



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: MEDIUM-SIZED PROJECT

THE GEF TRUST FUND

Submission Date: 1 October 2009

Re-submission: 12 November 2009

PART I: PROJECT IDENTIFICATION

GEF PROJECT ID¹: 4147 PROJECT DURATION: 36 months

GEF AGENCY PROJECT ID:

COUNTRY(IES): ECUADOR

PROJECT TITLE: Industrial Energy Efficiency in Ecuador

GEF AGENCY(IES): UNIDO, (select), (select)

OTHER EXECUTING PARTNER(S): Ministry of Electricity and Renewable Energy, Ministry of Environment, Ministry of Industry and Competitiveness, and INEN

GEF FOCAL AREA (S)²: Climate Change

GEF-4 STRATEGIC PROGRAM(S): CC-SP2-Industrial EE

NAME OF PARENT PROGRAM/UMBRELLA PROJECT: NO

INDICATIVE CALENDAR*	
Milestones	Expected Dates mm/dd/yyyy
Work Program (for FSP)	
CEO Endorsement/Approval	March 2011
Agency Approval Date	April 2011
Implementation Start	May 2011
Mid-term Evaluation (if planned)	
Project Closing Date	April 2014

* See guidelines for definition of milestones.

A. PROJECT FRAMEWORK

Project Objective: To promote energy efficiency improvements in the Ecuadorian industry through the development of national energy management standards and application of systems optimization.

Project Components	Invest., TA, or STA ^b	Expected Outcomes	Expected Outputs	Indicative GEF Financing ^a		Indicative Co-Financing ^a		Total (\$) c = a + b
				(\$) ^a	%	(\$) ^b	%	
1. Development of national industrial EE policy framework with supporting financing scheme for EE	TA	Enhanced policy framework and EE financing scheme facilitating increased implementation of EE in the industrial sector	<ul style="list-style-type: none"> Policy framework drafted to assist the effective implementation of the Energy Efficiency Law and the National Energy Management Standard in industry, including improved data collection, analysis and dissemination in terms of industrial energy use and intensity, benchmarking and tax incentives. Guidelines for evaluating industrial energy efficiency projects with support of the certified experts. (Component 3) A tailored package of financial assistance and EE support services, incl. services from the certified experts (Component 3) in EE project development and implementation for industries which adopt an energy management plan, links to the last output of Component 3, and with specific incentives for medium sized industries. 	75,000	20	295,000	80	370,000
2. National	TA	Supportive	<ul style="list-style-type: none"> National Energy 	150,000	9	1,510,000	91	1,660,000

¹ Project ID number will be assigned by GEFSEC.

² Select only those focal areas from which GEF financing is requested.

<p>program to implement ISO - compatible energy management standard</p>		<p>policies in place (compatible with ISO energy management standard [EnMS]) for delivering sustainable improvements in energy efficiency in industry and contributing to improved international competitiveness</p>	<p>Management Standard adopted (compatible with ISO EnMS) to stimulate sustainable improvements in energy efficiency in industry</p> <ul style="list-style-type: none"> • Structure and capacity in place for promotion implementation and verification of compliance with EnMS • 200 industrial entities, at least 1/2 are SMEs, implement energy management plan and 50 are certified as compliant with EnMS (supported/coached as needed by experts trained under Component 3) 					
<p>3. Capacity building for personnel involved in EE from the public and private sectors in the areas of energy management and system optimization, as well as stimulation of market demand for energy efficiency goods and EE services</p>	<p>TA</p>	<p>A cadre of highly specialized energy management and system optimization experts from the public and private sectors are available as a long-term technical resource to industry and the country.</p> <p>Widespread awareness among industries of the benefits of energy efficiency; strong interest by industry (and other sectors participating in EnMS, such as institutional and government) in energy efficient equipment and services</p>	<ul style="list-style-type: none"> • 25 EE professionals received expert level training in energy management, including the use of the UNIDO's practical guide for SME to implement ISO 5001, EnMS. • System optimization training and web-based tools developed; 50 EE professionals received expert level system optimization training as trainers for motor driven systems and steam systems. • Awareness level training offered by trained local experts to 400 industry representatives, including supply-chain partners and 200 entities from Component 2 (complementary to general sensitization effort undertaken under this Component). • National information campaign (seminars, road shows, multimedia, and promotional material/brochures) on the benefits of energy management, system optimization and various incentive programmes on EE, as well as EE equipment and EE services. • National recognition program for facilities that implement an energy management plan, along with preferred access to technical and financial assistance. 	<p>180,000</p>	<p>19</p>	<p>765,000</p>	<p>81</p>	<p>945,000</p>

