



## 1. Project Data

<b>Project ID</b> P090119	<b>Project Name</b> AR Energy Efficiency Project
<b>Country</b> Argentina	<b>Practice Area(Lead)</b> Energy & Extractives

<b>L/C/TF Number(s)</b> TF-92377	<b>Closing Date (Original)</b> 30-Jun-2015	<b>Total Project Cost (USD)</b> 90,595,000.00
<b>Bank Approval Date</b> 26-Jun-2008	<b>Closing Date (Actual)</b> 31-May-2017	
	<b>IBRD/IDA (USD)</b>	<b>Grants (USD)</b>
Original Commitment	15,155,000.00	15,155,000.00
Revised Commitment	14,436,362.50	14,436,362.50
Actual	14,436,362.50	14,436,362.50

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## 2. Project Objectives and Components

### a. Objectives

The project development objective as stated in the Global Environment Facility (GEF) Grant Agreement (page 5) and the Project Appraisal Document (PAD, page 6) was “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 Environmental Objective was “to reduce greenhouse gas emissions by removing the regulatory, financing, and informational barriers that prevent activities and investments in energy efficiency and energy conservation.” (PAD, page 6)



As per the OPCS/IEG harmonized guidelines, IEG uses the PDO statement in the legal document as the basis for the assessment.

**b. Were the project objectives/key associated outcome targets revised during implementation?**

No

**c. Will a split evaluation be undertaken?**

No

**d. Components**

**1: Development of the Argentina Energy Efficiency Fund** (total estimated cost US\$2.18 million, of which US\$1.80 million from GEF; actual GEF financing of US\$11.0 million). This component included 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).

**2: Development of a Utility Energy Efficiency (EE) Program** (Total estimated cost US\$90.5 million, of which US\$9.20 million from GEF; actual GEF financing of US\$0). This component was to 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 was to 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.

**3. Capacity Building and Project Management** (total estimated cost US\$6.75 million, of which US\$4.16 million from GEF; actual GEF financing of US\$4.16 million). This component was to build capacity within the private and public sectors and strengthen the incentives for investments in energy efficiency. It included the following activities: 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; Standardization, testing, certification and labeling program; Information, training and dissemination programs; monitoring and evaluation, and project management.

**e. Comments on Project Cost, Financing, Borrower Contribution, and Dates**

*Project cost.* The total project cost was estimated at US\$99.4 million at appraisal. The actual total cost was not estimated for the project at closure.

*Financing.* The project was financed through a GEF grant in the amount of US\$15.155 million that was disbursed at US\$14.4 million. The amount of US\$718,637.50 was cancelled corresponding to non-



executed funds. Parallel financing of US\$0.74 million was provided through Joint Argentina-Germany Senior Expert Program (CIM) of the German Technical Assistance Corporation (GTZ) to support the Secretariat of Energy with several Expert Managers.

*Recipient.* The Government of Argentina (GoA) was to contribute US\$43.36 million, supplemented by US\$40.00 million from distribution companies, and US\$0.18 million by small and medium enterprises (SMEs). The recipient financed through its own resources the acquisition and distribution of CFLs (US\$ 9.2 million) that were originally foreseen as the main activity under component 2. The project team informed that the recipient supported with in-kind resources all other project activities (e-mail to IEG, June 27, 2018).

*Dates.* The project was approved on June 26, 2008 and became effective after 17 months, on November 20, 2009, due to the internal process within the GoA, which required first a Presidential Decree before signing the GEF Grant Agreement. The project closing date was extended by 23 months, from June 30, 2015 to May 31, 2017 due to delays resulting from a slow uptake of the AEEF credit line. The project was restructured on September 20, 2013 to introduce major changes to the project design that included reallocation of a total of US\$9.2 million from Component 2 to Component 1, i.e., US\$1.5 million to carry out feasibility studies, and US\$7.7 million to finance the Argentina Energy Efficiency Fund (AEEF) credit line. This reallocation was necessitated by the following main factors: (i) by the time the project became effective, the GoA financed the acquisition and distribution of 26 million CFLs through its own funds that was to be supported under Component 2, exceeding the project target. (ii) The original design was to create an independent AEEF for small-and medium enterprises (SMEs). However, it was decided to embed it under the existing public trust fund FONAPyME that provided credit lines to industrial and commercial SMEs for upgrading technology and infrastructure. It opened a line of credit to invest in energy efficiency projects during the project duration.

