Requesting country or countries:	Zimbabwe
Request title:	Development of Renewable Energy Solutions for Sustainable Forestry Conservation
NDE	Climate Change Management Department, Ministry of Environment, Climate, Tourism and Hospitality Industry Ms Munashe Mukonoweshuro NDE Focal Point munamuko@gmail.com 11th Floor, Kaguvi Building Cnr S.V Muzenda, Harare
Request Applicant:	Off and Tie Grid Solar Company Kudakwashe Pedzisai Director Research and Development kydpedzie@otgsolars.com kydpedzie@gmail.com Ministry of Energy and Power Development Department of Energy Conservation and Renewable Energy 5th Floor, John Boyne Building Corner Speke and Innez Terrace St Harare Dr Sosten Ziuku: Director - Conservation and Renewable Energy sostenziuku@gmail.com Rural Electrification Fund 6th Floor, Megawatt House 44 Samora Machel Avenue Harare Eng Cliff Nhandara-Planning and Technology Director cnhandara@rea.co.zw; +273777664033

Climate objective:

☐ Adaptation to climate change

☐ Mitigation of climate change

×Combination of adaptation and mitigation of climate change

Geographical scope:

☐ Community level

☐ Sub-national

× National

☐ Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change (up to one page):

This section should answer the question "what is the problem?" Please summarise the problem related to climate change and/or the negative impacts of climate change in the country that the request aims to address.

Climate Change in Zimbabwe Overview:

Zimbabwe is experiencing rising temperatures and rainfall patterns changing annual projected to continue declining, with greater variability expected. Intense droughts will likely become more frequent, interspersed with periods of heavy rainfall and flooding.

These climate change patterns have led to several environmental problems directly harming rural communities:
Drought and Water Scarcity: Longer droughts and unpredictable rainfall make consistent water access extraordinarily difficult. This disrupts crop growth, leads to livestock deaths, and reduces the availability of clean drinking water. Communities often see increased conflict over water resources within communities and with wildlife.
Food Insecurity: Farming, the main livelihood for most Zimbabwean rural communities, becomes significantly more challenging due to drought and changing rainfall patterns. Crop yield failures, lack of forage for natural resource species most people survive on, lead to food insecurity, malnutrition, and sometimes famine.
Soil Degradation and Erosion: Prolonged droughts and sporadic heavy rains accelerate soil erosion and degradation. This reduces soil fertility, further damaging the potential for food production and making communities more vulnerable.
Increased Frequency of Extreme Weather Events: Cyclones, floods, and heat waves are becoming more common, destroying homes, crops, and critical infrastructure. Rural areas often lack sufficient infrastructure for protection or for rapid rebuilding efforts.
Loss of Livelihoods: The combined effects of drought, poor crop yields, and livestock deaths destroy livelihoods that are almost entirely dependent on agriculture. This causes economic hardship, forcing migration and adding stress to other communities.
Health Concerns: Water scarcity increases water-borne diseases, while food insecurity exacerbates malnutrition. More extreme temperatures can lead to health issues like heat stroke.

The **Renewable Energy Solutions for Sustainable Forestry Conservation** can be a powerful tool within the national climate priorities which can help to reduce climate sensitivity, improve mitigation and adaptive capacities for communities against several environmental challenges. Lack of readily available clean energy options can contribute to deforestation in rural communities, especially where firewood is used for drying and processing, leaving thousands of acres deforested. Analysis shows that in 2017, Zimbabwe's net GHG emissions were 35.84 MtCO2eq, with the Forestry and Other Land Use (AFOLU) sector contributing 54%. This number is expected to rise without effective mitigation and adaptation strategies.

Zimbabwe's journey towards adopting renewable energy solutions for sustainable forestry conservation faces two key challenges: limited financial resources and the need to establish robust mitigation and adaptation measures to tackle climate change effectively.