4. Pilot implementation of system optimization projects for energy efficiency	TA (leveraged investment in EE)	Demonstrated and measured energy savings in 15 industrial entities through application of system assessment techniques by trained experts, leveraging additional energy savings as more industrial facilities will seek implementation of system optimization	<ul style="list-style-type: none"> • 25 in-depth energy system assessments are completed in manufacturing facilities. First candidates for assessment are those implementing energy management plans under Component 1. • 10 system optimization projects identified through assessments are implemented, including using new financial support and services from Component 1. • 5 case studies developed of results obtained from the demonstration projects, and disseminated through national awareness campaign via workshops, publications, and website (complementary to Component 2) 	440,000	33	905,000	67	1,345,000
5. Project management				70,000	16	360,000	84	430,000
Total project costs				915,000	19	3,835,000	81	4,750,000

^a List the \$ by project components. The percentage is the share of GEF and Co-financing respectively of the total amount for the component.

^b TA = Technical Assistance; STA = Scientific & Technical Analysis.

B. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE and by NAME (in parenthesis) if available, (\$)

Sources of Co-financing	Type of Co-financing	Project
Project Government Contribution	cash	1,700,000*
	In-kind	440,000**
Project Government Contribution	In-kind	
GEF Agency	cash	60,000***
Bilateral Aid Agency(ies)	(select)	
Multilateral Agency(ies)	(select)	
Private Sector	cash	1,030,000****
	In-kind	605,000*****
NGO	(select)	
Others	(select)	
Total Co-financing		3,835,000

* To cover costs of local consultants, national project personnel, local training expenditures, parts of energy assessment costs and demo projects, local transport and travel of project personnel, office equipment.

** To cover project office rentals, including utilities costs, and Government officials times.

*** To cover the travel costs of the UNIDO Project Manager and other UNIDO staff for supervision and evaluation of the project implementation.

**** To cover investment in EE improvement resulted from the project intervention, travel costs of staff to participating in projects activities, remaining part of energy assessments costs, expenditures of EnMS implementation, and payments for obtaining ISO 50001

***** To cover employee times participating in project activities, costs of raw materials and inputs required for trainings at factories, etc.

C. INDICATIVE FINANCING PLAN SUMMARY FOR THE PROJECT (\$)

	Previous Project Preparation Amount (a) ³	Project (b)	Total c = a + b	Agency Fee
GEF financing	None	915,000	915,000	91,500
Co-financing	None	3,835,000	3,835,000	
Total	None	4,750,000	4,750,000	91,500

D. GEF RESOURCES REQUESTED BY AGENCY (IES), FOCAL AREA(S) AND COUNTRY(IES)¹

GEF Agency	Focal Area	Country Name/ Global	(in \$)		
			Project (a)	Agency Fee (b) ²	Total c=a+b
UNIDO	Climate Change	Ecuador	915,000	91,500	1,006,500
Total GEF Resources					

¹ No need to provide information for this table if it is a single focal area, single country and single GEF Agency project.

² Relates to the project and any previous project preparation funding that have been provided and for which no Agency fee has been requested from Trustee.

PART II: PROJECT JUSTIFICATION

A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED:

According to 2006 OLADE's data (Latin American Energy Organization) Ecuador's annual final energy consumption was 60.132 MBoe (8.345 Mtoe), and annual electricity consumption was 16.38 TWh (1.409 MToe), energy intensity was 2.82 Boe/10³ USD, much higher than Argentina: 1.06 Boe/10³ USD, Brazil: 1.77 Boe/10³ USD, and Colombia 1.60 Boe/10³ USD. The annual CO₂ emissions were 27.9 millions tones. The energy mix is largely dependent upon oil, which represented 80 percent of the country's total energy consumption in 2005.

The largest energy consumption shares in 2006 are 55% by transport, 20% by industry and 19% by the residential sector. The share by the industry was increased from 17% in 1980 to 20% in 2006, and is expected to continue increasing as the country focuses more on industrialization. Ecuador's ratio of CO₂ emissions to GDP increased from 1971 to 2007 by 23.2%, while this intensity decreased during the same period worldwide by 15.4%, and Latin America by 4.8%. In 2007 Ecuador's CO₂ intensity was 1.22 kg CO₂/USD, comparing to 0.52 kg CO₂/USD for Latin America (using 2000 prices).

