	F.V. S.A.	1.50	0.00	4.00	0.00	1.50	0.00	4.00	0.00
	Grupo Galicia	0.00	3.06	0.00	0.00	0.00	3.06	0.00	0.00
1998	Hospital Privado	8.40	0.00	0.00	0.00	8.40	0.00	0.00	0.00
1992	Huantraico	0.00	27.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	Jumbo Argentina	0.00	39.12	0.00	0.00	0.00	39.12	0.00	0.00
	LD Manufacturing	0.00	0.00	5.00	0.00	0.00	0.00	5.00	0.00
	Milkaut	0.00	1.23	0.00	0.00	0.00	0.00	0.00	0.00
1997	Milkaut	5.33	0.00	9.44	1.44	5.33	0.00	9.44	1.44
1993	Molinos	0.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00
1994	Molinos	0.00	0.57	0.00	0.00	0.00	0.57	0.00	0.00
1996	Neuquen Basin	0.00	26.40	0.00	0.00	0.00	0.00	0.00	0.00
1999	Neuquen Basin	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	Noble Argentina	18.00	0.00	0.00	18.00	15.00	0.00	0.00	15.00
2005	PAE - Argentine	105.50	0.00	15.00	135.00	103.53	0.00	15.00	135.00
1998	Patagonia	1.76	0.00	1.00	0.00	1.76	0.00	1.00	0.00
1998	Patagonia Fund	0.00	8.54	0.00	0.00	0.00	1.65	0.00	0.00
1999	S.A. San Miguel	2.76	0.00	0.00	0.00	2.76	0.00	0.00	0.00
2005	S.A. San Miguel	20.62	0.00	0.00	10.00	17.29	0.00	0.00	8.33
1995	SanCor	8.70	0.00	19.89	0.00	8.70	0.00	19.89	0.00
	Socma	7.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00
1995	Socma	0.94	0.00	0.00	15.00	0.94	0.00	0.00	15.00
1997	T6I	3.33	0.00	5.00	3.75	3.33	0.00	5.00	3.75
1997	Terminal 6	3.33	0.00	0.00	1.63	3.33	0.00	0.00	1.63
1995	Terminales Port.	0.50	0.00	0.00	0.00	0.50	0.00	0.00	0.00
2000	Tower Fund	0.00	0.85	0.00	0.00	0.00	0.00	0.00	0.00
1995	Tower Fund Mgr	0.00	0.05	0.00	0.00	0.00	0.05	0.00	0.00
1996	Transconor	4.20	0.00	0.00	157.58	4.20	0.00	0.00	157.58
2001	USAL	9.27	0.00	0.00	0.00	7.27	0.00	0.00	0.00
2005	Vicentin	20.00	0.00	15.00	0.00	0.00	0.00	15.00	0.00
1993	Yacylec	0.00	2.52	0.00	0.00	0.00	2.52	0.00	0.00
	Total portfolio:	549.97	122.59	99.33	648.36	447.92	55.22	99.33	643.69

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
2001	ITBA	0.01	0.00	0.00	0.00
2001	Gasnor	0.02	0.00	0.00	0.02
2006	Arcor Swap	0.00	0.00	0.00	0.00
2004	Banco Rio TFF	0.02	0.00	0.00	0.05
2005	Vicentin Exp.	0.00	0.00	0.00	0.05
	Total pending commitment:	0.05	0.00	0.00	0.12

Annex 14: Incremental Cost Analysis

ARGENTINA: Energy Efficiency Project

A. Overall Context for Energy Efficiency in Argentina

1. There is an opportunity and urgent need to address the barriers to energy efficiency in Argentina at this point in time. The reforms introduced in the 1990s on the production, transmission, and distribution of electricity and natural gas were not accompanied by efficiency improvements on the demand side. This situation has resulted in higher energy use for the Argentine economy, and consequently higher energy imports for the country, higher energy costs and lower competitiveness for productive sectors, greater energy consumption for consumers with increasingly higher costs as retail prices are raised, and greater local and global pollution associated with the consumption of fossil fuels.

2. While the country was poised to address the demand side energy efficiency issues by the late 1990s, as evidenced by the passage of energy efficiency legislation by the (upper/lower) house, this momentum was derailed by the economic crisis in 2002. The crisis created a loss of confidence in the financial sector and a contraction of bank credit for investments in new equipment, especially among small and medium enterprises. The contraction in government revenues at all levels also resulted in the delay of investments in such areas as public lighting, and public buildings. The devaluation of the peso increased the cost of imported parts and equipment, and also put pressure on the government to control electricity tariffs, especially among residential consumers. Although prices have since risen to market levels for industrial and commercial customers, residential tariffs remain below marginal costs of supply and specific structural problems in residential tariffs discourage energy efficiency.

