



PROJECT IDENTIFICATION FORM (PIF) ¹

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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PART I: PROJECT IDENTIFICATION

Project Title:	Sustainable energy initiative for industries in Pakistan		
Country(ies):	Pakistan	GEF Project ID: ²	4753
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	XXPAK11X02
Other Executing Partner(s):	Alternative Energy Development Board , National Energy Conservation Centre, Small and Medium Enterprise Development Authority	Submission Date:	2011-11-25
		Re-submission Date:	2012-01-06
GEF Focal Area (s):	Climate Change	Project Duration (Months)	48 Months
Name of parent program (if applicable): ➤ For SFM/REDD+ <input type="checkbox"/>		Agency Fee (\$):	355,000

A. FOCAL AREA STRATEGY FRAMEWORK³:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
CCM-2 (select)	Outcome 2.1: Policy, legal and regulatory framework for EE investments in industry adopted	Output 2.1: EE policy and regulation in place. Output 2.2: Investments mobilized	GEFTF	150,000	600,000
	Outcome 2.2: Sustainable financing and delivery mechanisms developed for Industrial Energy Efficiency technologies.		GEFTF	1,650,000	16,500,000
CCM-3 (select)	Outcome 3.1: Policy, legal and regulatory framework favourable for RE investments in Industry adopted	Output 3.1: RE policy and regulation in place. Output 3.2: Renewable energy capacity installed	GEFTF	100,000	400,000
	Outcome 3.2: Applications of Renewable Energy technologies for industry increased.		GEFTF	1,485,000	14,850,000
Sub-Total				3,385,000	32,350,000
Project Management Cost ⁴			GEFTF	165,000	350,000
Total Project Cost				3,550,000	32,700,000

¹ It is very important to consult the PIF preparation guidelines when completing this template.

² Project ID number will be assigned by GEFSEC.

³ Refer to the reference attached on the [Focal Area Results Framework](#) when filling up the table in item A.

⁴ GEF will finance management cost that is solely linked to GEF financing of the project.

B. PROJECT FRAMEWORK

Project Objective: The project objective is to create market environment to promote the use of RE/EE technologies and measures in the selected industrial sectors of Pakistan.						
Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
1. Develop the policy and regulatory framework on use of EE/RE in Industry	TA	Policy and regulatory framework on EE/RE use in Industry adopted	1.1. Existing policy and regulatory framework reviewed 1.2. Recommendations on possible improvements made 1.3. Policy and regulatory framework in place	GEFTF	250,000	1,000,000
2. Create an investment platform for promoting investments in RE/EE and scaling up the market	Inv	Investment platform for promotion of investments in EE/RE in industry established	2.1. Investment platform to promote investments in RE/EE projects established. 2.2. Projects on implementation of EnMS/SO in 25 selected companies implemented 2.3. Projects for deployment of RE technologies in SMEs implemented 2.4. Non-grant instruments for promotion of EE/RE technologies explored.	GEFTF	2,500,000	25,000,000
3. Establish an accreditation center for energy experts on EMS & RE applications in industry	TA	Accreditation center for energy experts operational	3.1. National training and accreditation programme for energy experts on EMS developed 3.2. Accreditation center selected and equipped 3.3. 30 energy EnMS experts trained 3.4. 30 experts trained on installation of RE technologies 3.5. National Energy Performance Award Scheme introduce. 3.6 Platform for sharing project best practices launched.	GEFTF	635,000	6,350,000
Sub-Total					3,385,000	32,350,000
Project Management Cost ⁵				(select)	165,000	350,000
Total Project Costs					3,550,000	32,700,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount (\$)
National Government	AEDB, ENERCON, SMEDA	In-kind	3,550,000

⁵ Same as footnote #3.

Others	Local banks (private and public sector)	Soft Loan	9,500,000
Bilateral Aid Agency (ies)	To be identified during PPG phase	Unknown at this stage	2,000,000
SMEs	To be identified during PPG phase	In-kind	10,00,000
SMEs	To be identified during PPG phase	Grant	7,450,000
GEF Agency	UNIDO	Grant	50,000
GEF Agency	UNIDO	In-kind	150,000
Total Cofinancing			32,700,000

D. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (a)	Agency Fee (b) ²	Total c=a+b
UNIDO	GEF TF	Climate Change	Pakistan	3,550,000	355,000	3,905,000
Total Grant Resources				3,550,000	355,000	3,905,000

¹ In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table

² Please indicate fees related to this project.

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1 the GEF focal area/LDCF/SCCF strategies:

The project is in consistency with GEF-5 Climate Change Focal Area objectives 2 and 3 aiming at promoting market transformation for energy efficiency in industry and the building sector and promoting investments in renewable energy technologies. It presents a program that promotes the introduction of energy management systems (EnMS), system optimization (SO) and renewable energy (RE) technologies in industrial applications in Pakistan. This will be achieved through a combination of technical assistance and investment activities including (1) the adoption of a conducive policy and regulatory framework for the introduction of EnMS/SO and RE in industrial applications, (2) the creation of sustainable delivery mechanisms and (3) the establishment of an accreditation authority for energy experts specialized on EnMS/SO and installation of RE technologies.

