

NS-135 - Strategizing for Grid Strengthening / Improvement for evacuation of power from Solar Power Projects

Pakistan

NAMA Seeking Support for Preparation

A Overview

A.1 Party

Pakistan

A.2 Title of Mitigation Action

Strategizing for Grid Strengthening / Improvement for evacuation of power from Solar Power Projects

A.3 Description of mitigation action

The Government of Pakistan envisages mainstreaming of alternative and renewable energy (ARE) in the development plans of the country. The RE policy of the government of Pakistan invites investment from private sector for: i) Independent Power Projects (IPPs) for sale of power to the grid only; ii) Grid Spill-over Power Projects for self-use and sale to utility; iii) Captive Power Projects for self or dedicated use; and iv) Isolated Grid Power Projects (small, stand-alone). The Government of Pakistan (GoP) has targeted to include a large share of AREs in the energy mix to meet the increasing energy demand through Renewable Energy technologies in the country. The GoP had previously planned to produce at least 5% of the total power generation of the country (i.e. 9700 MW) through renewable energy and more significantly through solar energy sources by 2030.

This NAMA Support project is designed to develop a master plan for development of solar power and prepare a strategy for developing national grid to evacuate the power. This NAMA Support project will also help in addressing the issues related to financing and capacity lackings. Exploiting solar energy is deemed to be very beneficial for Pakistan considering the facts that:

- Reducing Green House Gases (GHGs). It is estimated that the planned solar power projects will have a potential of reducing emissions of GHGs to the tune of 1.26 million tCO₂ on annual basis.
- Currently planned solar power projects are dispersedly located, however, major part of the projects are concentrated in Cholistan, Punjab. This would enable the grid operator to meet the electricity needs of the central part of the country through solar power projects. This would reduce the line losses.
- Availability of power would result in meeting electricity demand. This would add to the economic benefit of the country.
- Availability of power would also enable social uplift of the people residing in remote parts of the country
- Availability of power would also enable social uplift of the people residing in remote parts of the country
- The development of 1.5 GW through solar power can help in reducing fossil fuel import bill approximately US \$ 0.5 billion per year.
- The master planning undertaken and strategies being developed under this NAMA Support project will help in triggering more than US \$ 2.8 billion private sector investment in the country.

The project will result in establishing a financing instrument for development of solar power with the focus of addressing concerns of lenders and developers. The outcomes of this NAMA Support Project will be made part of the NAMA Implementation Program in the long run.

Project goal and scope of the NAMA Support Project

Establish master planning for development of solar power in potential areas of Pakistan, create enabling environment and develop the grid infrastructure to evacuate 1,500 MW solar power in next five years. Following related objectives would also be achieved through this proposed NAMA:

- A master plan will be developed for development of solar power in the country.
- A strategy document will be prepared that would facilitate in evacuation of power supply of 1,500 MW in the national grid could be achieved
- A financing instrument will be created to promote solar power in the country
- A solar power support fund will be established for support development of solar power in Pakistan
- Capacity of the stakeholders will be enhanced to handle solar power infrastructure.
- Pakistan supply and demand deficit in the electricity sector will be This will lead towards establishing a strong footing towards significantly reduce emission of greenhouse gases of approximately 1.26 million tCO₂ annually Contribution towards improved and sustainable economy by providing relatively cheaper electricity.

Project Outcome

The NAMA Support Project would result mitigating the risks involved in diversion from Business As Usual (BAU) growth trajectories. This will be done through removing technical, technological and financial barriers and improving the systems in vogue. This NAMA Support project is expected play an important role in overall Greening of Economy and Green Growth as is envisaged is Pakistan National Climate Change Policy of Government of Pakistan. Development of solar power as envisaged under the NAMA Support project with a vision to encourage private sector investment coming to the development. This NAMA Support project is expected to leverage the private sector investment and create an enabling environment for trigger development of solar power in the country. This NAMA Support project targets developing this entirely a new venue in Pakistan to level that 1.5 GW solar power may be installed by 2020. This NAMA would enable the country to proficiently develop solar sector in Pakistan and contribute in mitigating GHG emissions.

Project Output:

This NAMA Support project will result in developing a detailed documentation that could be used as a development framework for promotion and development of solar power in the country. The mechanism created under this NAMA will act as a catalyst for addressing the risk perceptions of customers and the public sector stakeholders. Human resource development, its capacity building and orientation towards latest models, techniques and trends is one of the components of this NAMA. The country would benefit from the experience of developed human resource in implementing similar projects in other parts of the country. The NAMA would result in improved energy mix of the country.