3. The rationale for the current project is to make a concerted effort to address energy efficiency on the demand side in Argentina. The PIEEP project has demonstrated a large potential for energy efficiency and productivity improvements in small and medium enterprises, but the inadequate development of an ESCO industry, and a financial sector averse to investment lending, have left many potential energy efficiency projects idle. Given rising energy imports, concerns about the security of energy supply, and growing environmental awareness, the Government is strongly committed to undertaking a major program on energy efficiency at this time. The current project will address regulatory, financial, and information barriers to improvements in energy efficiency, and GEF support for the program will provide the added push that the Government needs to promote needed reforms through the political system.

B. Baseline Scenario

4. Until 2007, there had been a number of disparate activities going on in Argentina in the area of energy efficiency and this is likely to continue under the baseline situation. The Secretariat of Energy had a small program for promotion of energy efficiency and the use of renewable energy, the Energy Saving and Efficiency Program (PAEE), which was limited in scope and scale (total budget is less than US$200,000/year). In addition, since 2004 a program for rational use of

energy (PURE) has been implemented. The results of PAEE and PURE have been mixed, with very limited impacts in the residential sector.

5. In December 2007, the GoA launched the National Program for the Rational and Efficient Use of Energy (*Programa Nacional de Uso Racional y Eficiente de la Energia* – PRONUREE, Decree 140/2007), which declared the rational and efficient use of energy to be in the national priority. The Program, under the responsibility of the Secretariat of Energy, aims to be a vehicle for improving energy efficiency in the energy-consuming sectors and acknowledges that energy efficiency needs to be promoted with a long-term commitment and vision. However, it's a huge challenge to implement this ambitious program to achieve the expected results given the limited success with the previous programs of smaller scale. Strong support in technical assistance and investments will be needed to materialize the program as planned.

6. As Argentina's economy recovers, there will be increasing incentives for new investment in plant and equipment, as well as the energy-consuming capital stock among residential consumers. Without a comprehensive program for standards and labeling, as well as minimum efficiency standards, it is likely that the efficiency of major energy consuming equipment – lamps, refrigerators, motors, pumps, air conditioners – will only improve gradually. Currently, only labeling for refrigerators has been designed but is not being implemented.

7. As part of the PRONUREE, the GoA has established a goal to phase out the incandescent bulbs in the residential sector by 2011. The measures include upgrading of a local factory for assembling of CFLs, limiting the imports of lighting bulbs, and increasing the use of CFLs (through collaboration with utilities). The first two phases of this phase-out initiative are to deploy 200,000 and 5 million CFLs respectively. Support is needed to step-up these initial efforts and ensure the phase-out implemented in a sustainable and environmentally friendly manner.

8. The ESCO market in Argentina is currently minuscule and this is not expected to change in the near term without: (i) impetus from the regulatory framework, (ii) adequate incentives and knowledge among the financial sector, and (iii) training and capacity building among market participants. The PIEEP program has been very valuable for identifying some high-value investments within small and medium enterprises but what is lacking is financing for investment projects and for entities like ESCOs to begin working on a large scale to promote energy efficiency investments.

9. Some utilities will continue to promote efficiency investments among their larger clients, but only those clients that can self-finance the investments would invest in energy efficiency activities. For all other categories of consumers, while there may be adequate financial incentives to justify energy efficiency investments, the lack of financing and sufficient regulatory incentives for the utilities will limit EE investments.

C. GEF Alternative

10. The GoA has requested support in both technical assistance and investments from the World Bank. The current GEF support will help the GoA accelerate the phase-out of incandescent bulbs, establish a pipeline of bankable EE projects, and strengthen the national capacity in EE

policy development, standards and labeling, ESCO development and information dissemination. Upon the government request, a follow-up Bank loan operation is under consideration to addressing the investment needs of EE in Argentina.

11. Under the GEF Alternative, Argentina will implement the PRONUREE program in a more systematic and rapid manner. It will build on existing efforts in the country for addressing energy efficiency, including the programs mentioned above. Investments in energy efficiency measures under the project will be co-financed by national government, electric distribution utilities, and consumers in addition to the GEF support.

12. The GEF support will specifically help address regulatory, institutional, financial and informational barriers to creating a sustainable market for energy efficiency products and services. These barriers include:

- *Lack of regulatory incentives to promote energy efficiency.* Even with energy prices in some sectors sufficient to justify investments and process and managerial changes, the regulatory framework for electricity and natural gas often inhibits utilities and many classes of consumers to undertake energy efficiency investments. A prime example is the inability for utilities to finance energy efficiency investments by allowing customers to repay through their utility bills.

- *Lack of adequate price signals to energy consumers, especially among residential consumers.* Partly as a result of the financial crisis, energy prices for some classes of consumers have been controlled and not allowed to reflect increases in the costs of energy supply. Some residential tariffs are too low to provide incentives for energy efficiency; in fact, distorted tariff serves an incentive for increasing consumption. Electricity and natural gas tariffs are still below 2001 levels, although they are being increased for many classes of consumers, especially industrial and commercial consumers.