A.1.2. For projects funded from LDCF/SCCF: the LDCF/SCCF eligibility criteria and priorities:

N/A

A2. National strategies and plans or reports and assessments under relevant conventions, if

applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NIPs, PRSPs, NPFE, etc.:

Government of Pakistan (GoP) has launched various initiatives related to energy efficiency and alternative and renewable energy in the country. In 1985, a detailed National Energy Conservation Plan was drawn up and National Energy Conservation Centre (ENERCON) was established in December 1986 to serve as the Government's focal implementing agency. In 1992, ENERCON prepared the Pakistan National Conservation Strategy and Plan of Action 1993-1998. Presently, Pakistan National Energy Conservation Policy approved in 2006 to provide broad guidelines for enhancing end use efficiency in various energy consuming sectors of economy. For the industry and power, as well as alternative and renewable energy sectors, the Policy defines short, medium and long term measures for meeting overall policy objectives and goals with the time frame division. The strategic goals of the policy are as:

- **Sustainable development** through use of least-cost and environmentally friendly energy supply options
- **Improved economic productivity** and poverty alleviation through optimum utilization of available energy supplies
- **Environmental protection** by offsetting greenhouse gas and other polluting emissions from avoided energy generation and use
- **Gender mainstreaming and social development** in rural and remote communities through energy efficiency and energy conservation (EE&EC) supplemented energy supplies.

These goals are to be met through the specific initiatives which comprise the operational objectives of the policy: 1) Promotion of EE&EC and improved energy management in all sectors of the economy; 2) Development of EE&EC market and commercialization of relevant products and services; 3) Enhanced utilization of available indigenous energy resources and reduced dependence on imported fuels; 4) Reduced energy intensity through efficient practices, technology upgrades, and waste reduction.

The project aims for promoting a rapid transition towards the widespread and sustainable use of renewable energy in the country. It will address the alternative and renewable medium-term policy as a comprehensive framework. GoP has adopted a phased, evolutionary approach constituting strategic policy implementation roadmap for alternative and renewable energy development in Pakistan through Alternative Energy Development Board (AEDB), the major

autonomous body for promoting and facilitating the exploitation of renewable energy resources in Pakistan.

The project objectives have direct relation both with the implementation of the medium term (i.e., five year) policy for Pakistan that will succeed the current short term RE policy in 2011. Moreover, it will help to create a conducive environment for growth of the domestic RE industry to be reached by 2015.

The project is in line with ‘Pakistan’s Initial National Communication on Climate Change’ submitted to UNFCCC in 2003 that covers the period from July 1993 to June 1994. It explored the main emitting sectors for viable GHG mitigation opportunities. These options are based on emissions reduction potential and the economic and financial implications of their implementation. For each of the mitigation options essential abatement potential and cost effectiveness indicators were calculated. A total of 21 options were developed for the energy sector, distributed among the various subsectors, including the residential and commercial sectors, the transport sector, the industry sector, and the agriculture sector. However, the project will focus on the industrial sector mitigation options in particular and energy sector in general by deployment of RE/EE technologies and ISO compatible energy management system EnMS and system optimization.

Energy Sector Options Ranked by Incremental Cost (1993-94)

Greenhouse Gas Mitigation Options	Average Incremental Mitigation Cost US\$/Tonne CO ₂ Equivalent	Net Present Value Million Dollars	Total CO ₂ Abated Million Tons
Energy efficiency improvements in tubewells	-230	574.79	7.15
Energy efficient refrigerators	-160	547	11.53
Energy efficient lights	-139.97	2704.76	56.48
Solar water heaters	-120	569.31	13.60
Solar water pumping	-110	563.28	15.07
Energy efficient fans	-90	890.06	29.23
Cogeneration	-80	1.33	49.35
Energy efficient motors	-70	48.01	1.92
Energy efficient boilers	-44.6	60.48	3.58
Improved wood stoves	-40	211.40	16.20
Waste heat recovery system	-37.35	40.24	2.95
Reduction in electricity T&D losses	-31.67	1044.54	3.70
Improved engine maintenance practices	-26.08	223.25	23.78
Energy efficiency improvements in tractors	-23.09	97.53	12.34
Improvements in vehicle maintenance practices	-14.25	43.22	8.40
Reduction in gas T&D losses	-0.096	0.42	0.49
Waste-to-energy generation	2.83	-1.16	1.19
Improvements in building design	8.69	-84.78	22.24
Substitution of oil and coal with natural gas	13.81	-452.06	95.64
Improvements in engine design	18.54	-245.33	37.07
Wind power generation	35.68	-9.05	0.74

B. PROJECT OVERVIEW:

B.1. Describe the baseline project and the problem that it seeks to address:

Climate Change and Energy Scenario in Pakistan

Although Pakistan contributes very little to the overall GHG emissions, but it remains severely impacted by the negative effects of climate change. Being a predominantly agriculture economy and vulnerable to extremity of climate, the country has a real interest in protecting itself from the adverse impacts of climate change. The recent recurrences of extreme weather events displayed by drought and excessive floods in the country have raised the enormity of dealing with the issue on an urgent basis.