The country therefore needs to develop impactful mitigation strategies which includes 1) Integrate renewable energy solutions into sustainable forestry practices and conservation efforts, 2) reduce deforestation by providing communities with clean energy alternatives. 3) Promote forestry regeneration by creating enabling conditions for forest growth, 5) Enhance the country's carbon sink capacity through effective forest management and renewable energy use. In order to make the renewable energy solution for sustainable forestry conservation easier to implement, the ultimate goal is to develop technical services providing communities with the necessary know-how and expertise to implement appropriate renewable energy solutions and dedicated resources ensuring communities have access to the resources required to embrace renewable energy and bolster their mitigation capacities.

Past and on-going efforts to address the problem (up to half a page):

This section should answer the question "what has been done or is currently being done to address the problem?" Please describe past and on-going processes, projects or initiatives implemented in the country or region to tackle the climate problem as described above.

The Government of Zimbabwe through the Ministry of Environment, Climate and Wildlife and the Ministry of Energy and Power Development have made efforts to develop policy instruments, strategies and regulations as an approach to climate change mitigation and adaptation. These include Zimbabwe's Long-term Low Greenhouse Gas Emission Development Strategy (2020-2050) aims to reduce net deforestation to 0.5% by 2035 under Forestry and Other Land Use (AFOLU) sector with mitigation measures that include: the use of dedicated clean energy plantations for drying of agricultural products in particular tobacco, Improved enforcement of national forest legislation and sustainable conservation practices among others.

The National Climate Policy provides a framework for addressing climate-related challenges that Zimbabwe faces now and in the future. The Policy forms the basis of developing Action Plans for national efforts on adaptation and mitigation, providing a platform to unpack and implement Zimbabwe's Revised Nationally Determined Contribution (NDC) under AFOLU to reduce area burned by 500,000 hectares between 2020 and 2025 inclusive of agricultural production landscapes, with % GHG reduction baseline projected at 27.75% by 2030.

In 2017, a revised National Gender Policy was adopted that includes a specific thematic area on gender and climate change and promotes the mainstreaming of gender in environmental and climate change policies and strategies. This was followed by the National Adaptation Plan (NAP) that seek to mainstream climate change into national and sub-national planning processes in relevant economic and social development sectors.

In order to complement the government efforts, Off and Tie Grid Solar Company launched solar-powered forestry and natural resource conservation initiative in Garanyemba Gwanda, partnering with the Ministry of Energy and Power Development, Rural Electrification Fund, Forestry Commission, Gwanda Rural District Council and the Gwanda Women association. The project when implemented at national level can unlock the full potential of renewable energy for sustainable forestry conservation. This will not only reduce deforestation and foster forest regeneration but also empower communities to become more resilient in the face of climate change.

Specific technology[1] barriers (up to one page):

This section should answer the questions "what are the technology barriers that hinder national efforts described above" and "how will the CTCN technical assistance complement these efforts?" Building upon the problem statement and taking into consideration the existing efforts described above, please describe the specific technology barriers encountered by the requesting applicant to identify, assess or deploy climate technology(ies) in an effort to address the problem statement. The described barriers should be within the scope of the requested CTCN technical assistance (described in the section below).

Earth Observation and Remote Sensing limitations:
Lack of High-Resolution Satellite Imagery: Detailed and up-to-date satellite data is crucial for monitoring deforestation, tracking illegal logging, and identifying degraded areas. Zimbabwe may struggle to access affordable high-resolution imagery.

Inadequate Ground-Based Monitoring:
Limited networks of sensors and field monitoring stations hinder the collection of real-time data on forest health, biodiversity, and pollution levels.

Data Processing and Analysis Gaps:
Even when data is available, Zimbabwe has limited computational resources and analytical tools to effectively process large datasets. It's essential to translate data into actionable insights for conservation planning and decision-making.

Limited Early Warning Systems:
Inadequate technology makes it difficult to establish reliable early warning systems for forest fires, extreme weather events, and disease outbreaks, which can have severe environmental consequences.

Communication Infrastructure in Remote Areas:
Poor connectivity in remote forest areas limits the transmission of data between field sensors and analysis centers and impedes the ability to communicate with local forest rangers and communities in case of emergencies.

Inadequate Technologies for Restoration and Rehabilitation:
Lack of advanced technologies and tools to support large-scale reforestation efforts, efficient biodiversity restoration, and the remediation of polluted and degraded ecosystems.