- *Lack of information among residential consumers on the efficiency of energy equipment.* Failure to provide information on the lifecycle energy cost relative to the purchase cost of energy equipment or the energy efficiency of appliances is part of the reasons why the consumers tend to consider their purchase decision only in terms of the initial price. Lack of reliable information on equipment efficiency also prevents the use of its low operational cost as a marketing instrument. The implementation of the standardization, testing, certification and labeling program (currently limited to refrigerators) needs to be accelerated in order to cover other appliances included in the program, to provide information and incentives to vendors and consumers.

- *Inadequate information and high transaction costs for enterprises to implement energy efficiency investments.* The lack of information among industrial consumers about EE technologies and experiences, and the high cost of the initial design and implementation of EE projects have compounded the difficulties for obtaining access to financing for energy efficiency.

- *Perceived high risk among banks to finance energy efficiency projects.* Access to financing has been difficult due to the 2002 crisis, and energy efficiency projects are still

perceived as high-risk initiatives, while there are doubts related to their actual profitability. In general, commercial banks ignore how to evaluate EE projects and their guarantee requirements, and several small and medium projects become unfeasible due to high transaction costs.

- *Infant ESCO industry.* There are only a few energy services consulting companies in Argentina. Yet they do not function as real energy service companies (ESCOs) even though they are expected to pursue cost-effective energy efficiency investments.

13. The proposed GEF project has three major components that, in combination, will contribute to overcoming the main barriers outlined above to developing a market for energy efficiency in Argentina.

Component 1: Development of the Argentina Energy Efficiency Fund *(Total estimated cost US$2.18 million, of which US$1.8 million from GEF)*

This component includes two activities: (a) the development of a pipeline of bankable energy efficiency projects, to be financed through a grant facility; and (b) the development of the Argentina Energy Efficiency Fund (AEEF).

(a) Grant Facility for the development of a pipeline of energy efficiency projects. Lack of support for identification and preparation of EE projects is viewed as a significant constraint to EE investments in Argentina. This facility will provide grant financing to share the cost of performing energy audits and preparing studies for bankable EE projects.

(b) Development of the AEEF. The project will provide technical support for the creation of an energy efficiency fund which, in turn will fund EE projects, including those identified and prepared with the assistance of the Grant Facility. The AEEF would cost share with the commercial banks the risks of lending to EE projects. The Government will fund the AEEF and will seek complementary financing under a follow-up Bank loan for EE.

Component 2: Development of a Utility EE Program. *(US$90.5 million, of which US$9.2 million from GEF)*

This component will finance the acquisition and distribution of CFLs as part of the Government national program and provide technical assistance for exploring new delivery mechanisms of EE services through utilities. The component will be implemented with the participation of the power distribution utilities, will contribute to the national program designed to phase out incandescent bulbs by 2011 in Argentina. The GEF grant will contribute to partial financing of 25 million CFLs under the national program that will be distributed by the utilities to residential customers and will support the information dissemination, training and monitoring and evaluation activities for the phase-out program. This activity is well aligned with the GEF "Ban the Bulb" initiative to transform the global market toward efficient lighting technologies through accelerated phase-out of inefficient lighting.

Component 3: Capacity Building and Project Management *(Total estimated cost US$6.755 million, of which US$4.155 million from GEF).*

This component will build capacity within the private and public sectors and strengthen the incentives for investments in energy efficiency, including: (i) preparation of energy sector, tax and financial policies and regulations for the promotion of EE activities, (ii) standardization, testing, certification and labeling program, (iii) ESCO capacity building, (iv) education, training and dissemination programs, (v) monitoring and evaluation, and (vi) project management.

14. The project market transformation activities are expected to continue beyond the project life, as part of the broader Argentina Program for Rational and Efficient Use of Energy (PRONUREE) by the Government of Argentina. Also as a consequence of the operation of the EE equipment to be installed during project implementation, accumulated energy savings of 1.36 million TOE and 40,680 GWh and an accumulated emission reduction of 26.7 million tons of CO2e are expected by 2019; accumulated energy savings of 3.8 million TOE and 74,167 GWh and an accumulated emission reduction of 53.0 million tons of CO2e are expected by 2024. The ratio between the dollar amount of the GEF grant and the CO2 avoided would amount to US$ 1.42 per ton of CO2e in 2014, US$ 0.57 per ton of CO2e by 2019 and US$ 0.29 per ton of CO2e by 2024.

11. The power sector should be able to postpone the supply capacity, as the result of the reduction of total demand, of 1,429 MW in 2014, 1,764 MW by 2019, and 2,143 MW by 2024, mostly for meeting peak demand. Estimated postponement in investment would amount to US$ 1,857 million in 2014, US$2,293 million in 2019, and US$2,786 million in 2024.