The country's pace of economic development is accelerating with annual GDP growth averaging 5.2% over the last five years and per capita income doubling in less than a decade (Economic Review Report-2009). The significant strengthening of macroeconomic fundamentals and resilience of growth trends even in the face of serious and unexpected challenges, such as record oil import prices and the severe earthquake of 2005 and recent flood of 2010 has underpinned current projections of national economic growth in excess of 8% per year over the medium term and beyond.

Pakistan's Initial National Communication on Climate Change' describes the five significant GHG source categories including energy, industrial processes, livestock and agriculture, forestry and land use change, and waste sectors. The energy, industrial processes and forestry and land use change sectors contribute 81%, 12% and 7% of total CO₂ emissions, respectively. Though the GHGs emissions data is outdated as INC submitted to the UNFCCC in 2003 based on 1993-94 statistics, it reflects the need to address the issues related to the environment and climate change at national level.

Moreover, energy sector issues and development continue to severely constrain Pakistan's economy in 2009-2010. The primary energy supply during FY-2008-09 was 37.3 MTOE consisting of natural gas (32.3%), oil (35.3%), Hydro power (30.3%), coal (0.1%) and nuclear (2.0%). Based on an expected GDP growth rate of 3.5% - 5%, the total energy demand is expected to increase to 122 MTOE in the next 15 years. In addition, production of natural gas in the country has peaked at 4,000 MMscfd compared to a demand of 4,500 MMscfd. During the winter supply to the industries has been cut to meet the demand from the households. Given the current constraints the country will have to face an unprecedented dependence on energy imports. Assuming a crude oil price of US\$ 75 per bbl, the annual energy import bill of the country will exceed US\$ 41 billion compared to about US\$ 7.5 billion in FY- 2009.

These trends translate into rapidly escalating primary energy supply which has been increasing at 5.4% per annum over the last five to six years (Economic Survey Report-2009). Over the same period, electricity consumption has risen at an average annual rate of 6.8%, natural gas by 10.4%, liquefied petroleum gas (LPG) by 17.6% and coal by 22.8% (Energy Book-2009). The installed power generation capacity is 19,620 MW however only 14,000 MW of firm capacity was available in 2009. The country thus, faced serious peak electricity supply shortfalls in the range of 2500-3000 MW. The cost to the country from both scheduled and unscheduled outages have been estimated to be a reduction in annual GDP of 1.8%. Within the industrial sector, the reduction in value added was estimated at 8.2%. In addition, power shortages were estimated to reduce the national export of manufactured goods by 7.2% resulting in a loss of foreign exchange of \$675 million (ENERCON).

Government of Pakistan's Efforts and Plans

There is a general concern at the government level about the inefficiency of energy usage in the industry. Moreover, the increasing GHG emissions arising from fossil fuel combustion in industry and power generation and high fuel prices at the international markets constitute a threat to the environment and economic sustainability of the country. The government is also conscious about the need to improve the competitiveness of the industry by reducing production cost and promoting sustainable and low-carbon development. To address this issue GoP has resolved to revitalize national action towards energy security and achieving greater energy efficiency and promotion of alternative and renewable energy in the country however these initiatives and their outcomes reveal several impediments to achieve sustainable, long-term energy savings.

The Government of Pakistan has established a policy framework for EE. Improvement in EE (both supply and demand) has been identified as a key intervention area in Pakistan Country Strategy. Achieving energy security and energy affordability are two main goals set in the Government's Vision 2030 and the Medium-Term Development Framework (MTDF). The National Energy Conservation Policy adopted in 2006. To achieve the goals defined in these policies, the Government has adopted the EE Sector Roadmap (2010-2019).

The Government is keen to implement a comprehensive EE investment programme and is looking for a flexible public sector financing mechanism to establish a dynamic EE market to scale up the deployment of proven EE and RE technologies in energy supply and use. The total investment requirement for the EE sector from FY2010-2019 is estimated at \$8.16 billion. The private sector (domestic, industrial, agricultural, transportation, oil refining) is expected to finance 45% and borrow commercially for 55% of the investment. The investment plan for industrial energy efficiency is amounted to \$ 2.236 billion for the same period (Pakistan Energy Yearbook, 2009). These can be achieved assuming that no external barriers to such actions in the form of financing, information and technology access, policy and pricing disincentives and other constraints exist.

