

Guidelines:

- This Request Submission Form should be completed by the organisation requesting technical assistance from the Climate Technology Centre & Network (CTCN) in collaboration with the National Designated Entity (NDE) of the country in question
- The Form must be signed by the NDE. Please see updated contact list of NDEs here: <http://unfccc.int/ttclear/support/national-designated-entity.html>
- The Form can be submitted as a Word file containing a digital signature or as a signed and scanned PDF file in combination with an un-signed Word file
- For requests submitted by multiple countries, all the NDEs of the respective countries shall sign identical Forms before official submission to the CTCN
- NDEs have the opportunity to submit CTCN requests in collaboration with National Designated Authorities (NDAs) for the Green Climate Fund (GCF) if targeting the GCF Readiness Programme.

Requesting country or countries:	Zimbabwe
Request title:	Harnessing Green Hydrogen Potential in Zimbabwe: A Pathway to Sustainable Energy Transition.
NDE	Name of NDE: Ms Munashe Mukonoweshuro Title: Acting Deputy Director Climate Finance and Resource Mobilization Ministry/Department: Ministry Of Environment, Climate and Wildlife Email: munamuko@gmail.com Address: 11th Floor, Kaguvi Building, Cnr SV Muzenda and Central Ave, Harare.
Request Applicant:	Name of Applicant: Mr Humphrey Munzvengwa Title: MD- Mobility Africa Energy Founder and Chairman – Zimbabwe Hydrogen Association Email: humphrey@mobilityholdings.co.za Address: 4th Floor, Fidelity Life Towers 5 Raleigh Street Causeway Harare Dr S. Ziuku Director - Conservation and Renewable Energy sostenziuku@gmail.com Rural Electrification Fund 6 th Floor, Megawatt House 44 Samora Machel Avenue Harare

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:

Zimbabwe, a landlocked country in Southern Africa, grapples with significant energy challenges that threaten its economic stability and environmental sustainability. The reliance on non-renewable energy sources, particularly coal and imported fossil fuels, has resulted in a precarious energy situation marked by frequent supply disruptions and escalating costs. Approximately 60% of Zimbabwe's electricity generation comes from coal, which contributes to high greenhouse gas emissions and exacerbates the effects of climate change.

Currently, energy use is the country's 2nd largest source of GHG emissions; the sector's emissions are expected to increase to 26.5 MtCO₂e in 2030 and 37.5 MtCO₂e in 2050 with increasing demand for power generation, transport, and other uses of fossil fuels (LT-LEDS, 2020). Electricity generation accounts for the largest share of total GHG emissions, mainly associated with thermal power generation and oil combustion, followed by transport and residential sector emissions, mainly from gasoline and diesel use in road vehicles.

Vulnerability to Climate Change: The country is particularly susceptible to climate change impacts, such as prolonged droughts, erratic rainfall patterns, and extreme weather events. These phenomena have severe implications for the agricultural sector, which employs a large percentage of the population and is a key driver of the economy. Reduced water availability and changing climatic conditions have led to decreased crop yields and food insecurity, further straining the livelihoods of rural communities.

Energy Insecurity: Zimbabwe's energy crisis is compounded by its dependence on hydroelectric power, which is vulnerable to fluctuations in water levels due to climate variability. The decreasing reliability of hydroelectric power generation during drought periods exacerbates energy shortages, leading to prolonged blackouts and disruptions in various sectors, including healthcare, education, and industry. This energy insecurity not only hampers economic growth but also impacts the overall quality of life for citizens.

Need for Diversification: To address these pressing challenges, Zimbabwe must diversify its energy mix by embracing renewable sources. The country is endowed with abundant solar resources, receiving an average of 2,500 hours of sunshine per year, making it one of the most favorable regions for solar energy generation in the world. Harnessing this potential through solar-driven green hydrogen production offers a pathway to sustainable energy solutions.

Green Hydrogen as a Solution: Green hydrogen, produced using renewable energy sources like solar power, presents a viable alternative to traditional fossil fuels. It can be stored and transported efficiently, providing a flexible energy resource that can meet the demands of various sectors, including transportation, agriculture, and heavy industry. By investing in green hydrogen production, Zimbabwe can reduce its reliance on imported fuels, enhance energy security, and contribute to global efforts to mitigate climate change.

Barriers to Implementation: Despite the promising potential of renewable energy and green hydrogen, several barriers hinder progress. These include inadequate infrastructure, limited financial resources, low uptake of new technologies, inadequate skilled personnel and a lack of technical expertise in emerging renewable technologies. Additionally, regulatory frameworks need to be strengthened to facilitate investment and support the development of a green hydrogen market.