The Government of Ecuador is committed to increase energy efficiency (EE) in the country. A National Plan for Energy Efficiency was developed in 2004, and the new Ministry of Electricity and Renewable Energy (MERE) was created in July 2007 to, inter-alia, coordinate and implement this National Plan. Promoting efficient and rational use of energy is one of the Ministry's 6 long-term objectives. With support of the World Bank, MERE is coordinating the draft of an Energy Efficiency Law. The Ministry of Industry and Competitiveness, MIC, has also carried some small projects in promoting EE in the industry sector. However, the energy consumption of the country is very inefficient compared to the peer developing countries, mainly due to the low energy price set up by the Government.

Recognizing the huge potential for energy saving of the entire economy and in particular in the industry sector and the ever increasing pressure the industry is facing to reduce the energy intensity in order to improve the competitiveness and to reduce the CO₂ emissions, both the Minister of Environment and Minister of Electricity and Renewable Energy sent a request to UNIDO on 5 May 2008 to develop a GEF project proposal on industrial energy efficiency in Ecuador. Furthermore, on 15 October 2008, the Director of International Cooperation of MOE confirmed the GEF Focal Point's intention to request from GEF a grant of USD 1 million for the project, and the Minister of MERE sent a letter to UNIDO expressed the Ministry's willingness to contribute USD 1.7 million to the project.

Following are the main barriers that hinder the practice of energy efficiency in Ecuador:

³ Include project preparation funds that were previously approved but exclude PPGs that are awaiting for approval.

Policy and institutions:

- The policies have been focusing on securing energy supplies at subsidised prices to the energy consumers, including industries, but not on promoting EE.
- Lack of adequate data on energy consumption, benchmark and best practices.
- Efforts targeting energy efficiency have been limited, at the very initial phase, and scattered, not institutionalised. Focuses have been given to standardization and labelling of household equipment in terms of energy consumption, such as: refrigerators, A/Cs, washing machines, compact florescent lamps.
- There are limited governmental incentives to encourage energy efficient behaviour;
- In particular, there is lack of adequate specific incentives and of expertise to advise and provide comprehensive services to SMEs. There have been only a few training courses on energy management provided to SMEs.

Industrial decision-makers:

- There is lack of information about available options, best practice, benchmarks and related financing mechanism;
- Most industries have a budgetary disconnect between capital projects (equipment purchases) and operating expenses (energy and maintenance), therefore, purchasing decisions are based normally on initial capital investment consideration, rather on operating costs;
- Energy efficiency is not a core interest mission for most industries and company strategies tend to focus on output growth rather than cost management;
- Industrial markets focus on components, not on system. When processes and equipment change over time, inefficiencies in term of energy use compound and reoccur;
- Technology aims to support production, and production practices can have a significant impact on operational efficiency. These practices, however, are usually outside the control of the facility engineers;
- Investment planning of companies does not taken into account future normalization of energy costs to market prices, and
- System optimization knowledge resides with the individual who has been trained - it is not institutionalized. Trained individuals leave or transfer and take this knowledge with them.
- SMEs not familiar with energy management practises and energy-efficient technologies.

Supply chain:

- Expertise – most consulting expertise on energy efficiency available in Ecuador focus on specific technologies and not on processes and system. Overall knowledge of energy management system is also limited. There is a need to build capacity in the supply chain on energy management system, system optimization, data capture, analysis and reporting;
- Marketing – local suppliers of EE related finance, equipment and expertise have limited experience and skills in marketing their products to industrial decision-makers.

To overcome these barriers, the proposed project will offer a holistic TA project to Ecuador, covering policy and financing improvement, energy management standard, capacity building and market stimulation, and demonstration. The project will focus on system optimization, which has the potential for energy savings up to 20-30%, hence the substantial GHG emissions reduction, and productivity improvement. However, system optimization implementation requires highly trained experts, and consistent monitoring and remedy action by the industry, which could be fortified by the implementation of the energy management standard, ISO 5001, EnMS.

Based on preliminary consideration of the total energy consumption, energy saving potential, and numbers of industry entities, share of energy costs in the total production costs, Government priority, etc. following target sub-sectors have been identified: (i) Food and Beverage; (ii) Plastics, Rubber, Cardboard, and Pulp and Paper; (iii) Cement and other Non-metallic Minerals; (iv) Chemical and Petro-chemical; and (v) Water distribution. However,

the final selection will be made during the PPG phase based on a questionnaire survey and more in-depth assessments. Regional focus will be in Quito, Guayaquil, Cuenca and Ambato. Considerations will be given during the PPG phase as well as during the project implementation to select appropriate number of participating factories from each of the target sub-sectors, and regions, as well as large and medium industries, to ensure the results of the project during the implementation period and the long lasting impact after its completion.