Despite these encouraging efforts initiated by the government little achievement has been observed in the field. Implementation has been slow due to limited capacity and financial resources. The EE programs and initiatives in the country have not delivered comprehensive capacity building focused on the industrial sector. As a result, there is a limited penetration of energy-efficient measures, technologies, and systEnMS in the industries. Based on the observed situation, it is likely that the energy consumption and GHG emissions will continue to increase in the industrial sector if business as usual scenario persists.

The co-financing promised by the Government of Pakistan to support this project is a clear indication of the commitment of the Government to establish the linkages between addressing global environmental issues and national development priorities and the national baseline.

Deployment of RE/EE Technologies and ISO EnMS in the Industrial Sector of Pakistan

UNIDO in collaboration with ENERCON, AEDB and SMEDA will implement the project Sustainable Energy Initiative for Industries in Pakistan. It aims to introduce ISO compatible energy management systEnMS and system optimization in the industrial sector of Pakistan. The project will lead to transformation of the market to introduce best practices and technology transfer for renewable energy and energy efficiency under clean energy initiative to reduce GHG emissions for improvement of environment in the country. In doing so, UNIDO will build on the good experience accumulated through implementing a number of programmes in Pakistan ranging from resource efficient production to SME development and clustering to focused assistance for Agro Industries. Through its programmes, UNIDO has been particularly active on assisting SMEs in improving their productivity and helping them in mobilizing resources.

Equipment based efficiency versus system optimization approach

Current practices in the field of energy efficiency tend to focus more on individual system components, than on the whole system. The component level improvement has potential of increasing system energy efficiency of 5- 10%. Virtually, there is no focus on improving energy efficiency at the system level which can provide higher savings of up to 20 to 30% in energy consumption and GHG emissions.

Ad hoc energy management practices versus built-in energy management

Usually energy management is an ad hoc practice in the industrial sector, especially in small and medium scale enterprises. At the facility/company level, there are no built-in energy management policies and strategies that integrate energy issues in the existing management structure. There is no continuous implementation of energy management. The current practice does not institutionalize energy management and does not allow a comprehensive and integrated approach that ensures sustainable energy cost reduction and improves the facility productivity in an irreversible way.

Development of RE Market for energy intensive manufacturing SMEs in Pakistan

Pakistan has been bestowed with enormous renewable energy resources, which have not been adequately explored, exploited or developed. The industrial sector represented 39.8% of the total commercial energy consumption in Pakistan during 2008-09. Energy supply to industry was based on oil products (11.6%) gas (52.7%) electricity (11.1%) and coal (24.6%). For industry to be environmentally sustainable, it must move to efficient use of energy and harness opportunities being offered by renewable energy. Energy audits reflect that there exists a scope of 15-25% energy savings by shifting to energy efficient technologies and reducing dependence on fossil fuels through fuel switching to renewable. Such shifts would bring about significant aggregate impacts and global benefits from reduced GHG emissions.

In addition, SMEs especially those for whom energy costs represent a large portion of total production costs can reap especially high direct economic benefits from improving efficiency of energy conversion and increased use of renewable energy. Penetration of biomass gasifiers in energy intensive SMEs of Pakistan will help SMEs to lower down their electricity bills and 24/7 smooth running of their industrial operations without any load shedding. Solar concentrator and flat plate collectors will also help SMEs to carry on different processes especially in dairy and several other process industries. At the PPG stage, appropriate technologies will be chosen taking into account their cost effectiveness as well as availability of RE resources in various locations.

Barriers

Enterprises have not implemented EE and RE programs despite of large potential of EE improvements and available RE resources as well as several initiatives launched by the government. Several barriers contribute to the failure of the uptake of industrial EE measures and implementation of industrial RE applications.

Informational barriers: Informational barriers contribute to the widespread failure to recognize the present opportunities in EnMS and SO as well as RE applications. There is a lack of information about available options, best practices, and benchmarks. There is need of awareness activities to promote EnMS and SO as well as RE with comprehensive guidelines and documentation of demonstration cases.

Technical barriers: The absence of EE technical expertise constitutes a major barrier to improve energy efficiency in facilities. Many companies are not aware of the technical opportunities for adopting EnMS and RE measures. In addition, high turnover of plant personnel assigned to the operation of industrial systems and changes in production lead to a lack of persistence for system optimization improvements. Local manufacturers and equipment suppliers also

lack technical information and trainings for supporting decisions to pursue energy efficiency improvements in the products.

Market barriers: Most industries have a budgetary disconnect between capital projects and operating expenses (energy and maintenance). Life cycle assessment on purchases is rarely considered on industrial energy efficiency projects. Low-investment cost is mostly considered when the decision has to be taken to change equipment. On the local suppliers of equipment part, the experience and skills are limited in marketing their products and brands to the industry without offering alternatives to improve the system efficiency as a whole.