Financial Ambition

The estimated cost of this NAMA Support project is around €14.27 Million. The host country will not only facilitate the implementation of NAMA activities but will contribute financially by various policy and strategic initiatives in the form of duty exemptions on renewable/energy efficiency equipment. This NAMA Support project will create mechanisms for the lenders and the financiers and will enable them to lend these projects with relatively lower interest rates, accessing Clean Technologies Fund and Green Climate Fund as and when this will be established will be sougheed out at later stage. The successful

implementation of proposed actions in the NAMA would spur private sector investment.

A.4 Sector

<input checked="" type="checkbox"/> Energy supply	<input type="checkbox"/> Transport and its Infrastructure
<input type="checkbox"/> Residential and Commercial buildings	<input type="checkbox"/> Industry
<input type="checkbox"/> Agriculture	<input type="checkbox"/> Forestry
<input type="checkbox"/> Waste management	
<input type="checkbox"/> Other <input type="text"/>	

A.5 Technology

<input type="checkbox"/> Bioenergy	<input type="checkbox"/> Cleaner fuels
<input type="checkbox"/> Energy Efficiency	<input type="checkbox"/> Geothermal Energy
<input type="checkbox"/> Hydropower	<input checked="" type="checkbox"/> Solar Energy
<input type="checkbox"/> Wind Energy	<input type="checkbox"/> Ocean Energy
<input type="checkbox"/> Carbon Capture and Storage	<input type="checkbox"/> Low till / No till
<input type="checkbox"/> Land fill gas collection	
<input type="checkbox"/> Other <input type="text"/>	

A.6 Type of action

<input type="checkbox"/> National/ Sectoral goal	<input type="checkbox"/> Project: Investment in machinery
<input type="checkbox"/> Strategy	<input type="checkbox"/> Project: Investment in infrastructure
<input checked="" type="checkbox"/> National/Sectoral policy or program	<input type="checkbox"/> Project : other
<input type="checkbox"/> Other <input type="text"/>	

A.7 Greenhouse gases covered by the action

<input checked="" type="checkbox"/> CO2	<input type="checkbox"/> CH4
<input type="checkbox"/> N2O	<input type="checkbox"/> HFCs
<input type="checkbox"/> PFCs	<input type="checkbox"/> SF6
<input type="checkbox"/> Other <input type="text"/>	

B National Implementing Entity

B.1.0 Name

B.1.1 Contact Person 1

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B.1.13 Comments

C Expected timeframe for the preparation of the mitigation action

C.1 Number of months for completion

36

D Currency

D.1 Used Currency

AED

E Cost

E.1.1 Estimated full cost of preparation 14270000

E.1.2 Comments on full cost of preparation

Pakistan's performance in international financial markets, its lower credit rating and difficulty in handling financing related issues like circular debt has made it very difficult for the lenders to easily finance the power projects in Pakistan. The lenders who choose to finance the projects charge very high financing rates that make the power generated through ARE power plants expensive. If the situation is not handled adequately then materializing GoP plans for developing AREs would be difficult. Further, the GoP has included coal as one of the sources for generation of electricity in its energy generation planning. Future perspective of cheap coal power will make it difficult for ARE projects to materialize. By undertaking this NAMA, the GoP would be able to set a clear direction towards developing ARE market in Pakistan. This will enable easy financing available for the projects in the country and will smoothen the ways for setting up 3.2 GW clean solarpower into its national energy mix. This will also help in reducing GHGs to the tune of 5.2 million tCO₂ annually.

Further, the NAMA is designed to attract private sector to invest in the DG options and install such options at their premises to meet their energy needs. It is estimated that through an investment of US\$ 14.27 million, this NAMA will trigger an investment of US \$ 2.8 billion from the private sector till 2020 and quantum can increase more as the time passes and such options are being adopted by the end consumers in different sectors of economy.

Development of solar power will lead towards attaining goal of sustainable development, self-reliance and self-sufficiency in meeting energy needs of the end consumers and promoting clean sources of energy.

F Support required to prepare the mitigation action

F.1.1 Amount of Financial support 6790000

F.1.2 Type of required Financial support

<input checked="" type="checkbox"/> Grant	<input type="checkbox"/> Guarantee
<input type="checkbox"/> Loan (sovereign)	<input type="checkbox"/> Equity
<input type="checkbox"/> Loan (Private)	<input type="checkbox"/> Carbon finance
<input type="checkbox"/> Concessional loan	
<input type="checkbox"/> Other <input type="text"/>	

F.1.3 Comments on Financial support

It is noted that the sustainability, reliability and long term impacts are one of the corner stone's for successful implementation of any development project/ programme around the world. This NAMA proposal includes an important section in form of creating a financial instrument that would ensure sustainability of the whole program.