Table 14.1. Estimated domestic and global benefits of the project

	Year 2014					Year 2019					Year 2024				
	Annual Energy Savings	Accumulated Energy Savings	Peak Reduction	Reduction of Emissions	Accumulated Reduction of Emissions	Annual Energy Savings	Accumulated Energy Savings	Peak Reduction	Annual Reduction of Emissions	Accumulated Reduction of Emissions	Annual Energy Savings	Accumulated Energy Savings	Peak Reduction	Annual Reduction of Emissions	Accumulated Reduction of Emissions
	GWh/year	GWh	MW	tCO2/year	tCO2	GWh/year	GWh	MW	tCO2/year	tCO2	GWh/year	GWh	MW	tCO2/year	tCO2
S & LABELING PROGRAM															
Efficient Refrigerators	346	1,265	52	189,553	693,413	457	3,426	68	250,244	1,877,368	463	5,729	69	253,567	3,139,613
Standby Residencial Devices	45	160	4	24,570	87,716	86	498	8	47,308	272,866	166	1,148	16	91,087	629,355
Residential Air Conditioning	35	53	24	19,060	29,313	248	861	171	136,036	471,883	484	2,799	334	265,456	1,533,977
Electronic Ballasts	258	607	29	141,194	332,401	695	3,197	79	380,654	1,752,082	1,174	8,082	134	643,089	4,428,920
Efficient Industrial Electric Motors	438	920	50	240,290	504,307	1,468	6,015	168	804,619	3,296,091	2,820	17,314	322	1,545,124	9,487,944
Clothes Washers	133	593	23	79,888	331,885	130	1,251	22	78,238	726,955	125	1,888	21	74,965	1,109,043
Natural Gas Appliances kTOE/year	111			357,034		276			888,414		687			2,210,658	
Natural Gas Appliances kTOE		373			1,200,030		1,363			4,388,311		3,827			12,321,776
Total S & Labeling Program	1,255	3,599	182	1,051,589	3,179,065	3,085	15,248	517	2,585,512	12,785,555	5,231	36,961	897	5,083,945	32,650,628
UTILITIES															
Residential Illumination CFL Program	2,355	13,658	1,246	1,290,429	7,484,488	2,355	25,432	1,246	1,290,429	13,936,634	2,355	37,206	1,246	1,290,429	20,388,779
TOTAL EE PROJECT	3,610	17,257	1,429	2,342,018	10,663,553	5,439	40,680	1,764	3,875,941	26,722,189	7,586	74,167	2,143	6,374,374	53,039,406
	kTOE	kTOE		tCO2/year	tCO2	kTOE	kTOE		tCO2/year	tCO2	kTOE	kTOE		tCO2/year	tCO2
TOTAL FUELS	111	373		357,034	1,200,030	276	1,363		888,414	4,388,311	687	3,827		2,210,658	12,321,776
GEF US$/Ton CO2					1.42					0.57					0.29
GEF US$/Ton C					5.21					2.08					1.05
Amount of investments postponed	US$ million		1,857					2,293					2,786		
% of electricity saved in 2014	2.5%														

D. Incremental Benefits and Costs

16. The increment benefits and costs for the GEF support are presented in Table 14.1. Specifically, the residential efficient lighting program under component 2 will lead to an accumulated reduction of 7.5 million tons of CO2e emission when the project is completed in 2014, 13.9 tons of CO2e by 2019 and 20.4 tons of CO2e by 2024. The average life of the CFLs to be installed with support from the project is approximately 5 years. The underlined assumptions for calculating the GHG reduction from the residential efficient lighting program include: i) 25 million CFLs will be deployed with the support of the project; ii) CFLs use 75% less electricity than the incandescent lamps given the same lumen outputs, and each CFL saves 164 kWh per year; and iii) each additional kWh produced in Argentina is associated with 584 grams of CO2e emission.

17. The standard and labeling program under component 3 will lead to an accumulated reduction of 3.2 million tons of CO2e emission by 2014, 12.8 million tons of CO2e by 2019 and 32.7 million tons of CO2e by 2024. The methodology for calculating the GHG reduction from the standard and labeling program include the projection of: i) the stock of the main appliances and other equipment to be standardized, tested, certificated and labeled in the Argentine market as a result of this Project; and (ii) the energy efficiency class distribution, or the market share of the equipment classified by its efficiency, and the evolution of this distribution as a consequence of the Project activities. The annual sales of the appliances and other equipment involved was estimated on the basis of historic trends, taking into consideration the renovation of existing stock at the end of its useful life, affected by the expected accelerated obsolescence provoked by the existence or more efficient equipment in the market. For example, in the case of refrigerators, replacements are usually done 20 years after the purchase. As a result, annual sales were estimated as 7% of the existing stock: including first time buyers (2%) and replacement of older equipment (5%). Similar assumptions were made for the other equipment and appliances, adjusted to their individual characteristics. Detailed analysis is available in the project file.