Past and on-going efforts to address the problem:

Zimbabwe has made significant strides in advancing renewable energy initiatives to address its energy challenges and reduce dependence on fossil fuels. Notable efforts include:

1. Renewable Energy Projects:

- The government has launched various solar and wind projects aimed at diversifying the energy mix. For instance, the implementation of solar photovoltaic (PV) systems has been prioritized to harness the country's abundant sunlight, with several large-scale solar farms already in operation and more in the planning stages.
- Wind energy projects are also being explored, particularly in regions with high wind potential, to complement solar energy and provide a more stable energy supply.

2. Policy Frameworks and Regulations:

- The Zimbabwean government has established policies and regulatory frameworks to encourage renewable energy investments. The Renewable Energy Policy outlines the government's commitment to increasing the share of renewables in the national energy grid, aiming for at least 16% of total electricity generation from renewable sources by 2025.
- In addition, the Zimbabwe Energy Regulatory Authority (ZERA) has been proactive in streamlining licensing processes for renewable energy projects, making it easier for private investors to participate in the energy sector.
- Zimbabwe's Industrial Development Policy (2019-2023) supports research in green hydrogen for fertiliser production through promoting the utilization of locally produced inputs such as seed, fertilizer and agro-chemicals in agriculture. Encouraging Research and Development targeted at the Agro-processing industry
- National Development Strategy (NDS) 2, highlights that priority will be placed on achieving universal access to reliable, affordable, sustainable and clean energy for all Zimbabweans by 2030 to ensure the country transitions towards a resilient, inclusive and low-carbon energy future

3. Partnerships and Collaborations:

- The government is actively seeking partnerships with international organizations, NGOs, and private sector actors to pilot green hydrogen projects. These collaborations aim to leverage external expertise and funding to explore the feasibility of hydrogen production and to build local capacity.
- Initiatives such as regional dialogues and workshops have been organized to share knowledge and best practices related to renewable energy and hydrogen technologies among stakeholders.

4. Capacity Building:

- Various training programs have been initiated to educate local technicians, engineers, and policymakers about renewable energy technologies and project implementation. These efforts are essential for building a skilled workforce

capable of supporting the transition to a green economy.

5. Challenges and Limitations:

- Despite these efforts, Zimbabwe faces significant challenges, including inadequate infrastructure for energy transmission and distribution, limited financial resources for large-scale projects, and Limited research and lack of technological expertise in emerging sectors like green hydrogen.
- The country's economic constraints and fluctuations in investment have hindered the scale-up of renewable energy initiatives, making external support and a comprehensive feasibility study for green hydrogen production critical for future success

Specific technology¹ barriers:

Despite its potential, Zimbabwe faces barriers such as limited technical knowledge, high initial investment costs, and inadequate infrastructure for hydrogen production and storage. There is also a need for capacity building and technology transfer to explore the viability of green hydrogen as a decarbonization pathway.

Contribution to Programme of Work 2023-2027:

As per 3rd Programme of Work of the CTCN², please indicate the system transformation area, key enablers and cross-sectoral themes related to the request:

System transformation areas (mandatory)

- | | | | |
|--|--|--|---|
| ☐ Water-Energy-Food Nexus | ☒ Sustainable Mobility | ☒ Energy Systems | ☐ Buildings and Infrastructure |
| ☐ Business and Industry | | | |

Key enablers (optional)

- | | |
|--|---|
| ☒ National Systems of Innovation | ☐ Digitalization |
|--|---|

Cross-sectoral themes (optional)

- | | | |
|---------------------------------|--------------------------------|---|
| ☐ Gender | ☐ Youth | ☐ Indigenous Peoples |
|---------------------------------|--------------------------------|---|

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 | ☐ Water | ☐ Agriculture | ☐ Carbon fixation |

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)

² <https://www.ctc-n.org/resources/ctcn-third-programme-work-2023-2027>

Fisheries

☐ Energy
Efficiency

☒ Transport

☐ Forestry

☐ Waste
management

☒ Industry

☒ Renewable
energy

Please add other relevant sectors:

Technical assistance requested:

Technical Assistance Requested

We are seeking support from the Climate Technology Centre and Network (CTCN) to conduct a comprehensive feasibility study aimed at exploring the potential for Green Hydrogen production in Zimbabwe. This study will encompass several critical components:

1. Assessment of Solar Resources:

- **Solar Energy Potential Evaluation:** The study will include detailed assessments of solar irradiance and resource mapping across various regions in Zimbabwe to identify the most suitable locations for solar-driven hydrogen production.
- **Optimization of Solar Technologies:** Evaluating different solar technologies (e.g., photovoltaic, concentrating solar power) to determine the most efficient and cost-effective solutions for hydrogen production.