The financial support required under this NAMA Support project will enable in creating conducive environment for development of solar power. The solar power development support fund created under this NAMA Support project will enable to address barriers related to data collection, resource updation and assisting in developmental activities. The financial instruments that this NAMA Support project is targeting to develop will facilitate in attaining the objectives on the proposal.

Further, the NAMA is designed to attract private sector to invest in the DG options and install such options at their premises to meet their energy needs. It is estimated that through an investment of US\$ 14.27 million, this NAMA will trigger an investment of US \$ 2.8 billion from the private sector till 2020 and quantum can increase more as the time passes and such options are being adopted by the end consumers in different sectors of economy.

The GoP is emphasizing to encourage private sector to install solar power project at potential sites. Solar power has just taken off in the country. The government has established limited corridors for investment and yet to open up others for solar power development. Main issues that are foreseeing in development of solar power includes non-existence of a master plan for development of solar, no strategy for evacuating power from upcoming solar power projects at places where adequate grid infrastructure is not available and lack of financing instrument to ease the lending agencies. This NAMA would enable addressing these issues and helping the country to proficiently develop solar sector in Pakistan and contribute towards mitigating GHG emissions.

Development of solar power will lead towards attaining goal of sustainable development, self-reliance and self-sufficiency in meeting energy needs of the end consumers and promoting clean sources of energy.

F.2.1 Amount of Technical support

7480000

F.2.2 Comments on Technical support

The NAMA Support Project would result mitigating the risks involved in diversion from Business As Usual (BAU) growth trajectories. This will be done through removing technical, technological and financial barriers and improving the systems in vogue. This NAMA Support project is expected play an important role in overall Greening of Economy and Green Growth as is envisaged in Pakistan National Climate Change Policy of Government of Pakistan.

Development of solar power as envisaged under the NAMA Support project with a vision to encourage private sector investment coming to the development. This NAMA Support project is expected to leverage the private sector investment and create an enabling environment for trigger development of solar power in the country. This NAMA Support project targets developing this entirely a new venue in Pakistan to level that 1.5 GW solar power may be installed by 2020. This NAMA would enable the country to proficiently develop solar sector in Pakistan and contribute in mitigating GHG emissions.

Development of solar power will lead towards attaining goal of sustainable development, self-reliance and self-sufficiency in meeting energy needs of the end consumers and promoting clean sources of energy.

F.3.1 Amount of capacity building support

F.3.2 Type of required capacity building support

- Individual level
- Institutional level
- Systemic level

Other

F.3.3 Comments on Capacity Building support

Human resource development, its capacity building and orientation towards latest models, techniques and trends is one of the components of this NAMA. The country would benefit from the experience of developed human resource in implementing similar projects in other parts of the country.

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

National Climate Change Policy approved in 2012 outlines goals and strategies to achieve targets in the Adaptation and Mitigation sectors. It guides the implementing agencies to exploit clean energy sources (i.e. alternative and renewable energy resources) to generate electricity, improve efficiency of currently installed thermal power plants, improve efficiency of the national grid system and deploy AREs for domestic uses.

Moreover, Policy of Development of Renewable Energy for Power Generation, 2006 has been announced by the Government of Pakistan to attract private sector investment for developing clean ARE power projects with objectives of sustainable development, energy security, environmental protection and socio-economic uplift. The Power Policy 2013 of the Government of Pakistan (GoP) emphasises development of AREs for providing inexpensive and clean electricity to every household in Pakistan with deep interest of reducing GHG emissions. Please describe the national and international climate policy context: Describe the current framework for addressing climate change in the target country. Please include a description of the country's mitigation strategy and plans to address climate change. Specify whether/how national targets relate to international agreements, especially to emission reduction pledges.

Pakistan is currently categorized as non-Annex-I country that does not have any binding to reduce GHG emissions. However, as a commitment to play a role in the global GHG emission reduction initiatives, GoP in its plans has keen interest to set up ARE power projects. The GoP, in its long term plans i.e. upto 2030, is targeting to set up around 15 GW ARE power through different applications in different parts of the country. This will result in increasing share of AREs in the energy mix from zero to around 12%.

This NAMA is designed for supporting development of solar power projects in Pakistan. Solar energy, with its 106 MW installed capacity is currently at nascent stage in the country. GoP has ambitious plans to bring installed capacity of solar power to a level of more than 3,200 MW in next five years. GoP is seeking private sector investment to meet this target.

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

Nil

Support provided	SupportType	Amount	Comment	Date
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