

# NS-240 - National Solar Water Heating Programme

## Zimbabwe

### NAMA Seeking Support for Preparation

#### A Overview

A.1 Party

Zimbabwe

A.2 Title of Mitigation Action

National Solar Water Heating Programme

A.3 Description of mitigation action

The National Solar Water Heating Programme was launched on 30 September 2015. Currently the building related sector comprising domestic households, institutional and commercial services is the largest electricity consumer and it consumes 35% of electricity usage in Zimbabwe. Most households in Zimbabwe use electricity for water heating and this consume about 40% of electricity. Replacing electric geysers with solar geysers will reduce electricity consumption by households, institutions and commercial services sectors by up to 40% resulting in indirect reduced greenhouse gas emissions (GHGs) from coal combustion at coal power plants and direct GHS reductions from standby diesel and petrol generators which are used to provide electricity during periods of load shedding caused by electricity shortages. Some building occupants resort to use of wood, paraffin, ethanol gel and LPG for water heating during periods of load shedding. Although gel is carbon neutral, its use is negligible country wide due to its cost while use of wood may result in deforestation which destroy our carbon sinks. Use of LPG result in lower emissions compared to use of paraffin. Installation of solar water heaters will result in reduction of GHG emissions from use of paraffin and LPG.

The need to embark on the programme was necessitated by the fact that the country faces shortages of electricity and currently produces more than 50% of its electricity from coal-fired thermal power plants resulting in production of GHG emissions. In view of this the Government of Zimbabwe has decided to implement a domestic solar water heating programme to boost energy supply as well as to reduce carbon emissions.

The programme consists of a pilot and full implementation phases. The pilot phase seeks to retrofit 1000 domestic electric geysers with solar water heaters in 1,000 households. About 3.4GWh of electricity and 3,509 tCO<sub>2</sub>eq of carbon emissions will be reduced below business as usual after replacing 1,000 electric geysers with solar water heating systems. Successful implementation of the pilot phase will be followed by a country wide rollout of solar water heating programme in which about 823,000 solar water heaters for the following ten years. The lessons learnt from the pilot phase will be applied to ensure effective and efficient full implementation of the solar water

heating rollout project. The success factors will be applied as they are while measures will be taken to avoid the challenges encountered in the pilot project. The full rollout of the solar water heating programme will mitigate about 2,888,080 tCO<sub>2</sub>eq annually below the business as usual scenario.

A.4 Sector

<input checked="" type="checkbox"/> Energy supply	<input type="checkbox"/> Transport and its Infrastructure
<input checked="" 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 checked="" type="checkbox"/> National/ Sectoral goal	<input type="checkbox"/> Project: Investment in machinery
<input checked="" type="checkbox"/> Strategy	<input checked="" 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"/> CO <sub>2</sub>	<input checked="" type="checkbox"/> CH <sub>4</sub>
<input checked="" type="checkbox"/> N <sub>2</sub> O	<input type="checkbox"/> HFCs
<input type="checkbox"/> PFCs	<input type="checkbox"/> SF <sub>6</sub>
<input type="checkbox"/> Other <input type="text"/>	

### B National Implementing Entity

B.1.0 Name	Ministry of Energy and Power Development
B.1.1 Contact Person 1	Mr. Malan Manyundo
B.1.2 Address	2nd Floor John Boyne Building Corner Innez Terrace Street/ Speke Avenue Private Bag 7758, Causeway Harare, Zimbabwe
B.1.3 Phone	+2634703320, +263 733 287 661 , +263 777 659 560
B.1.4 Email	mmanyundo@gmail.com
B.1.5 Contact Person 2	Ms Shorai Kavu
B.1.6 Address	2nd Floor John Boyne Building Corner Innez Terrace Street/ Speke Avenue Private Bag 7758, Causeway Harare, Zimbabwe
B.1.7 Phone	+2634703320, +263 733 361 402
B.1.8 Email	kavkajongwe@gmail.com
B.1.9 Contact Person 3	
B.1.10 Address	
B.1.11 Phone	
B.1.12 Email	

B.1.13 Comments The cost of preparation stated above is justified by the fact that there is need to hire an international consultant to prepare a full NAMA proposal. The amount will be split between paying for consultant services and costs of consultative meetings