Table 14.2. Incremental Benefits and Costs

Benefits/Costs	Baseline	GEF Alternative	Incremental Domestic and Global Benefits and Costs
Domestic Benefits	Argentina will continue to reap the domestic economic, financial, and environmental benefits of supply side efficiency improvements.	Additional energy efficiency improvements will be made on the demand side, which represent the largest share of energy consumption.	Significant additional domestic benefits will be gained including lower net energy imports, energy security, and local air quality associated with lower fossil fuel emissions.
Global Benefits.	Energy efficiency investments continue to be ad hoc by individual companies with adequate credit and awareness of energy efficiency potential. New laboratories for testing the energy efficiency of some equipment and appliances are established, but only for electricity, not for natural gas. New regional energy efficiency standards for the Southern Cone are established through the UNDP/GEF project. Most commercial banks remain passive to proposals for energy efficiency and continue to focus on consumer loans and avoid investment project lending. Small and medium enterprises continue to benefit from TA under the PIEEP program but lack a regular market for project financing. Utilities undertake only the most profitable energy efficiency investments, primarily among commercial and industrial customers who can self-finance, but investments in residential programs remain limited.	Under the auspices of the project, the government adopts new national regulations for energy efficiency (such as utility bill payback programs). Energy tariff deregulation is given an added boost through the project with the objective of energy efficiency. New minimum energy efficiency standards established for a broad range of appliances and industrial equipment. New domestic standards and certification of equipment and appliances are integrated with the regional standards work undertaken through the UNDP/GEF project. Residential and commercial consumers more aware of the operating cost savings of more efficient appliances through the labeling program and increase purchases of such equipment on their own and through utility financing programs. Industrial consumers, especially small and medium enterprises, increase their investments in energy efficiency through increased ESCO activity (through TA for contracts, for example, and through contingent grants for project identification and preparation) and the development of a sound pipeline of bankable EE projects.	Energy efficiency investments by utilities spurred by new national EE regulations. Energy savings spurred by standards and labeling for the adoption and replication of energy efficient equipment and appliances. Local private sector and financial sector expertise built for identifying and designing energy efficiency projects. Residential and commercial electricity savings allow the delay in building new generation capacity and improve energy security. Penetration of CFLs will be sped up. Accumulated electricity savings are estimated to reach 13,658 GWh by 2014, 25,432 GWh by 2019, and 37,206 GWh by 2024. Direct emission reduction of 10.7 million tons of CO2e by 2014, 26.7 million tons of CO2e by 2019, and 53.0 million tons of CO2e by 2024.

Cost by Component (US$)			
1. Argentina Energy Efficiency Fund	200,000	2,180,000	1,980,000 Of which GEF: 1,800,000
2. Utility EE Program	6,025,000	90,500,000	84,475,000 Of which GEF: 9,200,000
3. Capacity Building and Project Management	1,582,000	6,755,000	5,173,000 Of which GEF: 4,155,000
Total	7,807,000	99,435,000	91,628,000 Of which GEF: 15,155,000
Incremental Cost GEF **Total Direct CO_2 Avoided** **GEF Cost per ton CO_2 Avoided**			US$15.155 million 10.7 million tons of CO2e US$1.42/ton CO_{2e}

Annex 15: STAP Review

ARGENTINA: Energy Efficiency Project

Comments to the World Bank/GEF on the Argentina Energy Efficiency Project
Howard Geller
Dec. 1, 2005

STAP Reviewer
Howard Geller
Executive Director
Southwest Energy Efficiency Project (SWEEP)
December 1, 2005

Thank you for the opportunity to review this interesting and important project. In general I think the project employs appropriate approaches to remove the barriers to greater energy efficiency in Argentina, and I recommend it go forward. But I have a number of comments and suggestions for modifying or supplementing the proposed activities. I believe these changes and additions would increase the chances for project success.

1. Component (3), strengthening the regulatory and policy framework for energy efficiency (EE) in Argentina, seems to be very important. I strongly recommend that part (a) include consideration of and if possible advocacy for reforming utility sector tariffs and regulations so that utilities are not penalized financially for implementing effective energy efficiency programs. This issue has been at the forefront of efforts to encourage well-funded and effective utility energy efficiency and demand-side management (DSM) programs and the U.S. and elsewhere. In short, it is difficult to get investor-owned, private utilities to implement effective DSM programs if they lose revenues and profits for doing so. There are various options such as decoupling of electricity sales and revenues that can be adopted to address this problem, and I suggest they be explored and pursued in Argentina for both gas and electric utilities, as part of this project. Doing so would increase the likelihood that a major component of the project (component 2) is successful, and that it leads utilities to vigorously support DSM and customer-based energy efficiency over the long run.