Poor technology transfer mechanisms between renewable energy players and the government, can significantly hinder adoption of effective sustainable forestry conservation practices and climate change responses, especially in rural communities in a number of ways:

1. Limited Access to Knowledge: Without efficient technology transfer, rural communities may not know about sustainable forestry practices, agroforestry, or alternative energy sources that could reduce pressure on forests.
2. Lack of Infrastructure: Even when communities are aware of sustainable practices, they might lack the necessary technology and infrastructure to adopt them. For example, solar power or biogas systems may not be available or affordable.

[1] *"**any equipment, techniques, practical knowledge and skills** needed for reducing greenhouse gas emissions and adapting to climate change" (Special Report on Technology Transfer, IPCC, 2000)*

3. Deforestation: When rural communities lack access to modern renewable energy technologies, they often continue rely on woodfuel for cooking and heating accelerating deforestation, reducing forests' ability to act as carbon sinks and contributing to climate change.

Sectors:

Please indicate the main sectors related to the request:

☐ Coastal zones	× Early Warning and Environmental Assessment	☐ Human Health	☐ Infrastructure and Urban planning
☐ Marine and Fisheries	☐ Water	☐ Agriculture	☐ Carbon fixation
☐ Energy Efficiency	× Forestry	☐ Industry	× Renewable energy
☐ Transport	☐ Waste management		

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

☐ Communication and awareness	☐ Economics and financial decision-making	☐ Governance and planning	× Community based
☐ Disaster risk reduction	× Ecosystems and biodiversity	× Gender	

Technical assistance requested (up to one page):

Founded on the problem statement, past/on-going efforts and technology barriers, please describe the requested technical assistance. The technical assistance should clearly contribute to mitigation or adaptation to climate change as described in the problem statement and contribute to overcome the specific technology barriers.

Within a clearly defined scope, the description of technical assistance should be structured into the following:

- Overall objective
- Anticipated groups of activities to be performed by the technical assistance
- Anticipated products to be delivered by the technical assistance.

Please note that the CTCN facilitates technical assistance and is not a project financing mechanism.

Overall Objective
Compliment government interventions by integrating renewable energy solutions into sustainable forestry conservation practices to reduce deforestation, promote forestry regeneration, Enhance the country's carbon sink capacities. The **Renewable Energy Solutions for Sustainable Forestry Conservation** will not only reduce deforestation and foster forest regeneration but also empower communities and bolster their mitigation capacities to become more resilient in the face of climate change.

Anticipated groups of activities to be performed by the technical assistance:
1. Organise and conduct an inception and engagement meeting with stakeholders to present the goals, milestones, anticipated deliverables, and the role of the stakeholder working group. The inception and engagement meeting will be held in person.
2. Development and adaptation of technological framework tailored to Zimbabwe's specific environmental challenges.
3. Develop a comprehensive need assessment to enable the development of a renewable energy solution for sustainable forestry conservative practice standards such as biogas, solar drying.
4. Develop a detailed work plan and a budget of all initial activities which include site visits, scoping to achieve the overall objection.
5. Develop a renewable energy monitoring system technology and analytical tools to translate data into actionable insights for conservation planning and decision-making.
6. Develop a capacity building framework reducing reliance on outside technical support and fostering long-term sustainability.
7. Implement an awareness and mitigation campaigns of the renewable energy solution for sustainable forestry conservation in rural communities.

Anticipated products to be delivered by the technical assistance.
1. Stakeholder meeting working group, engagement meetings, reports including agenda and (gender disaggregated) list of participants.
2. Adoption of a renewable energy technological solution framework that meet international standards of practice with passive design tools, guidelines, checklist, decision making support, documentation process and the establishment of the concepts.
4. Acquiring of any equipment, techniques, practical knowledge and skills needed.
3. Technology need assessment report.
5. Adoption of sensors and remote high-resolution imagery monitoring system, paired with satellite or cellular data transmission, to gather forest health and energy usage and remotely monitor deforestation, tracking illegal logging, and identifying degraded areas.
6. Train locals in basic installation and maintenance of renewable energy monitoring systems
7. Reforestation efforts, efficient biodiversity restoration, and the remediation of polluted and degraded ecosystems.