Despite all these changes and overachievement of the project outcome targets by the time the project became effective, the outcome indicators were not revised in the results framework (see Section 9). There were two other project restructurings in 2016 and 2017 that involved reallocation of funds between disbursement categories and extension of the project closing date by 23 months.

### 3. Relevance of Objectives

#### Rationale

The project development objective was relevant to the country's challenges in improving energy efficiency that included lack of regulatory incentives to promote energy efficiency, lack of information among residential consumers on the efficiency of energy equipment, inadequate information and high transaction costs for enterprises to implement energy efficiency investments, perceived high risk among banks to finance energy efficiency projects, and a nascent energy service companies (ESCO) industry. In December 2007, the Government launched the National Program for the Rational and Efficient Use of Energy (PRONUREE, Decree 140/2007) that included short and long-term measures aimed at improving energy efficiency in the



industrial, commercial, transport, residential and service sectors and public buildings (PAD, pp 1-4).

The GEF project was to assist in accelerating the implementation of the national program to phase out incandescent bulbs by 2011 and was aligned with the GEF “Ban the Bulb” initiative to transform the global market toward efficient lighting technologies through accelerated phase-out of inefficient lighting. This project supported the GEF climate change focal area by reducing greenhouse gas emissions and was 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 would result in the reduction of GHG emissions (PAD, pp 5-6).

The project development objective remained aligned with the most recent World Bank Group’s Country Partnership Strategy (FY15-18) that had three broad pillars (a) employment creation in firms and farms, (b) availability of assets for people and households, and (c) reduction of environmental risks and safeguarding natural resources. Higher end-use efficiency creates a positive link between environmental, economic, and social outcomes.

While the PDO of increasing the efficiency in the use of energy by developing a sustainable and growing market for energy efficiency services and equipment in Argentina was well aligned with the government priorities and the WBG strategy, it was very ambitious for a relatively small grant and its scope of intervention.

## Rating

Substantial

## 4. Achievement of Objectives (Efficacy)

### Objective 1

#### Objective

To increase the efficiency in the use of energy by developing a sustainable and growing market for energy efficiency services and equipment in Argentina.

#### Rationale

The underlying logic to achieve the objective of increasing the efficiency in the use of energy was by developing a sustainable and growing market for energy efficiency services and equipment in Argentina through establishing regulatory and policy measures, scaling up the GoA efforts to phase out inefficient lighting, dissemination of information and development of financial risk reduction instruments needed to promote energy efficiency.

#### Outputs

- 29.8 million incandescent lightbulbs were replaced with CFLs in residential homes, as compared to the target of 25 million. This was fully financed through the government own funds (26 million had been



replaced by the time the project became effective).

- 13 projects were financed by AEEF, significantly below the target of 48.
- US\$1.12 million were disbursed by AEEF, below the target of US\$4 million.
- 19 energy equipment labels were issued, as compared to the targeted 18.
- 12 mandatory norms were adopted against the target of 7.
- 8 EE minimum standards were developed against the target of 5.
- Feasibility studies/energy audits were financed for 219 SMEs with the aim to grow the pipeline of potential AEEF projects. This was below the original target of 360 and the revised target of 325. The number of audits was reduced due to higher than expected costs.
- 11 training events were organized for ESCOs (target was 9).