The project is expected to:

- ✓ Develop an adequate regulatory framework for the implement the EE Law with package of financial assistance and EE support services for the industry, with specific attention given to the SMEs. Set up a database on energy consumption by industries.
- ✓ Adopt the ISO 50001, EnMS to be the Ecuadorian national energy management standard, institutional capacity building for the implementation of the standard, which will not only ensure sustainable improvements in energy efficiency in industry, but also contribute to improving international competitiveness of Ecuadorian products.
- ✓ Build capacity for the implementation of the EnMS and energy system optimization; raise awareness of the industry about benefits and availability of services in the standard implementation and system optimization.
- ✓ Demonstrate energy savings in industry through application of system optimization
- ✓ Disseminate case studies with concrete results from the demonstration projects.
- ✓ Involve active participation of the private sector in the project implementation in all the components of the project, and their commitments in contribution in-kind and in-cash to the project as mentioned above. These active participation and contribution are decisive for the success of the project and the sustainability of the project results.

The tangible outcomes of this project will be:

- ✓ A regulatory framework with financing packages developed to assist the effective implementation of the EE Law in the industry, and an energy consumption database for industry.
- ✓ National Energy Management Standards available, and made known to the public, in particular to the industry; 200 industrial entities implemented energy management plan, and 50 are certified compliant with the EnMS; capacity of INEN will be strengthened.
- ✓ 25 EE professionals trained to become energy management experts
- ✓ 50 EE professionals trained as trainers in system optimization
- ✓ 400 industrial representatives got awareness training of EnMS and energy system optimization.
- ✓ 10 industrial facilities improved their energy consumption through piloting the implementation of system optimization, based on the 25 in-dept system assessments conducted by the project.
- ✓ Through reduction in energy consumption as the indirect and direct results of the project, accumulated CO₂ emissions reduction for the whole country is expected to be in the range of up to 116,000 tones and by end of the project, and up to 558,000 five years after the project completion. This assumption is based on past project experience in other countries of similar conditions and intervention. The real impact of a capacity building project, like this one will take place after the project completion, and be progressive year-after- year. Further explanations are given in section H: Expected Cost-Effectiveness of the project hereunder.

B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL PRIORITIES/PLANS:

The proposed project is consistent with the national plan and priorities. A new Political Constitution of the Republic of Ecuador is in the development, and its article 413 specifies that “The State will promote energy efficiency, the development and use of environmentally clean practices and technologies, as well as the use of diversified renewable energies, that do not put food security, ecological equilibrium of ecosystems or the rights for water (access) at risk”. The National Development Plan 2007-2010 also makes reference to energy efficiency on Policy Objective 4.5, titled “Develop sustainable renewable energies and improve energy efficiency, strengthening the institutional, legal and environmental management frameworks in all the strategic areas of the State and society”.

For Ecuador, energy efficiency is not an option, but a must from the points of view of the economy and the environment. For the economy because the State heavily subsidizes energy in all its forms, especially on fuels derived from petroleum, and the environment because of the high share of oil sources in the energy balances of the country and location of oils and gas resources in ecologically sensitive areas. An analysis by Andrea M. Bassi and Allan E. Baer concluded that avoided electricity costs realized from the investment in energy efficiency and renewable energy technologies by 1% of the country GDP, amounting to over USD 5 billions by 2025, could contribute significantly to poverty alleviation, job creation and to the improvement of social services.

The proposed project will facilitate the implementation of the National Plan for Energy Efficiency, which has the following general objective "Foster the efficient use of energy at the national level, contributing to sustainable development". Among the Plan's strategies are: public awareness campaigns and education; demonstration projects; developing an EE market and ESCOs; a legal framework for EE; energy efficiency standards and labeling, and financing schemes for EE. The Energy Matrix developed by MERE and adopted by the Government in May 2008, has also energy efficiency as one its priorities, alongside with increase in renewable energy consumption, introduction of hybrid vehicles, improvement of transport efficiency and suitable energy prices and tariffs.

Furthermore the project will effectively contribute to the implementation of the EE Law, which is being discussed by the National Constituting Assembly, and expected to be promulgated soon.