Expected timeframe:

12 months.

Anticipated gender and other co-benefits from the technical assistance:

Please describe the activities with gender linkages as well as the anticipated gender and other co-benefits (e.g. biodiversity, economic, social, cultural, etc.) that are likely to be generated as a result of the technical assistance.

1. Capacity Building: Technical assistance and project-related training will be accessible to women and men on an equal basis, ensuring equitable benefits.
2. Both women and men will have equal voices and influence in shaping decisions.
3. Equal opportunities will be provided for women and men to utilize resources related to implementing and adopting of Renewable Energy Solutions for Sustainable Forestry Conservation.
4. The project is anticipated to bring additional benefits including enhanced capacities and skills, promotion of sustainable energy resource management, creation of new business opportunities and employment, and an increase in community resilience and reduction in vulnerability, all contributing to a better overall quality of life.
5. Increased community engagement and advocacy in sustainable energy solutions and forestry conservation, fostering a sense of ownership and responsibility for the environment.
6. Climate change mitigation: Forestry conservation will enable forests absorb and store carbon dioxide, a major greenhouse gas responsible for climate change as well renewable energy sources like solar and wind power do not emit greenhouse gases during operation, contributing to a cleaner, more sustainable future.

For more information you can find guidelines on the CTCN's website here:
https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development

Further reading on gender can be found on the CTCN website here:
https://www.ctc-n.org/technology-sectors/gender

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity (Ministry of Environment, Climate and Wildlife)	Technical assistance coordination, stakeholder engagement, data provision
Request Applicant (Off & Tie Grid Solar Company (Pvt) LTD)	Technical assistance coordination, stakeholder engagement, Research and Development, Technical Performance Measures development
Ministry of Energy and Power Development	Technical assistance coordination, formulating and implementing effective Policies and Regulatory Frameworks, Data and research input
Rural Electrification Fund	Rural Electrification Master Plan implementation, data and research input, training of stakeholders
Zimbabwe Energy Regulation Authority	Regulatory compliance, data and research input
Environmental Management Agency	Training of stakeholders, data and research input
Engineering Consultancy firms	Research and development, technical assistance, action planning and operationalization of standards, implementation

Rural District Councils	Project enablers, bylaws regulators, action planning and operationalization
NGOs and Development Partners	Stakeholder engagement, potential follow-up for scale up funding
Commercial, Development and International Banks	Private sector mobilization and stakeholder input, input into financial measures and instruments to stimulate development of carbon credits, markets for carbon offsets Kyoto protocol CDM and European Union Emission Trading Scheme.
Media	Informative, educational, persuasive policy articles and newsletters

Alignment with national priorities (up to 2000 characters including spaces):

Please describe how the technical assistance is consistent with national climate priorities such as: Nationally Determined Contribution, national development plans, poverty reduction plans, technology needs assessments, Low Emission Development Strategies, Nationally Appropriate Mitigation Actions, Technology Action Plans, National Adaptation Plans, sectorial strategies and plans, etc.

Reference document (please include date of document)	**Extract** (please include chapter, page number, etc.).
Nationally Determined Contribution (NDC)	Direct alignment and contribution to NDC implementation is required for all CTCN technical assistances. Please include a direct reference to the INDC/NDC document (chapter, page number, etc.). **Zimbabwe's Nationally Determined Contribution Under Adaptation measure 1 chapter 3.4 of page 15 section 4** aims to promote the use and roll-out of gender-sensitive climate-smart agriculture technologies and practices such as sustainable mechanization, agro-ecology, renewable energy, agro-forestry. **Zimbabwe's Nationally Determined Contribution Under Adaptation measure 3 chapter 3.4 of page 20 section 4**, aims to implement **Priority Adaptation measure 3** which is to **"Ensure climate-resilient infrastructure and design**".
Gender and Climate Change Action Plan	The gender and climate change action plan seeks to support the country' 2030 vision towards a transformed; more effective; inclusive; resilient and sustainable economy that does not leave anyone behind. It will provide a conducive environment to increase gender responsive strategies and programs in climate change response. Page 2 paragraph 3.
Zimbabwe Forestry Policy	Reverse the loss of the forest cover through sustainable forestry management, including protection, restoration, afforestation, and increase efforts to prevent forest degradation and contribute to the global effort of addressing climate change, to enhance forest-based economic, social and environment benefits, including by improving the livelihoods of the forest-dependent people. Goal 1 and 2 page 3 and 6 respectively.
Zimbabwe Renewable Energy Policy	The Renewable Energy Policy aims to improve the share of RE in the overall energy mix and addressing issues of climate change, focusing on obtaining cost-effective implementation of productive energy sources,