### **Outcome**

- Replacement of lightbulbs resulted in 75 percent of the following energy savings: 63, 841 GWh of electricity (target 17,257); 2,075 deferred MW or postponement of construction in generation capacity (target 1,429), and 10,106 tonnes of oil equivalent (toe) of natural gas and other fuels (target 373).
- The associated accumulated amount of project-related avoided emissions was 34 million tons of CO<sub>2</sub>, 3.2 times higher than target value of 10.7 million tons of CO<sub>2</sub>.
- Energy savings from AEEF projects were estimated at 66, 447 MWh, which was significantly below the target of 300,000 MWh.

The outcome targets for energy savings were significantly overachieved, i.e., in the range of 45-270%, while there was only about 15% increase in the number of CFLs beyond targets that constituted 75% of energy savings under the project. The ICR (page 24) reports on discrepancies in calculations, including in relation to baseline and actual values not linked to new calculation methods. With respect to developing a market for EE services and equipment, there was some progress on labelling, EE mandatory norms and standards, and the uptake of the AEEF credit line speeded up since 2016, largely due to increase in tariffs.

### **Rating**

Substantial

### **Rationale**

The overall efficacy rating is substantial, reflecting significant energy savings and reduction in CO<sub>2</sub> emissions and some development of market for energy efficiency services and equipment.

### **Overall Efficacy Rating**



Substantial

## 5. Efficiency

### Economic/Financial Analysis

At appraisal, a financial analysis was presented 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 had 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 (PAD, pp 4-5).

At closure, the ICR did not attempt to carry out an economic or financial analysis. It just reported on exceeding the energy savings and accumulated GHG emissions reductions directly resulting from the project.

### Operational/Administrative Efficiency

The project was characterized by continuous delays and a slow implementation pace. With five years into implementation, only 8% of grant was disbursed in 2013 (US\$1.3 million), largely resulting from weaknesses in design and preparation, as well as procurement delays (see Section 8). The government had completed the project's Component 2 through its own resources before the project became effective. The project did not fully disburse (4%) due to inadequate preparation of activities, which ultimately slowed down procurement process (timing and sequencing of activities) and did not allow to finish all the activities under Component 3(f) (ICR, p. 21).

### Efficiency Rating

Modest

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

\* Refers to percent of total project cost for which ERR/FRR was calculated.

## 6. Outcome

The objective of increasing the efficiency in the use of energy by developing a sustainable and growing market for energy efficiency services and equipment in Argentina was well aligned with the government priorities and



the WBG strategy, however it was very ambitious for a relatively small grant and its scope of intervention. Relevance of the PDO is substantial. The overall efficacy rating is substantial, reflecting significant energy savings and reduction in CO2 emissions, and some development of market for energy efficiency services and equipment. Efficiency is rated modest for operational inefficiencies that resulted in slow disbursements and a slow uptake of the credit line. The overall outcome is Moderately Satisfactory.

**a. Outcome Rating**

Moderately Satisfactory

## 7. Risk to Development Outcome

The ICR states (page 26) that the Sub-secretariat of Energy Efficiency and Savings (SSEES) and *Banco Nación* committed to continue the credit line and are improving the prequalification process for SMEs to reduce the time, length, and financial burden on SMEs trying to gain access to the energy efficiency credit line. The SSEES also has a considerable list of interested SMEs and the pipeline of bankable projects is expected to continue growing. With regard to distribution of CFLs, the GoA published the 'Public Lighting Plan' (Resolution 84-E/2017) in April 2017, which aims to improve energy efficiency in public lighting across Argentina and replace them with more efficient LED technology. With regard to communication and awareness campaigns to inform energy users about energy efficiency, the SSEES currently does not have sufficient budget to continue printing the necessary brochures, manuals, and other learning material.

## 8. Assessment of Bank Performance

**a. Quality-at-Entry**

The project design was based on the following preparation activities: (a) analysis of the regulation, tariff signals, and economic incentives for the efficient use of energy; (b) design an Energy Efficiency Investment Fund and evaluate financial institutions; (c) design a utility program; (d) design a national standardization and labeling program and of an ESCO development program; and (e) undertake a baseline study of the energy market, incremental cost of the project, and estimated emissions reduction.