2. Hydrogen Production Viability:

- **Technological Analysis:** Analysis of existing hydrogen production technologies, including electrolysis and biomass gasification, to determine their applicability and efficiency in the Zimbabwean context.
- **Production Scaling:** Exploration of small-scale vs. large-scale production models to identify the optimal approach based on local resources, market demand, and infrastructure capabilities.

3. Infrastructure Requirements:

- **Infrastructure Assessment:** Identification and prioritization of the infrastructure needed for hydrogen production, storage, transportation, and distribution, including pipelines, refueling stations, and storage facilities.
- **Integration with Existing Systems:** Evaluating how green hydrogen can be integrated with current energy systems and infrastructure, including power grids and transportation networks.

4. Investment and Economic Feasibility:

- **Cost-Benefit Analysis:** Conducting a thorough economic assessment to determine the capital and operational costs associated with green hydrogen production, including potential revenue streams from hydrogen sales and export opportunities.
- **Funding Opportunities:** Identifying potential funding sources, including government grants, international climate finance mechanisms, and private sector investments, to support the development of green hydrogen projects.

5. Regulatory and Policy Framework:

- **Policy Recommendations:** Developing a set of recommendations for policy and regulatory frameworks that would facilitate the growth of the green hydrogen sector in Zimbabwe, including incentives for renewable energy investments and hydrogen production.
- **Stakeholder Engagement:** Engaging with key stakeholders, including

government agencies, private sector actors, and local communities, to ensure that the study reflects diverse perspectives and needs.

6. **Capacity Building and Knowledge Transfer:**

- **Training and Workshops:** Incorporating capacity-building components into the study to train local professionals and stakeholders in green hydrogen production technologies and project management.
- **Knowledge Dissemination:** Developing educational materials and resources that can be shared with local communities and institutions to promote awareness and understanding of green hydrogen.

7. **Monitoring and Evaluation Framework:**

- **Impact Assessment:** Establishing indicators to monitor and evaluate the outcomes of the feasibility study and subsequent projects, ensuring that they align with national development goals and sustainable practices.
- **Long-Term Planning:** Providing a framework for ongoing assessment of green hydrogen initiatives to adapt to changing technologies and market conditions.

Conclusion:

The requested technical assistance from CTCN is crucial for unlocking Zimbabwe's green hydrogen potential, facilitating a transition towards sustainable energy solutions. The feasibility study will provide a roadmap for the successful development of a green hydrogen sector that can contribute to energy security, economic growth, and climate resilience in Zimbabwe. By leveraging local resources and fostering community engagement, we aim to create a sustainable and inclusive energy future.

Expected timeframe:

12 months

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

The feasibility study will create opportunities for local communities, particularly women and youth, to participate in the green hydrogen sector. This initiative aims to foster entrepreneurship and job creation, contributing to socio-economic development and energy access. Furthermore, female stakeholders will be included in the development of the strategies.

1. Social Co-Benefits

Community Engagement: The feasibility study will actively involve local communities in the planning and decision-making processes, ensuring their voices are heard and their needs addressed.

Empowerment of Women and Youth: By focusing on inclusivity, the project will create pathways for women and youth to engage in the green hydrogen sector. This will be achieved through targeted training programs and mentorship opportunities, fostering a new generation of leaders in renewable energy.

Health Improvements: Transitioning to green hydrogen can lead to reduced air pollution and associated health benefits for local populations, promoting overall well-being.

2. Economic Co-Benefits

Job Creation: The establishment of a green hydrogen sector will generate direct and indirect employment opportunities. This includes roles in project implementation, maintenance, and management.

Entrepreneurship Opportunities: Local entrepreneurs will have the chance to create businesses related to hydrogen production, distribution, and technology development, enhancing local economic resilience.

Energy Access and Stability: By diversifying the energy sources available in Zimbabwe, the project can improve energy security and reduce dependence on imported fuels, leading to more stable energy prices for consumers and businesses.

3. Environmental Co-Benefits

Reduction of Greenhouse Gas Emissions: The shift towards green hydrogen production will lower carbon emissions compared to traditional fossil fuels, contributing to global climate change mitigation efforts.

Sustainable Resource Management: The project will promote the sustainable use of local resources, such as water and land, ensuring that environmental impacts are minimized while maximizing the benefits of renewable energy.

