NS-88 - Energy Efficient Lighting in Residential, Commercial, Industrial, and Outdoor Sectors of Pakistan

Pakistan

NAMA Seeking Support for Preparation

A Overview

A.1 Party	Pakistan
A.2 Title of Mitigation Action	Energy Efficient Lighting in Residential, Commercial, Industrial, and Outdoor Sectors of Pakistan
A.3 Description of mitigation action	Project Description: Pakistan is presently facing multiple challenges to its economic growth that are also compounded by the worsening energy crisis. The country has a deficit of 5000 MW in the system during peak summer season that results in load shedding of up to 12 hours a day in urban areas and 18-20 hours in the rural areas. In 2008, Pakistan's national GHG inventory was 310 $MtCO_2e$. In terms of sectoral distribution, the energy sector is the most significant contributor to GHG emissions in Pakistan, totalling 157 $MtCO_2e$ in 2007-08, or over 51% of the country's total emissions (0.45 % of world's total). To some degree, the energy crisis in Pakistan can be managed by implementing cost-effective, energy efficiency measures to technologies such as lighting in the residential, commercial, industrial sectors and outdoor/street lighting. The main activities of NAMA proposal includes the development and enforcement of a national Energy Efficient (EE) lighting strategy, energy codes and standards, Minimum Energy Performance Standards (MEPS) and Monitoring Reporting and Verifying (MRV) system. Additionally, establishment of a Revolving Loan Fund (RLF) scheme for future efficient lighting projects and awareness campaigns in the public on transition to EE lighting are also included in the NAMA proposal. Planned Activities: The key activities in the NAMA proposal for accelerating transition to EE lighting technologies in all sectors of Pakistan are given below: • Development of a National EE Lighting Strategy, energy codes, standards for lighting products, labeling, and development/ enforcement of Minimum Energy Performance Standards (MEPS) for all lighting technologies and applications. • Development of a Measurable, Reportable and Verifiable (MRV) system for GHG emission reductions resulting from deployment of EE lighting projects/programmes. • Design and deploy an integrated waste management system for destruction of Incandescent Lamps (ICLs) and development of legislation and a scheme for the collection and recycling of Compact Fluorescent Lamps (CFLs) bulbs and other mercury added products (i.e. linear fluorescent lamps, metal halide lamps, mercury vapour lamps). • Establishment of a Revolving Loan Fund (RLF) and its linkage with the active Energy Conservation Fund of the National Energy Conservation Centre (ENERCON) to develop EE lighting projects/ programmes. • National launch of a public awareness campaign on transitioning to EE lighting to educate people from all walks of life regarding the benefits of adopting timely actions relating to EE/EC.

Potential for Transformation Change:

The proposed NAMA i.e. transition to Energy Efficient Lighting in the Residential, Commercial, Industrial and Outdoor Sectors in Pakistan would result in the reduction of 1.97 million tonnes of CO_2 annually. Moreover, it includes an integrated waste management system for sustainable destruction of ICLs and recycling of CFLs, LEDs and other efficient technologies that may help in reduction of SO_2 and mercury emissions in the atmosphere. An approximate amount of 3.7 kilograms of mercury emissions may be avoided by adopting a sustainable mechanism adopted for recycling of CFLs. The on-going process for adoption and signing of Minamata Convention by Pakistan is extremely important to advance global efforts in preventing mercury pollution.The above mentioned actions in the NAMA proposal will help develop a strong base for Energy Efficient (EE) lighting market in the country and will boost up the confidence of the end users in the technology. The initial upfront cost of the CFLs and controls which may be covered by the projects/ programme financed under RLF or other mechanism would ease the burden on the end users. The proposed interventions in the country by NAMA would hasten market transformation towards energy efficient lighting in residential, domestic, industrial and outdoor sectors of Pakistan. The initiatives of the NAMA are likely to provide valuable inputs paving way for other energy appliances such as electric motors, fans, refrigerators and other domestic/ commercial equipment to be made energy efficient in future. The outcomes from this NAMA activity are long term because of the complete phase out of the inefficient lighting technologies from all sectors of the country.

Financial Ambitions:

An estimated amount of €7 Million as financial support is required for realizing various activities in the proposed NAMA. Out of the total requested amount, €3 million will be allocated specifically for Revolving Loan Fund (RLF) scheme whereas remaining amount will be required for technology and capacity support needed for the implementation of other actions in the proposed NAMA. The objective of RLF will be to provide access to financing for the private sector in the pilot projects to retrofit or purchase EE lighting that is otherwise not available and help address the high cost of transitioning to EE lighting. This initial funding for the pilot projects will overcome the financial and technological barriers for the deployment of EE/EC interventions.

Project Outputs:

The proposed actions in the NAMA would not only help in developing MEPS/ standardization for the efficient lighting technologies but with an enforced national lighting strategy, the private sector investment will be encouraged. The project will expand its strong partnership with private sector companies, technical organizations and international agencies to encourage lighting innovation.The objective will be to provide an enabling environment for the private sector financing to retrofit or purchase EE lighting that is otherwise not available. Demonstration projects will help build confidence in Energy Service Company (ESCO) models, an idea of self-revenue generation to encourage private sector and household participation. The Revolving Loan Fund RLF (financing model) will also help in addressing the high cost of transitioning to EE lighting. MEPS and other standardization measures are intended to increase demand for EE lighting.

It is envisaged that with the successful implementation of the proposed NAMA, the country will benefit from replicating energy efficient measures in other major electricity consuming devices such as electric fans, water pumps, motors, refrigerators and air-conditioners.