The Bank played an important role in the design of the national EE program (PRONUREE) and the development of the law to phase out incandescent bulbs.

The small grant had multiple activities involving several stakeholders that created an administrative burden causing delays in procurement and implementation. The risk analysis underestimated a number of risks related to (i) political and governance risk due to legislative and/or presidential elections, and (ii) procurement issues, which were cross-cutting throughout the Bank portfolio in the country. Energy audit costs were underestimated.

The project was placed in the safeguard category C at appraisal, but this was changed to category B with the



increase in scope under Component 1 and no significant changes to the design. There were also shortcomings in M&E (see Section 9).

### **Quality-at-Entry Rating**

Moderately Satisfactory

#### **b. Quality of supervision**

Supervision missions were conducted biannually. In 2013, the task team leader (TTL) role was transferred to the local TTL, who was based in Buenos Aires. The supervision team consisted of specialists with a mix of skills, including procurement, FM, and safeguards.

The project restructuring in 2013 improved the pace of implementation and disbursement of the grant. In addition to improved marketing and outreach campaigns designed by the project implementation unit (PIU) to encourage proposal submissions, the tariff increase for industrial consumers that came into effect in early 2016 provided a greater incentive for SMEs to lower energy costs contributing to the rise in demand for the credit line.

It took five years for the Bank team to restructure the project in 2013 and reallocate funds from the replacement of lightbulbs for CFLs, which had already been fully financed by the GoA by the time project became effective -17 months into implementation. The results framework was modified to make changes in the intermediate indicators to more directly measure the impact of the AEEF. However, the project key outcome indicators- which had been achieved by the time of project effectiveness- were not revised. The ICR reports (page 25) that no procurement training was provided to the PIU until 2011 that ultimately caused some delay and inadequately prepared procurement plans. The project team subsequently clarified that procurement consultations were taking place throughout implementation, however formal training was carried out in 2011 once a PIU procurement specialist was formally recruited.

### **Quality of Supervision Rating**

Moderately Satisfactory

### **Overall Bank Performance Rating**

Moderately Satisfactory

## **9. M&E Design, Implementation, & Utilization**

### **a. M&E Design**

The original M&E design identified adequate outcome indicators on energy savings and CO2 emission reduction to assess the achievement of the objective for increasing the efficiency in the use of energy. Some market-related AEEF targets were to a limited extent captured at the intermediate level. Intermediate outcome indicators were not adequately defined to measure the progress of some of the activities. The ICR adds that the design of Component 3 and its six subcomponents were loosely structured and the outcome of most of these



activities could not be directly linked to the project objectives. As notes in the ICR (p. 23), the project could have benefitted from better indicators that would have allowed to quantify some of the impacts, such as ‘electricity bill reduction for residential households using CFLs’ or ‘electricity bill reduction for SMEs using more efficient technology.’

## **b. M&E Implementation**

The ICR reports (p. 24) that the Implementation Status and Results Reports (ISRs) provided regular updates on the Results Framework indicators. There were, however, issues in measurement and methodology for estimating energy savings. The ICR reports that there were discrepancies in calculations reported in ISRs, including with regard to baseline values and actual values not linked to new calculation methods. This was explained by various factors including inconsistent progress report data provided by the implementing agency due to staff turnover or due to negligence by World Bank team members during data entry in the portal.

As part of the September 2013, the results framework was modified to revise several intermediate indicators linked to Component 3 to be more specific to the project activities. However, the project key outcome indicators- which had been achieved by the time of project effectiveness- were not revised.

## **c. M&E Utilization**

The ICR (p. 24) reports that data collected from the progress reports was used to inform decision making on specific activities, including project restructuring.

### **M&E Quality Rating**

Modest

## **10. Other Issues**

### **a. Safeguards**

The project triggered the Environmental Assessment (OP 4.01) under the Bank’s environment and safeguard policies. The original safeguards category for the project was classified as ‘C.’ With the addition of a credit line under Component 1(b) to finance energy efficiency sub-projects in SMEs, the safeguards category was changed from ‘C’ to ‘B’ during the restructuring of September 20, 2013. The Secretariat of Energy developed an Environmental and Social Management Framework (ESMF) in accordance with the environmental policies of the World Bank. The ICR reports (p. 25) that the project complied with the Bank's safeguards policies.