C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH [GEF STRATEGIES](#) AND STRATEGIC PROGRAMS:

The project supports GEF-4 climate change strategy priority 2: Energy Efficiency in Industry, through promoting the deployment and diffusion of energy-efficient technologies and practices in industrial production, and manufacturing processes, as well as within the supply chain. It will ensure a long-term and widespread impact through development and implementation of energy management standard, and enhancement of the local market for providing and purchasing energy efficient services and equipment.

D. JUSTIFY THE TYPE OF FINANCING SUPPORT PROVIDED WITH THE GEF RESOURCES:

The financing support provided by the GEF to this project is a grant to cover the incremental costs of the project. The grant will significantly accelerate the efforts of the concerned authorities, support institutions and the targeted sectors of the industry in Ecuador to improving energy efficiency.

E. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

The coordination within this proposed project and with the other on-going and future related projects will be ensured by a Project Steering Committee, which will be established during the PPG phase. For example, the project will work closely with the on-going World Bank/GEF project PROMEC, Power and Communications Sectors Modernization and Rural Services Project. This WB/GEF project promotes, inter-alia, increased end-use energy efficiency by, among others, raising the electricity prices, economic pricing of LPG, and strengthening institutional and technical capacity in government and private sector institutions to develop a strategy to address efficiency needs, with involvement of stakeholders. As mentioned above it will contribute to the implementation of the National Plan for Energy Efficiency and the EE Law, drafted with the support of the WB/GEF project. It will also create synergy with the future UNDP/GEF project on Energy Efficiency Standards and Labeling Program (EE S&L), as this UNDP/GEF project will promote energy efficiency labeling standards and minimum efficiency performance standards of equipment and household appliances, where as the UNIDO/GEF project will promote energy management standards and system optimizations. Joint promotional activities could be carried out by the two projects.

The project will also benefit from the results of the current project carried out by the University, ESPE on assessing the energy consumption of 25 companies of the Association of Textiles of Ecuador, and of 63 companies of the Ecuadorian Plastic Association. There is also a good opportunity for the project to cooperate with the on-going project carried out by the School of Electrical Engineers and Electronic of Pichincha (CIEPEPI) under the sponsorship of MEER to conduct energy audit in public buildings, as energy management standard and system optimization are also applicable for EE in buildings.

F. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT DEMONSTRATED THROUGH

INCREMENTAL REASONING :

This project will be the first comprehensive TA project for Ecuador in the field of industrial energy efficiency. By the introduction of two new approaches to Ecuador: energy management standard and system optimization, it is expected that this GEF project will significantly expanded the industrial energy efficiency market of the country. Continuing business-as-usual scenario, a substantial part of opportunities to improve the energy efficiency of in the industrial sector of the country would go unrealized due to lack of adequate enabling environment and of skilled consultancy services for energy efficiency, as well as attention would only given to EE of individual components but not the entire system. The GEF project will provide assistance not only in the promulgation of energy management standard in the country, but also in building capacity of enterprises, including supply-chain partners, and institutions to implement the standard. Furthermore, it will share international experiences from other countries where energy management standard have successfully been implemented. It is expected that all of these will substantially address the persistent barrier of low quality of local EE consultancy services and lack of trust by industries in local EE consultancy services.

In addition to the equipment energy performance standards and labeling programme, the introduction of system optimization will help towards energy efficiency improvements of around 20 – 30%. The GEF project will play a catalytic role in transforming the market for industrial energy efficiency goods and services through providing assistance to strengthening both the demand and supply sides of the market.

G. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED, AND IF POSSIBLE INCLUDING RISK MITIGATION MEASURES THAT WILL BE TAKEN:

Risks can be categorized as technical and or policy-related. There are no technical risks associated with industrial energy system optimization. The optimization of both steam boiler and electric motor system has achieved considerable energy savings in several countries. Further, no significant risks are envisaged with respect to the delivery of capacity building for energy system optimization in Ecuador. UNIDO has already successfully completed projects of this type in several countries. It has been demonstrated that well designed and managed training programs can develop adequate system optimization capacity in individuals and institutions/companies. It is expected that there would be no policy-related risk, as the Government is very committed to EE.