1. Project team response. We agree that providing utilities with adequate incentives is essential to promoting utility energy efficiency and demand-side management programs. Although tariff levels for commercial and industrial customers have already risen to levels to make many energy efficiency investments profitable, there remain institutional and regulatory disincentives for utilities to promote such programs. In the residential sector, where electricity tariffs have been controlled below those of industrial and commercial customers, and where there are also structural disincentives in the tariff system, there are already some energy efficiency investments that make financial sense for both the users and the utilities but are hindered by information barriers on the users' side and by regulatory obstacles on the utilities' side. As a condition of GEF Grant negotiation, the Bank would seek a permanent regulatory mechanism to allow utilities to finance qualifying energy efficiency investments through customer billing – a temporary exemption of this nature was allowed for EDESUR under the IFC/GEF efficient

lighting initiative (ELI). Another option to be reviewed would be that the concession contracts of the distribution utilities are modified to establish the sale of energy efficient equipment as an authorized business for these utilities - in addition to electricity sales. This is already the case for EPEC, which is under provincial regulation, unlike EDESUR and EPEC that are under federal regulation by ENRE. Under Component (3), there will also be studies of the electricity and natural gas tariff system, with the goal of identifying the disincentives to energy efficiency and seeking to rectify the situation though utility regulatory reform.

2. I am pleased to see the sub-component on appliance testing, labeling, and standards. There is large potential for cost-effective energy savings from such activities. As part of this effort, it might be useful to develop a list of priority products for which testing, labeling, and standards will be implemented, as well as a timetable for doing so. Also, I suggest developing a labeling program to recognize the most energy-efficient products in the different categories where energy efficiency testing is carried out, along with a promotion and education effort to inform consumers about the labels. This type of labeling effort has been implemented with considerable success in Brazil (the so-called PROCEL program) as well as in the U.S. (ENERGY STAR appliances and products).

2. Project team response. A list of priority products for labeling and standards, and associated promotion and dissemination among consumers is a good idea. At the moment the project scope includes such promotion & dissemination efforts under Component (3), and, on the basis of expected savings impacts and acceptability by stakeholders, the proposed S&L program includes the standardization and labeling of the following equipment: compact fluorescent lamps, incandescent lamps, refrigerators, freezers, residential air conditioners, electric industrial motors, electric water heaters, and natural gas heaters, water heaters and stoves. These concepts will be further developed under the PDF-B financed preparatory work and incorporated into the project prior to appraisal.

3. The notion of supporting ESCOs and providing financing and/or financial guarantees for ESCO projects is worth pursuing. But I believe the experience with building up the ESCO industry in developing countries has been somewhat mixed. ESCO development has proceeded slowly and with limited success in Brazil, for example. In order to increase the likelihood that ESCO development and the AEEF will be a success in Argentina, I suggest devoting some funds to developing the demand for ESCO services in a few key sectors such as in large office buildings and in the public sector. These sectors are typical markets for ESCO services in other countries. Some funds could be used to promote use of ESCOs in these sectors, publicize the results of demonstration projects, and if necessary reform government procurement rules to enable performance contracting and use of ESCOs by the federal, state, and local governments. The public sector often lacks the capital to make energy efficiency investments on its own, and thus is an excellent market for ESCOs if third party financing is available.

3. Project team response. We are familiar with the record of ESCO development in Brazil and other developing countries and agree that their development takes time and effort. We agree that it is best to focus on a few sectors where the energy savings are proven (low risk) and where there are adequate mechanisms for financing and repayment. In addition to the commercial and public buildings sectors, that have been a focus of ESCO activity in the US and other industrial

countries, the project will also focus on small and medium enterprises. Building on the work of the PIEEP project, that has identified a number of low-risk and high-return energy efficiency investments, we believe that ESCOs can play an important role among small and medium enterprises by bundling small projects, bringing finance, and reducing the overall technical and commercial risks that are currently hindering the adoption of EE investments. At the moment, the project includes capacity strengthening of ESCOs and development of contractual mechanisms under Component (3) [During appraisal, we will review the justification for financing some demonstration projects in the public sector with ESCO involvement.]

4. Components (2) and (3) of the project appear to be reasonable, given the limited detail provided. The success of component (2) will depend on a number of factors including the willingness of the utilities to implement effective DSM programs, the capability of utility staff and contractors running the programs, the design of the programs, and the level of cooperation and support from the private sector. I don't have reason to believe there will be problems in these areas, I simply note their importance (as does the PAD at the bottom of p. 9 and in Annex 2). I also note that very little detail is provided about the design and scope of the utility DSM programs. If the utilities lack expertise in DSM programs, it may be useful to involve an international expert in utility DSM programs to assist the utilities with program design and implementation, using GEF or other bilateral aid monies to fund such support.