Project Impacts:

The implementation of the actions proposed in this NAMA will reduce 1.97 $MtCO_2e$, and produce energy savings equal to 5.5% of total national electricity consumption or 35.1% of electricity consumption from the lighting sector per year. This in turn will create annual savings of approximately US$ 408 million. Over 10 years, this equals approximately US$ 4 billion, corresponding to 3% of GDP. The realization of the energy savings potential in the economy will result in a 14% decrease in the projected energy deficit by year 2019. Increasing access to EE lighting will promote sustainable development by transforming the lighting sector and helping to shift Pakistan onto a low-carbon trajectory. The expected two-fold increase in the use of CFLs by low-income and lifeline consumers (consumers having consumption up to 100 kWh per month) will lower monthly electricity bills over the 10-year lamp lifetime, reduce peak demand for electricity and create jobs. Finally, the NAMA will help Pakistan meet its international obligations under the UNFCCC.

Moreover in the longer run, the proposed interventions in the country by NAMA would hasten market transformation towards EE lighting in domestic, industrial, commercial and outdoor sectors. The initiatives of the NAMA are likely to provide valuable inputs paving way for other energy appliances such as electric motors, fans and other domestic/ commercial equipment to be made EE in future. The impacts from this program activity are long term because of the complete phase out of the inefficient lighting technologies from all sectors of the country.

A.4 Sector

- [ ] Energy supply
- [X] Residential and Commercial buildings
- [ ] Agriculture
- [ ] Waste management
- [ ] Transport and its Infrastructure
- [ ] Industry
- [ ] Forestry
- [ ] Other

A.5 Technology

- [ ] Bioenergy
- [X] Energy Efficiency
- [ ] Hydropower
- [ ] Wind Energy
- [ ] Carbon Capture and Storage
- [ ] Land fill gas collection
- [ ] Cleaner fuels
- [ ] Geothermal Energy
- [ ] Solar Energy
- [ ] Ocean Energy
- [ ] Low till / No till
- [ ] Other

A.6 Type of action

- [ ] National/ Sectoral goal
- [X] Strategy
- [X] National/Sectoral policy or program
- [ ] Project: Investment in machinery
- [ ] Project: Investment in infrastructure
- [ ] Project : other
- [ ] Other

A.7 Greenhouse gases covered by the action

- [X] CO2
- [ ] N2O
- [ ] PFCs
- [ ] CH4
- [ ] HFCs
- [ ] SF6
- [ ] Other

B National Implementing Entity

B.1.0 Name	National Energy Conservation Centre (ENERCON)
B.1.1 Contact Person 1	Mr Asad Mahmood
B.1.2 Address	ENERCON building, near State Bank of Pakistan, G-5/2, Islamabad, Pakistan
B.1.3 Phone	+92 512272649
B.1.4 Email	asadm_46@yahoo.com
B.1.5 Contact Person 2	
B.1.6 Address	
B.1.7 Phone	
B.1.8 Email	
B.1.9 Contact Person 3	
B.1.10 Address	
B.1.11 Phone	
B.1.12 Email	
B.1.13 Comments	

C Expected timeframe for the preparation of the mitigation action

C.1	Number of months for completion	84

D Currency

D.1 Used Currency	AED Conversion to USD: 1

E Cost

E.1.1 Estimated full cost of preparation	7000000
E.1.2 Comments on full cost of preparation	The NAMA proposal cost could vary based upon the conditions prevailing in the lighting sector at the time of approval of NAMA. Detailed financial cost of the proposal components would be finalized during development of the detailed NAMA proposal later.

F Support required to prepare the mitigation action

F.1.1 Amount of Financial support	7000000
F.1.2 Type of required Financial support	[X] Grant [ ] Loan (sovereign) [ ] Loan (Private) [ ] Concessional loan [ ] Guarantee [ ] Equity [ ] Carbon finance [ ] Other
F.1.3 Comments on Financial support	The NAMA proposal cost could vary based upon the conditions prevailing in the lighting sector at the time of approval of NAMA. Detailed financial cost of the proposal components would be finalized during development of the detailed NAMA proposal later.
F.2.1 Amount of Technical support	
F.2.2 Comments on Technical support	
F.3.1 Amount of capacity building support	
F.3.2 Type of required capacity building support	[ ] Individual level [X] Institutional level [ ] Systemic level [ ] Other
F.3.3 Comments on Capacity Building support	
F.4 Financial support required	[ ]

F.5 Technological support required	☐
F.6 Capacity support required	☐

G Relevant National Policies strategies, plans and programmes and/or other mitigation action

G.1 Relevant National Policies	The proposed NAMA activities are in line with the National Energy Conservation Policy, 2006 and National Climate Change Policy, 2012 of Pakistan. National Climate Change Policy in its mitigation section very clearly states specific policy measures for Energy Efficiency (EE) improvement, Energy Conservation (EC) and demand reduction methods. The proposed NAMA would help conserve energy and improve energy efficiency in lighting devices and controls in all sectors of the economy. The National Energy Conservation Policy, 2006 also echoes the measures stated in the Climate Change policy by promotion of EC practices and energy savings of perceptible magnitude at national level. It encourages energy audits in commercial buildings and usage of EE appliances in the residential/ commercial buildings.
G.2 Link to other NAMAs	

H Attachments

H	Attachments	**Title Description**
H.1	Attachment description	
H.2	File	Browse...

I Support received

I.1 Outside the Registry	
I.2 Within the Registry	**Support provided Support Type Amount Comment Date**