The risks to a successful outcome are primarily concerned with the ability of the project to make an energy management standard work for Ecuadorian industry. This is overcome in the project by concurrently developing a regulatory framework with incentive schemes. Two areas of risk and proposed mitigation measures are as follows:

a. Failure to achieve outcomes after successful delivery of outputs (long-term sustainability)

Through its linkage with ISO 5001, EnMS, the project builds on the regular audit process, which assures that proper and efficient operation of industrial energy system is maintained and becomes part of each firm's operating culture. The combination of a national energy management standard with tools and training will allow companies to integrate industrial energy efficiency projects/investments into management structures, such as ISO, that provide for documentation, independent verification, and continual improvement. Together with the regulatory framework, the financial incentives, and the intensive market stimulation, the EnMS will ensure regular monitoring and reporting of energy efficiency efforts, and the long-term sustainability of the project.

b. Failure to achieve replication and sustainable market transformation.

This risk will be addressed by carefully designing the enabling policy framework, incentive programmes, EE financing schemes and awareness raising programme in addition to technical capacity building. Consistent implementation of the ISO 50001 supported by proper incentive programme will facilitate the replication of successful cases. The project builds on existing market relationships between users and sellers of industrial equipment and specialized services by expanding these markets with a greater focus on system services. Industrial customers educated through the project training and awareness raising initiatives, as well as supported by an enabling policy and financial incentives will request more frequently for EE services and equipment and place a higher value on system optimization services from their vendors, consultants, and suppliers.

H. DESCRIBE, IF POSSIBLE, THE EXPECTED COST-EFFECTIVENESS OF THE PROJECT:

Through its interconnected activities, the project will address market barriers including lack of information, high transaction costs, perception of risk, lack of access to finance, price distortions, technical barriers, and barriers

related to policy and incentive/regulation. The introduction of Energy Management Standard (EnMS) is one of the most cost effective ways to improve energy efficiency and address global climate change. The promulgation and promotion of a national energy management standard along with capacity building of enterprises and institutions will be very cost effective in transforming the industrial energy efficiency markets. This combination of supply and demand side activities will be sustainable in the long run. The awareness raised, the provided training, tools, the financing incentive schemes created and the promulgated energy management standard are the means for realizing ongoing energy savings in the country.

Based on the grid intensity of the country, the expected CO₂ emissions reductions can be estimated following both top-down and bottom-up methods, and subsequently the cost per ton calculated. This methodology, which will be developed during the PPG implementation phase, can estimate the \$/ton of CO₂ on a yearly basis and therefore provides an outlook on future cost-effectiveness of the project.

The project will not only lead to energy savings in the industrial sector alone but also the entire society, in particular the EnMS will have also impact on energy saving in the commercial and power sector. During the PPG phase, detailed estimation will be calculated according to the manual issued last year by the GEF, which will consist of indirect impact and direct impact. The indirect impacts are those from, inter-alia, the enhanced industrial regulatory framework, the energy management standard, capacity building, awareness raising, new financial incentives, etc. The direct impacts are those from, for example, the 200 industrial entities implementing the standards, 50 certified ones, 25 in-depth system assessments, 10 system optimization projects, etc.

The **rough** estimation of the CO₂ emissions reduction at this stage of the project development is based on experience from similar projects of the capacity building nature, and specific conditions and situations of Ecuador. It's estimated that the accumulated CO₂ emissions reduction from impact of all project activities on the entire country is equivalent to 2% of the annual CO₂ emissions from industry of year 2006 at the end of the project, i.e. 116,000 tones; and equivalent to 10%, 5 years after the project completion, i.e. 558,000 tones, giving the cost effectiveness of the GEF funding for the project is USD 7.36 per ton CO₂ avoided at the end of the project and USD 1.47 per ton five year after the project completion. This cost-effectiveness will steadily improve as the amount of CO₂ emissions reduction will be accumulated over the years, and the penetration of the project impact is progressive.

I. JUSTIFY THE COMPARATIVE ADVANTAGE OF GEF AGENCY:

UNIDO is included in the Comparative Advantage Matrix for SP-2: promoting energy efficiency in the industrial sector. Furthermore, GEF Council Document on Comparative Advantages of the GEF Agencies has recognized UNIDO's extensive knowledge of SMEs in developing and transition countries.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

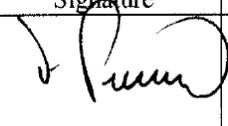
A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the [country endorsement letter\(s\)](#) or [regional endorsement letter\(s\)](#) with this template).

NAME	POSITION	MINISTRY	DATE (M, D, Y)
H.E. Marcela AGUIÑAGA	Minister	Ministry of Environment	8 MAY 2009

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation.

Agency Coordinator, Agency name	Signature	Date (M, D, Y)	Project Contact Person	Telephone	Email Address
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