4. Project team response. The team and Secretary of Energy are currently in the process of developing the utility program with several Argentine utilities and regrets that more detail was not available in the previous version on the project document. In addition to addressing the regulatory incentives for utility energy efficiency programs, as noted in comment 1 above, GEF support for Component (2) will be primarily concerned with technical assistance to ensure the effective design and scope of the utility programs and in this regard, the need for assistance from both international and domestic expertise will be assessed and provided where necessary. We believe that the current version of the document provides additional information on the design of Component (2)

5. Regarding the topic of replication, utilities are more likely to want to continue DSM programs if they benefit financially from doing so, thus my comment about this in item 1 above. Also, utilities could potentially benefit from avoided investment in generation and transmission facilities, not just the distribution grid.

5. Project team response. We agree that the financial, as well as regulatory, incentives for utilities are critical for their interest in DSM and other energy efficiency programs, and that current regulation and tariff policies affect this interest. The situation is made more complex, and the incentives are different for different utilities, due to different electricity regulatory frameworks for Edenor/Edesur on one hand and EPEC on the other hand, and this will also be addressed both during further project preparation and during implementation. Edesur and Edenor is not involved in generation or transmission, the costs of which they pass through to customers, while EE investments allow them to reduce demand and thus distribution investments, in addition to helping customers' affordability and contributing to the companies' image. EPEC on the hand is an integrated utility that is authorized to recover EE investments through billing and has the additional incentive of reducing investments in sub-transmission and generation

through EE investments. See also responses 1 and 4 above.

6. Regarding the analysis of risks, I think another set of risks is that the GOA might not follow through in adopting key policy and regulatory reforms such as appliance efficiency standards or reforms of utility tariffs so that utilities are not financially penalized if they operate effective DSM programs. I'm not sure about the magnitude of these risks, but I think they should be included. Also, the overall risk rating for the project as a whole is medium in my judgment.

6. Project team response. We agree that there are risks of the government not adopting key policy and regulatory reforms and this is included in the critical risks section 5 of the PAD under "political risks." We have rated the overall risk of the project as substantial (S) because of the cumulative effect of several moderate and some substantial ratings. See also comment 1 above regarding condition for Grant negotiations.

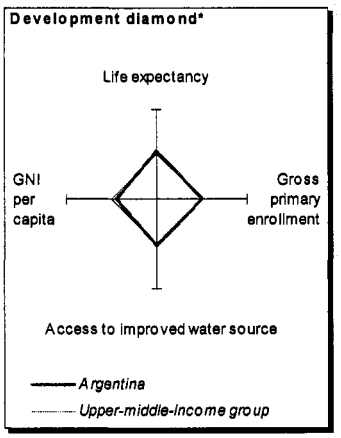
7. Regarding the Results Framework and Outcome Indicators (Annex 3), I suggest considering adding satisfaction of private sector partners such as ESCOs and vendors of energy-efficient lighting products (and other products), which can be ascertained through conducting surveys at various stages of the project. These entities could be asked if there sales and revenues are growing, if the project is having a positive impact on their sales and revenues, and if they have suggestions for improving the project, for example.

7. Project team response. We agree and will include surveys of ESCOs and vendors of energy efficient products, as well as other project beneficiaries (such as SMEs, utilities, etc), in the monitoring and evaluation plan for the project. Measurement of beneficiary satisfaction with the project through periodic surveys would be useful as one of the project performance indicator. Cost-effectiveness of the surveys in terms of scope, targets, sample and periodicity will be assessed during project appraisal It is expected to have such surveys at the end of the project and probably also at the time of the project's mid-term review.

Annex 16. Country at a Glance

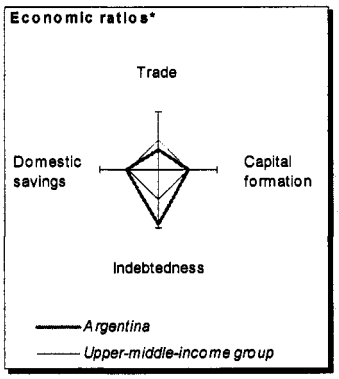
ARGENTINA: Energy Efficiency Project

POVERTY and SOCIAL	Argentina	Latin America & Carib.	Upper-middle-income
2006			
Population, mid-year *(millions)*	39.1	556	810
GNI per capita *(Atlas method, US$)*	5,150	4,767	5,913
GNI *(Atlas method, US$ billions)*	201.5	2,650	4,790
Average annual growth, 2000-06			
Population *(%)*	1.0	1.3	0.8
Labor force *(%)*	2.4	2.1	1.3
Most recent estimate (latest year available, 2000-06)			
Poverty *(% of population below national poverty line)*	..	..	..
Urban population *(% of total population)*	90	78	75
Life expectancy at birth *(years)*	75	73	70
Infant mortality *(per 1000 live births)*	15	26	26
Child malnutrition *(% of children under 5)*	4	..	..
Access to an improved water source *(% of population)*	96	91	93
Literacy *(% of population age 15+)*	97	90	93
Gross primary enrollment *(% of school-age population)*	113	118	112
Male	113	120	106
Female	112	116	104