Financial barriers: The financial barriers to investment in EE projects are more related to macro business partnerships development and lack of information on available financial mechanisms and incentives and how to access them. At financial institutions and banks levels, there are two main issues: (i) the lack of understanding of the particularity of energy efficiency projects and how to properly evaluate them, and (ii) the disconnect between the financing products offered and the needs of EE projects.

Policy barriers: There are many policy and regulatory measures taken by the GoP to promote energy conservation and renewables in the country. However, these initiatives have resulted in very little achievements in the industry sector because of the lack of targets to improve industrial energy efficiency, the weakness of the existing instruments to educate market players (industries, consultants, equipment suppliers, and banks) on the promotion of EE and RE, and inadequate financing incentives and mechanisms.

The identified barriers which have inhibited the expansion of the RE/EE market in industry can be divided into four main categories:

- 1) Supply-side barriers – barriers in the supply chain for the delivery of RE/EE technology and services.
- 2) Demand-side barriers – barriers restricting the level of demand for RE/EE technology and services.
- 3) Barriers to national uptake – barriers restricting the national uptake and implementation of RE/EE technology and services.
- 4) Policy barriers – barriers in the policy and knowledge within governmental institutions for the implementation of RE/EE technology and services.

B. 2. Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

Baseline Scenario

Without the GEF project, energy efficient technologies and renewable energy technologies will not be used extensively by SMEs until the technical and commercial viability of doing so is proven in selected SMEs clusters. In addition, this would require development of robust market and supply chain for delivering RE and EE technologies and management solutions as well as policy framework to be put in place.

SMEs in Pakistan are being affected badly due to immense power shortage and no efforts have been made to convert SMEs processes on renewable energy .This project will scale up the markets for enhanced use of renewable energy and energy efficiency technologies by energy intensive SMEs sector.

Project Scope

The project is targeted to address barriers as mentioned above through a sustainable approach for promotion of EE and RE in Pakistani Industry and by offering a mix of technical assistance and investment activities. The financing support provided by the GEF to this project is a grant to cover the incremental costs of the project for technical assistance activities. The application of non-grant instruments will be explored during the PPG phase. The GEF resources are needed to secure expertise, human resources and services needed to remove identified barriers and encourage the financial institutions/banks to provide loans for energy efficiency investment projects under macro business partnerships. The GEF funding will leverage USD 10 million from the Government, private sector through local banking institutions and bilateral aid agencies.

To overcome obstacles related to the policy, incentives for development of robust domestic market and supply chain for delivering technology and management solutions and an enhanced policy and regulatory framework on promotion of RE and EE measures in industry will be put in place.

Financial, technical and information barriers will be overcome through establishment of the competence center for technical evaluation of projects, implementation of projects and sharing of best practices as well as introduction of the National Energy Performance Award Scheme and the Accreditation center for energy experts.

Capacity building and awareness raising measures achieved through training activities will scale up the use of RE and enhance industrial EE, especially targeting SME sector.

The project aims at creating a market environment to promote the use of RE/E technologies and measures in the industrial sector of Pakistan through three main project components: (1) Developing the policy and regulatory framework on the use of RE/EE in Industry, (2) Creating an investment platform to promote investments in RE/EE and scaling up the market and establishing an accreditation center for energy experts on EnMS and RE applications in Industry.

Component 1: Developing the policy and regulatory framework on the use of RE/EE in Industry

In 2006, the Government of Pakistan established the National Energy Conservation Policy as the policy framework defining the goals of the Government on energy efficiency and identifies improvements in energy efficiency as a key intervention area to balance the supply and demand on energy resources. To help achieve the objectives set in this policy, the Government has also adopted the Energy Efficiency Roadmap (2010 – 2019). Yet, to date little has been achieved in these areas, therefore the first component aims at reviewing the policy frameworks and related action plans set to promote EE and RE particularly in Industry and identify the obstacles preventing the achievement of these objectives. It will further consider the applicability of policy instruments such as green tariffs, CO2 tax rebates, tax and custom exemptions upon import of energy efficient equipment and subsidizing interest rates on loans related to RE/EE projects. These measures would provide the financial incentives to companies encouraging them to invest in RE/EE applications. Other measures such as introducing mandatory requirements for new installations to install RE/EE technologies will also be considered. The PPG phase will identify more accurately the measures to be proposed. A list of the recommendations for improvements will be compiled and a roadmap for its integration into the existing policy framework will be developed. At the end of the full-phase project, an updated policy framework including the recommendations will be adopted.