	social upliftment through community involvement, gender equality and employment
National Adaptation Plans	The National Adaptation Plan (NAP) seeks to enhance Zimbabwe's resilience to the impacts of climate change, recognizing the vulnerability of the country while mainstreaming climate change in all socioeconomic sectors underpinning the economy page 5. **4.6.3 Agriculture, Forestry and Other Land Use (AFOLU)** mitigation measure number 15 Table 7 aims to reduce area burned by 500,000 hectares between 2020 and 2025 inclusive of agricultural production landscapes, with % GHG reduction baseline projected at 27.75% by 2030.
Zimbabwe Long-term Low Greenhouse Gas Emission Development Strategy (2020-2050)	Zimbabwe has set mitigation measures for reduction of deforestation under AFOLU sector by setting up policies and initiatives to reduce net deforestation to 0.5% by 2035 which included: Use of dedicated energy plantations for tobacco drying and other agro processing products page 25.
National Climate Change and Mitigation Response Strategy	Zimbabwe's mitigation plan on energy is to strengthen energy planning, research, and Development as well as Promote low-carbon energy provision and use page 46.
Zimbabwe Vision 2030	The Zimbabwe Vision 2030 aims to foster inclusive economic growth and address poverty resolutely, thereby transforming Zimbabwe into an industrializing, knowledge-based upper middle-income country that provides a high quality of life to all its citizens by 2030. Part of it is to prioritize the attainment of optional generation of power through renewable energy 33.
Zimbabwe' National Development Strategy 1	The objective under the NDS1 is to improve access to modern energy by expanding and reinforcing the transmission grid to ensure system stability and security of supplies. Some of the strategies to achieve this would be to build capacity for local manufacture of Renewable Energy Products Creation of an Independent System and Market Operator (ISMO) to assist in Generation Resource Planning and buying of power from generators.

Development of the request (up to 2000 characters including spaces):

Please describe how the request was developed at the national level and the process used by the NDE to approve the request before submitting it (who initiated the process, who were the stakeholders involved and what were their roles?) and describe any consultations or other meetings that took place to develop and select this request, etc.

Off & Tie Grid (OTG) Solar company collaboration with the Ministry of Environment, Climate and Wildlife in its capacity as the CTCN NDE, have developed the following Technical Assistance Request. Prior to this development of this technical assistance request, OTG had previously engaged the Ministry of Energy and Power Development and the Rural Electrification Fund for technical brainstorming. This lead to the organization of a meeting to launch the **Renewable Energy Solutions for Sustainable Forestry Conservation** project in Garanyemba Gwanda, Matabeleland Province.
The meeting sought to sensitize stakeholders to receive input from various stakeholders on the components to be included in the TA request, share the vision, mission and the activities of the

Renewable Energy Solutions for Sustainable Forestry Conservation, and why it is an ideal vehicle to spearhead transformation of the national climate priorities.

Background documents and other information relevant for the request:

- Please list all relevant documents that will help the CTCN analyse the context of the request and national priorities. Please note that all documents listed/provided should be mentioned in this request in the relevant section(s), and that their linkages with the request should be clearly indicated. For each document, please provide web-links (if available) or attach to the submission form. Please add any other relevant information as required.
- Please indicate if this request has been developed with the support of the CTCN Request Incubator.

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms[2].

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

☐ Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

☐ Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name:

Date:

Signature:

[2] Please see: https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

Monitoring and impact of the assistance:

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures.
I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

Signature:

NDE name:	Munashe Mukonoweshuro
Date:	3 March 2024
Signature:	

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.