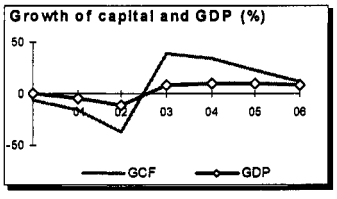
KEY ECONOMIC RATIOS and LONG-TERM TRENDS	1986	1996	2005	2006
GDP *(US$ billions)*	110.9	272.1	183.2	214.1
Gross capital formation/GDP	17.5	18.1	21.5	20.9
Exports of goods and services/GDP	8.2	10.4	24.6	23.3
Gross domestic savings/GDP	19.3	17.4	27.0	25.4
Gross national savings/GDP	..	15.6	24.0	23.2
Current account balance/GDP	-2.6	-2.5	3.1	2.9
Interest payments/GDP	3.3	1.7	1.2	..
Total debt/GDP	47.3	40.8	62.4	..
Total debt service/exports	82.8	39.4	21.0	..
Present value of debt/GDP	..	..	58.9	..
Present value of debt/exports	..	..	214.7	..

	1986-96	1996-06	2005	2006	2006-10
(average annual growth)					
GDP	3.3	1.1	9.2	8.5	3.6
GDP per capita	1.9	0.1	8.1	7.4	2.5
Exports of goods and services	7.8	5.6	13.5	11.6	4.8

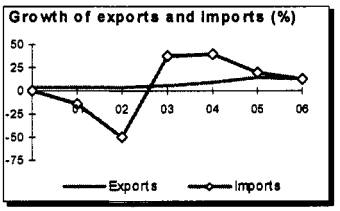


STRUCTURE of the ECONOMY

	1986	1996	2005	2006
(% of GDP)				
Agriculture	7.8	6.0	9.4	9.0
Industry	37.4	28.4	35.6	35.4
Manufacturing	27.4	18.7	23.2	23.2
Services	54.8	65.6	55.0	55.6
Household final consumption expenditure	..	70.1	61.1	66.3
General gov't final consumption expenditure	..	12.5	11.9	8.3
Imports of goods and services	6.3	11.1	19.0	18.8



	1986-96	1996-06	2005	2006
(average annual growth)				
Agriculture	3.1	2.5	11.1	8.0
Industry	2.3	1.0	9.2	8.0
Manufacturing	1.9	0.6	7.5	8.0
Services	3.4	0.8	8.2	8.8
Household final consumption expenditure	..	0.2	7.0	7.4
General gov't final consumption expenditure	..	1.1	6.2	8.0
Gross capital formation	5.1	-0.1	22.7	12.0
Imports of goods and services	17.5	-1.3	20.1	12.3



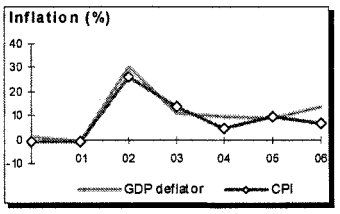
Note: 2006 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

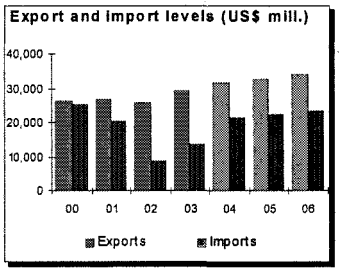
PRICES and GOVERNMENT FINANCE

	1986	1996	2005	2006
Domestic prices				
(% change)				
Consumer prices	90.1	0.2	9.6	6.6
Implicit GDP deflator	74.5	-0.1	8.8	13.4
Government finance				
(% of GDP, includes current grants)				
Current revenue	0.0	16.9	23.7	23.8
Current budget balance	0.0	-0.9	3.6	3.9
Overall surplus/deficit	0.0	-2.0	1.8	1.4



TRADE

	1986	1996	2005	2006
(US$ millions)				
Total exports (fob)	..	23,811	32,825	33,908
Food	..	2,560	2,902	2,998
Meat	..	1,074	1,166	1,204
Manufactures	..	6,234	9,780	10,102
Total imports (cif)	..	23,733	22,603	23,484
Food	..	..	..	..
Fuel and energy	..	922	647	672
Capital goods	..	10,914	10,546	10,957
Export price index *(2000=100)*	..	103	110	110
Import price index *(2000=100)*	..	118	99	99
Terms of trade *(2000=100)*	..	88	111	111



Map section

IBRD 33362

ARGENTINA

- SELECTED CITIES AND TOWNS
- PROVINCE CAPITALS
- NATIONAL CAPITAL
- RIVERS
- MAIN ROADS
- RAILROADS
- PROVINCE BOUNDARIES
- INTERNATIONAL BOUNDARIES

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