Biodiversity Conservation: By reducing reliance on fossil fuels and promoting cleaner energy solutions, the project can help protect local ecosystems and biodiversity.

4. Anticipated Gender and Other Co-Benefits

Gender Inclusivity: The project will ensure the active participation of female stakeholders in strategy development and implementation. This will not only empower women but also ensure diverse perspectives are integrated into the planning process.

Capacity Building: Training programs will be designed to enhance the skills of women and youth, providing them with the tools needed to succeed in the green hydrogen sector.

Equitable Access to Opportunities: By prioritizing inclusivity, the project aims to level the playing field, ensuring that marginalized groups have equal access to the benefits generated by the green hydrogen initiative.

Conclusion

The Zimbabwe Green Hydrogen Technical Assistance project holds the potential to deliver significant social, economic, and environmental co-benefits. By prioritizing inclusivity and sustainability, it not only addresses energy needs but also fosters community resilience and empowerment, particularly among women and youth. This comprehensive approach will contribute to a more equitable and sustainable future for Zimbabwe.

Anticipated follow-up activities after this technical assistance are completed:

Expected Future Use of Outputs and Deliveries:

1. Stakeholder Engagement and Capacity Building:

- Organizations Involved: Local government agencies, energy regulators, private sector

companies, and community organizations will utilize the outputs.

- Purpose: To enhance knowledge and skills in green hydrogen production, project management, and renewable energy integration.
- Scale and Scope: Training programs and workshops will be conducted at community and national levels to disseminate knowledge gained from the technical assistance.

2. Project Development and Implementation:

- Utilization of Deliverables: The feasibility study will provide a roadmap for developing and implementing green hydrogen projects in identified areas.
- Stakeholders: Energy Department, private investors, and local communities will be key users.
- Purpose: To initiate pilot green hydrogen production projects, aiming for a scalable model for future projects.
- Timeline: Project implementation will commence within 6-12 months after the completion of the technical assistance.

3. Policy and Regulatory Frameworks:

- Expected Outputs: Recommendations from the technical assistance will inform policy revisions and the establishment of supportive regulatory frameworks for green hydrogen.
- Stakeholders: Government ministries, energy regulators, and environmental agencies will utilize these outputs.
- Purpose: To create a conducive environment for green hydrogen investments and ensure alignment with national energy and climate goals.
- Next Steps: Drafting policy documents and engaging stakeholders for feedback within 3-6 months post-assistance.

4. Funding and Investment Mobilization:

- Leverage Opportunities: Outputs will be used to attract funding from international climate finance mechanisms, development banks, and private investors.
- Potential Funding Sources: Green Climate Fund, World Bank, and regional development funds targeted at renewable energy projects.
- Next Steps: Develop investment proposals and engage with potential funders within 6 months post-project completion to secure funding for implementation.

5. Monitoring and Evaluation Framework:

- Utilization of Deliverables: Establishing a monitoring and evaluation framework to track the impacts of implemented green hydrogen projects.
- Stakeholders: Project implementers and government agencies will use this framework to assess project performance.
- Purpose: To ensure accountability, measure success, and inform future project iterations and scaling efforts.
- Timeline: Implementation of the monitoring framework will begin immediately after the project rollout, with evaluations conducted annually.

6. Scaling Up Results:

- Options for Scaling: Successful pilot projects will be expanded to larger scales based on lessons learned, potentially leading to regional partnerships for green hydrogen trade.
- Stakeholders: Regional energy bodies and neighboring countries will be engaged to explore cross-border hydrogen trade opportunities.
- Purpose: To create a regional market for green hydrogen, enhancing energy security and economic opportunities across borders.

7. Community and Economic Development:

- Long-term Use of Outputs: The establishment of green hydrogen production facilities will create jobs and stimulate local economies.
- Stakeholders: Local communities and businesses will benefit from new job opportunities and increased energy access.
- Next Steps: Community engagement initiatives will be launched to foster local support and participation in the green hydrogen sector, starting within 3 months of project implementation.

Conclusion

By strategically mobilizing the outputs from the technical assistance, Zimbabwe can catalyze a transformative shift towards sustainable energy, fostering economic growth, enhancing energy security, and contributing to global climate goals. The collaborative efforts of stakeholders at various levels will ensure the longevity and effectiveness of green hydrogen initiatives in the country.