C Expected timeframe for the preparation of the mitigation action

C.1 Number of months for completion 6

D Currency

D.1 Used Currency AED Conversion to USD: 1

E Cost

E.1.1 Estimated full cost of preparation 500000

E.1.2 Comments on full cost of preparation The cost of preparation stated above is justified by the fact that there is need to hire an international consultant to prepare a full NAMA proposal. The amount will be split between paying for consultant services and costs of consultative meetings

F Support required to prepare the mitigation action

F.1.1 Amount of Financial support 500000

F.1.2 Type of required Financial support [X] Grant [ ] Loan (sovereign) [ ] Loan (Private) [ ] Concessional loan [ ] Other [ ] Guarantee [ ] Equity [ ] Carbon finance

F.1.3 Comments on Financial support The cost of preparation stated above is justified by the fact that there is need to hire an international consultant to prepare a full NAMA proposal. The amount will be split between paying for consultant services and costs of consultative meetings

F.2.1 Amount of Technical support 350000

F.2.2 Comments on Technical support The government requires funding consultancy fees and development of MRV

F.3.1 Amount of capacity building support 150000

F.3.2 Type of required capacity building support [X] Individual level [X] Institutional level [X] Systemic level [ ] Other

F.3.3 Comments on Capacity Building support Need for capacity building on institutional arrangements for NAMA implementation and MRV.

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 project will be implemented as part of the Zimbabwe Agenda for Sustainable Socio-Economic Transformation's (ZimASSET)

300MW electricity saving options by 2018 and as one of Zimbabwe's INDCs and Third National Communication to UNFCCC climate change mitigation options. ZimASSET is Zimbabwe's economic blue print. A national energy efficiency study funded by the Zimbabwe Energy Regulatory Authority(ZERA) and completed in July 2015 found that the country has a potential to save 2,130GWh of electricity and a total of 13,959GWh energy (electricity, coal, diesel, petrol, wood, LPG and paraffin) annually. A number of energy conservation activities and fuel switching projects were identified. These will reduce energy consumption resulting in reduced GHG emissions.

Besides solar water heating the other mitigation projects which Zimbabwe is implementing or planned to implement are:

1. Fixture relamping of 250W mercury vapour street lights with 90W LED flood lights in the City of Harare. All of the installed LED lamps are being powered by solar modules. This reduces GHG emission and also contributes to improved energy security.

2. Voluntary energy audits and implementation of energy management opportunities by companies affiliated to Confederation of Zimbabwe Industries in collaboration with the Swedish Government.

3. Installation of prepaid meters has resulted in significant reduction in household electricity usage as households are able to manage electricity on their own. The government plan to have 800,000 prepaid meters in households and commercial by 2018.

4. Increased usage of alternative forms of energy such as solar PV, hydro and biogas digesters. The national biogas project which is being implemented for institutions, household and farms has a target of 1,250 new biogas plants to be installed by 2018. The nation has plans to have 100MW total capacity for solar PV being initiated and installed by 2018. Currently solar mini-grids are being installed by a number of Non-Governmental Organizations and the Rural Electrification Fund. A number of mini and micro hydro schemes have been constructed and more have been planned for construction. There are also plans to incorporate generation of electricity on all irrigation dams. A cost of supply study was conducted by ZERA in 2013 to enable ZERA to come up with renewable energy feed-in tariffs. The nation has witnessed a number of private players registering to set up renewable energy power plants to feed electricity into the grid due to attractive feed-in tariffs.

5. Blending petrol with ethanol. Currently the country is using E10 and E15 but plans are there to reach E20 by 2018.

G.2 Link to other NAMAs

H Attachments

H Attachments

Title	Description
Climate Change Response Strategy.pdf energy_policy.pdf	

H.1 Attachment description

Zim-Asset.pdf  
Zimbabwe Intended Nationally Determined  
Contribution 2015.pdf

H.2 File

1. The National Climate Change Response Strategy 2. The National Energy Policy 3. The National Economic Blueprint for Zimbabwe 4. Zimbabwe INDC submitted to UNFCCC

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I Support received

I.1 Outside the Registry

No support has been received. This is the first time the country seeks to get financial support from UNFCCC programmes of this nature.

I.2 Within the Registry

Support provided	SupportType	Amount	Comment	Date
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