Component 2: Creating an investment platform for promoting investments in RE/EE and scaling up the market

Although some credit lines supporting RE/EE projects in Pakistan, companies are reluctant to make use of the available funding for a number of reasons. Firstly the absence of the culture to consider savings in operating costs

and lifecycle costs when making the decision to purchase machinery or set up new installations. Decisions are still mainly driven by the initial cost investment. On the other hand, the companies are not fully aware of the financial opportunities offered by the banking institutions and there is a mismatch between the needs of companies for energy efficiency projects and the financing products offered by banks. Therefore the project aims at setting up an investment platform to promote investments in RE/EE projects. Projects on the implementation of EnMS/SO in 25 selected companies and those focusing on the deployment of RE technologies in SMEs will be implemented. Non-grant instruments such as revolving loan programs and risk guarantee programs to scale up investments in RE and EE technologies will be explored in close collaboration with national financial institutions during the project design phase.

Component 3: Establishing an accreditation center for energy experts on EnMS and RE applications in Industry

The technical knowledge and expertise of energy efficient and renewable energy technologies is rather limited. Personnel working in this sector change frequently and lack the necessary qualifications. Further, local manufacturers and equipment suppliers require specific training to support the installation and maintenance of RE/EE technologies in the future. Therefore this component focuses on established an accreditation center to offer a range of technical trainings on Energy management systems, renewable energy installations, energy auditors, etc. To begin with, the staff of the center will be trained on preparing feasibility studies for RE/EE projects. In addition, the center will offer services in identifying RE/EE investment opportunities in Industry by building an expanded project pipeline, preparing RE/EE projects in a bankable format to enable the companies to access financial capital from banks and creating the connection with financial institutions to match the needs of industries. The project will also establish a qualification programme for energy experts at an existing facility to be determined during the PPG phase. Project activities will include the design and set up of the qualification programme and equipping the accreditation center with the tools and equipment needed to run the qualification programme. After these outputs are launched, 60 energy experts will be trained on EnMS and RE technologies installation and maintenance. The center will establish a platform that will be used to compile lessons of good practice examples from projects implemented under this project and disseminated them widely.

Global Environmental Benefits

The project would have considerable global environment benefits in terms of GHG emission reduction through substantial reduction in electricity consumption, fuel switching by replacing fossil fuels with renewable and putting in place suitable policy incentives focussing on energy intensive SMEs. Based on preliminary estimation, through EE and RE demonstration projects annually 50000-150000 t CO_{2eq} emission reduction can be achieved. During the PPG phase emission reduction potential will be reconfirmed and refined.

B.3. Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF). As a background information, read [Mainstreaming Gender at the GEF.](#)":

Dependable and affordable energy supplies are crucial to economic growth therefore the project will promote economic and human development. Project reflects commitment to improve energy efficiency and renewable energy as a pivotal way to meet the climate change challenge. The project will not only limit energy demand and improve energy security, but enhance economic competitiveness, generate employment, and reduce local, regional, and global

air pollution. Under the project activity for deployment of EE and RE measures will also save money for end users i.e. SMEs in Pakistan. In addition to economic benefits, energy efficiency measures have great potential to reduce CO₂ emissions.

Gender is considered as key stakeholder for development of industry, energy and environmental resources and climate change mitigation. Therefore, gender analysis will be carried out as part of social assessment at the onset of the project. For gender mainstreaming to be effective, the gender mainstreaming action will be integrated in all stages of a project cycle. References to gender will be consistent throughout the project approach, the activities, indicators, and budget. Female experts will be encouraged to participate in the training and other project activities. A minimum target share of trained women under this project will be defined at PPG stage. Gender issues will be incorporated in the project monitoring and evaluation process as well.

B.4 Indicate risks, including climate change risks that might prevent the project objectives from being achieved, and if possible, propose measures that address these risks to be further developed during the project design:

The main risks, their rating and mitigations strategy for the project are listed below:

Risk	Rating	Mitigation
Technological: Companies are not aware of the technical opportunities for adopting EnMS and RE measures.	Moderate	Propose a participatory approach and provide the participating enterprises with adequate information packages and training.
Institutional: Coordination between key ministries and stakeholders (AEDB, ENERCON, and SMEDA) remains weak and SME clusters do not actively participate in the project.	Low	PMU will coordinate with executing partners and major stakeholders. Moreover steering committee will establish the institutional linkages among the stakeholders
Economic and Financial: Following the systems EnMS optimization audit and report, enterprises might not be willing to invest and finance the installation of new equipment, even if the energy reduction potential is important.	Low	Financial capacity development to support RE/EE projects in industry will address the economic and financial risks. UNIDO will provide training for enterprises' key personnel, to build their capacity to better understand the value of investing without delay on EnMS optimization and energy management, and the long-term financial benefits it brings.
Investment Risk – Economic and political climate in the country may discourage potential long-term energy investments projects.	High	The project will address investment risk by encouraging the Government to introduce policy incentives such as guarantees, risk insurance and tax exemptions so as to encourage investments. The project will target firms that would express appetite to invest in RE&EE project despite of the potential changes. In addition, firms that have a long history of operating in the country and hence better able to absorb such risks will be actively encouraged to invest in RE and EE projects.
Regulatory – Proposed regulatory framework not adequately adopted and enforced.	Medium	Engage decision makers early on in the project preparation and implementation.
Climate Change - RE sources might be affected by CC	Medium	Detailed RE resource assessment taken into consideration; Information and historical data will be conducted.