**b. Fiduciary Compliance**

*Financial Management.* The ICR (p.25) reports that the project showed adequate FM arrangements that complied with the World Bank requirements. Interim financial reports were received and reviewed by the World Bank, and found acceptable. The project financial statements audits were carried out by Argentina Supreme Audit Institution (*Auditoria General de la Nación, AGN*) since project inception. Audit reports were received by the World Bank with some delay and found acceptable; there were no accountability issues throughout the project life. The project team subsequently informed that all audit reports were unqualified; the team was still waiting for the final audit at the time of communication (e-mail to IEG, June 27, 2018).

*Procurement.* The ICR (p. 25) reports that the overall performance on procurement activities was good, with some minor issues, such as monitoring and delays in updating of the Procurement Plan to reflect progress. Although the World Bank approved an extension of the Grant closing date for project implementation completion, some contracts (consultant services) were cancelled.

**c. Unintended impacts (Positive or Negative)**

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**d. Other**

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**11. Ratings**

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Moderately Satisfactory	Efficiency is rated modest for operational inefficiencies that resulted in slow disbursements and a slow uptake of the credit line.
Bank Performance	Satisfactory	Moderately Satisfactory	Both quality at entry and supervision are rated moderately satisfactory.
Quality of M&E	Substantial	Modest	Shortcomings in M&E design and implementation.
Quality of ICR		Modest	---

**12. Lessons**

IEG selected three lessons from the ICR, with some modification of the language:

- **Early marketing and pipeline development are critical for demand-driven programs such as energy**



**efficiency funds.** Under this project, the Argentina Energy Efficiency Fund would have benefitted from more focused outreach campaigns across Argentina to increase the number of proposals submitted per call for proposals. While the PIU and the government EE fund carried out promotional campaigns to increase the demand for financing, the lack of continuity in SME's outreach activities as well as lack of specific experience in communicating the benefits of the energy efficiency financing played its role in lower than expected demand during the first few years of the implementation.

- **Streamlining the application process to access the credit line is important to increase the number of proposals submitted.** Initially, each SME had to prepare a technical prefeasibility study for their proposal to determine whether they were eligible for the credit line. However, under the existing procedures, there was no standardized way for SMEs to perform a quick analysis of their energy savings potential, and they had to either pay for energy audits, which were expensive, or do an in-house analysis of their potential energy savings. The government agencies are building an online platform for SMEs to quickly calculate their potential energy savings, based on their industry, and determine whether they would be eligible for the credit line. Creating a roster of prequalified firms that can carry out energy diagnostics by sector would also help expedite assessments in SMEs.

- **There is a need for strong incentives for prospective beneficiaries to seek an energy-efficient credit line.** In case of Argentina, the number of proposals submitted increased significantly once the electricity tariff increased in early 2016, which was one of the reasons for the project's delivery and continuation beyond project completion. With no such incentive, an energy efficient credit line would not have gained as much traction. The credit line under this project also had a small budget, and ultimately was geared toward smaller SMEs, whereby larger SMEs consumed more energy and would have seen bigger energy savings.

### 13. Assessment Recommended?

No

### 14. Comments on Quality of ICR

The ICR is outcome- oriented and provides useful lessons based on the project experience. It however does not use the correct PDO for the assessment of the project achievement that should be the statement from the legal document. The ICR does not provide adequate level of detail in relation to the exponential differences in actual results in outcomes related to energy savings and CO2 emissions reduction. The ICR is repetitive, and would have benefited from streamlining the analysis across the ICR's sections. Overall, the ICR is not sufficiently candid in its analysis of factors that influenced implementation and slow pace of disbursements, and it is not appropriately critical on reasons for delays.



**a. Quality of ICR Rating**  
Modest