B.5. Identify key stakeholders involved in the project including the private sector, civil society organizations, local and indigenous communities, and their respective roles, as applicable:

The identified key stakeholders involved in the project include ENERCON, AEDB and SMEDA. The project will be implemented in close cooperation with private sector through chambers of commerce and industries (CCIs). The roles of the key executing partners are as follow.

National Energy Conservation Centre (ENERCON): was established in December 1986 to serve as the Government's focal implementing agency to promote Energy Conservation in Pakistan. It is an attached department of Ministry of Environment. ENERCON has been cultivating a new energy culture focusing on achieving sustainable development through conservation and efficient use of energy resources. The vision of ENERCON is to steer Pakistan towards an Energy Efficient and Environment Friendly Tomorrow.

Alternative Energy Development Board (AEDB): In May 2003, AEDB was established to act as a central agency for development, promotion and facilitation of renewable energy technologies, formulation of plans, policies and development of technological base for manufacturing of renewable energy equipment in Pakistan. The GoP has tasked the AEDB to ensure 5% of total national power generation capacity to be generated through renewable energy technologies by the year 2030. At present, total Renewable Energy produced in the country accounts at 40MW about 0.21% of total installed generation capacity of all sorts. The investment potential for the renewable energy sector of the country from short to medium term is over USD 16 billion dollars.

Small and Medium Enterprise Development Authority (SMEDA): It is the premier institution of the Govt. of Pakistan under Ministry of Industries and Production. SMEDA was established in October 1998 to take on the challenge of developing SMEs in Pakistan. With a futuristic approach and professional management structure, it has focus on providing an enabling environment and business development services to small and medium enterprises. SMEDA is not only an SME policy-advisory body for the government of Pakistan but also facilitates other stakeholders in addressing their SME development agendas.

National Productivity Organization (NPO): National Productivity Organization (NPO), Ministry of Industries working as a Liaison Office of Asian Productivity Organization (APO) for promotion of Productivity & Quality in various sectors of the economy. NPO's programmes like trainings, benchmarking, energy efficiency; Prime Minister Quality Award, etc. are improving the competitiveness of the industrial, agricultural, service & health sectors. Since 2005, NPO has undertaken energy efficiency audits in the textile and steel sectors to undertake techno-economically feasible measures suitable to reduce cost and consumption of energy, and GHG emissions.

Financial Institutions: There are number of international and national financial institutions and banks supporting RE and EE projects in the country. The important international financial institutions include World Bank, and Asian Development Bank (ADB). The national banks include State Bank of Pakistan (SBP), National Bank of Pakistan (NBP), SME Bank Pakistan, Habib Bank, Bank Al Fallah, Pak-Kuwait Equity Ltd., Agriculture Development Bank of Pakistan (ADBP), and Punjab Small Industries Cooperation (PSIC). State Bank of Pakistan has recently established a credit line to support RE/EE projects upto 10 MW for SMEs in the country. UNIDO has been working with local banks including SBP, NBP and ADBP within various ongoing programmes such as the cluster development programme and the CFC Phase out. SBP, NBP, SME Bank and ADBP have expressed interest to offer credit lines to SMEs under the scope of the proposed project. Further the Punjab Small Industries Cooperation (PSIC) committed for making available a credit line of up to PKR 20 million for each industry for.

B.6. Outline the coordination with other related initiatives:

There are currently some on-going international cooperation programs in place which are described as follows:

National Energy Conservation Programme

In 1985, with funding and technical assistance from the USAID, Pakistan initiated a major national EE&EC programme. Under the project, a detailed National Energy Conservation Plan was drawn up and ENERCON was established to serve as the Government's focal implementing agency.

Energy Efficiency Initiative by Asian Development Bank

The Asian Development Bank (ADB) has included Pakistan in its regional Energy Efficiency Initiative (EEI) launched in 2006. The Bank has a framework analysis to help define a future demand-side EE&EC assistance strategy to the country to be financed through a major loan programme under US\$ 1 billion a year EEI funding. In this respect, national action and investment plans along with project pipelines are slated to be finalized by the ADB for which country level consultations have already begun at the Planning Commission.

Programme on Renewable Energy and EE by GIZ

In 2006, Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) conducted a € 3.2 million RE and EE technical assistance with AEDB and ENERCON. GIZ is also helping ENERCON in accordance with the Government's Energy Conservation Policy 2006 to develop a national EE&EC action plan. Moreover, GIZ and SMEDA have set down the objectives for EE programme for the textile industry.

South Asian Regional Initiative by USAID

USAID has also been implementing the South Asian Regional Initiative (SARI) project in several South Asian nations since 2000. Under the current phase of the SARI Energy Cooperation and Development (SARI/Energy) programme since 2007, Pakistan has been included as a recipient of technical assistance. The programme focuses on regional approaches to meet South Asia's energy security needs including energy trade, EE, rural energy supply, regulatory issues and energy statistics.

Bilateral Initiatives for EE and RE

Discussions are also underway between the Government and several bilateral development partners for initiating EE&EC technical and financial assistance. These include the formation of a US-Pakistan Working Group on RE and EE to design a multi-year cooperation plan as well as expressions of interest by the European Union and the Republic of France for starting EE&EC focused assistance programmes in Pakistan.

UNIDO GEF-4 RE project

UNIDO will be starting to implement the GEF-4 funded project on the development of gasification in SMEs in Pakistan entitled "Promoting Sustainable Energy Production and Use from Biomass". Lessons learnt will be instructive to the present Project. In particular the Project will explore the possibility to link and build on the GEF activities related to policy, regulatory framework and capacity building.

C. DESCRIBE THE GEF AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

The GEF Council document GEF/C.31/rev.1 gives UNIDO comparative advantage for this Strategic Program under the Intervention Type Capacity Building/Technical Assistance. The project has a strong focus on promoting RE/EE in Industry. Combining the provision of policy and normative development support services and capacity building for all market players, UNIDO aims at removing the key barriers to continuous improvement of energy efficiency in industries and increased adoption of renewable energy for productive uses. The UNIDO Energy Programme is structured around four core thematic areas: (1) Energy management and system optimization, (2) Renewable Energy for Productive Uses, (3) Low-carbon and advanced process technologies and (4) Benchmarking, monitoring and verification.

UNIDO is well placed to implement this project because of its experience and expertise in dealing with SMEs. UNIDO's SME development programme in Pakistan was initiated in 2001 focusing on five clusters. In the meantime, other agencies are promoting 20 additional clusters with UNIDO's methodological support. UNIDO maintains an excellent network with all key stakeholders in SME sector in Pakistan and has worked extensively on issues relating to skills development, strengthening institutional capacity and job creation all with an emphasis and focus on gender.

C.1 Indicate the co-financing amount the GEF agency is bringing to the project:

UNIDO will provide USD 70,000 for PPG and USD 200,000 for the implementation phase.

C.2 How does the project fit into the GEF agency's program (reflected in documents such as UNDAF, CAS, etc.) and staff capacity in the country to follow up project implementation:

Recognizing the importance of energy for economic development, as well as the negative effects of inefficient energy use, the GEF has made it a strategic objective to support projects that not only promote the transfer of energy-efficient and renewable energy technologies but also enable work with regulatory institutions on reforming policies and regulations in this vital sector. The project is in line with the GEF's work on climate change that has maintained a strong focus on the transfer of environmentally sound technologies (ESTs), closely allied with the UNFCCC's technology transfer framework. Moreover, the project is in line with, UNDAF, MDGs particularly MDG-7 Environment, and One UN Framework in Pakistan.

UNIDO operates a field office in Pakistan and actively contributes to the one-UN programme within the thematic areas of environmental sustainability and poverty reduction through productive uses. UNIDO will be starting to implement the GEF-4-funded project on the development of gasification in SMEs in Pakistan entitled "Promoting Sustainable Energy Production and Use from Biomass". Under the one-UN programme UNIDO will be responsible for the implementation of the project and the fulfillment of the project targets and objectives. In doing so, UNIDO will closely coordinate with the Ministry of Environment, the Ministry of Industry and all other relevant project partners. A project manager at UNIDO headquarters will be responsible for the oversight and monitoring of the project and will report to the EGF on the progress in project implementation according to the GEF reporting schedule. The project manager in close coordination with the UNIDO representative in Pakistan, will initiate the procurement and recruitment actions and manage the teams of international and national experts working on the project.

A project management will be set up through the project. The host for the PMU will be determined during the PPG phase. The PMU will be responsible for the day to day operation of the project on the ground and will report directly to the project manager at UNIDO. It will consist of a national project coordinator, a project assistant and a technical

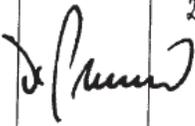
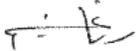
specialist. Further expertise required will be hired through the technical assistance components to ensure that the technical aspects of the project are addressed.

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 [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mr.Kamran Ali Qureshi	Additional Secretary	ENVIRONMENT	02/14/2011

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Mr. Dmitri Piskounov, Managing Director, PTC, UNIDO GEF Focal Point		29/11/2011	Ms. Rana Ghoneim, Project Manager, PTC/ECC/IEE 	+431 26026 4356	R.Ghoneim@unido.org