Key stakeholders:

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity	Oversees environmental policies and climate action initiatives. Ensures that green hydrogen projects align with national climate goals and sustainability practices. Also oversees overall coordination
Request Applicant: Mobility Africa Energy	Will be instrumental in driving the success of the technical assistance request, ensuring that the feasibility study lays a strong foundation for the development of a green hydrogen sector in Zimbabwe. Through effective leadership, advocacy, and stakeholder engagement. The applicant will help position Zimbabwe as a leader in sustainable energy solutions
- Ministry of Energy and Power Development - Zimbabwe Energy Regulatory Authority (ZERA) - Harare Institute of Technology (HIT) and University of Zimbabwe (UZ) - Research Institutions (SIRDC): - Energy Companies and Investors (Mobility Africa Energy, Phanes Group, Masawara Group)	Lead agency overseeing energy policy and strategy. Responsible for facilitating the implementation of green hydrogen initiatives and ensuring alignment with national energy goals. Regulates the energy sector, providing licenses for energy projects. ZERA will ensure compliance with regulations and streamline the approval process for green hydrogen projects. Conduct research on renewable energy technologies and provide technical expertise. Will assist in capacity-building efforts and training of local professionals in hydrogen production technologies. Contribute to feasibility studies and data analysis related to solar energy and hydrogen production. They will provide insights on best practices and innovative solutions. Engage in project financing, development, and implementation. They will invest in infrastructure and technology needed for hydrogen production and distribution. Provide technical skills and expertise in the design and

- Local NGOs and Advocacy Groups(Zimbabwe Hydrogen Association): - Community-Based Organizations - Local Communities	installation of renewable energy systems and hydrogen production facilities. Engage with local communities to raise awareness about the benefits of green hydrogen and renewable energy. They will facilitate community participation and ensure that the needs and concerns of residents are addressed. Act as intermediaries between the project and local communities, helping to gather input and support for the initiatives. They will also promote capacity-building and training programs at the community level. Direct beneficiaries of the green hydrogen initiatives. Their input will be crucial in shaping project implementation, and they will participate in training and capacity-building activities to enhance local skills and entrepreneurship.
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Alignment with national priorities:

The requested technical assistance for exploring green hydrogen potential aligns closely with Zimbabwe's national climate priorities and strategic frameworks:

1. National Energy Policy (NEP)

- Section 3.1:** This section discusses the promotion of renewable energy sources to enhance energy security and reduce reliance on fossil fuels, which directly supports the exploration of green hydrogen.

2. National Renewable Energy Policy (NREP)

- Section 4.2:** This section emphasizes the adoption of renewable energy technologies, including hydrogen, as a means to diversify the energy mix and promote sustainable energy solutions.
- Section 5.3:** Highlights the importance of developing local capacity and technology in renewable energy, which aligns with the objectives of fostering local participation in the green hydrogen sector.

3. National Energy Efficiency Policy (NEEP)

- Section 6.1:** Focuses on the importance of integrating energy efficiency measures with renewable energy initiatives, promoting technologies like green hydrogen to improve overall energy efficiency.
- Section 7.2:** Encourages the use of clean energy technologies to reduce greenhouse gas emissions and enhance environmental sustainability, reinforcing the relevance of green hydrogen.

1. Nationally Determined Contribution (NDC):

- Zimbabwe's NDC emphasizes the transition to renewable energy sources to reduce greenhouse gas emissions. The feasibility study for green hydrogen production directly supports this goal by promoting clean energy solutions.

2. National Development Plans:

The Zimbabwe National Development Strategy 2 (NDS2) (2021-2025) emphasizes the need for sustainable energy development as a cornerstone of economic growth and national resilience. This technical assistance for exploring green hydrogen potential aligns with NDS2 by **Fostering Renewable Energy Initiatives**: NDS2 highlights the importance of transitioning to renewable energy sources, which includes the exploration and utilization of green hydrogen to diversify the energy mix. **Scaling Up Investment in Energy Sources**: The strategy outlines the government's commitment to increasing investment in various energy sources. This will help reduce pressure on the national grid and strengthen energy security, aligning directly with the goals of promoting green hydrogen. **Enhancing Energy Security**: By diversifying the energy portfolio, NDS2 aims to improve the country's energy security, making it more resilient to fluctuations in energy supply and demand.

Through this alignment with the NDS2, the technical assistance not only supports sustainable energy development but also contributes to broader economic growth and stability in Zimbabwe.

3. Poverty Reduction Plans:

- By promoting green hydrogen production, the initiative aims to create jobs and entrepreneurial opportunities, particularly for women and youth. This directly supports national poverty reduction efforts by enhancing livelihoods and improving access to energy.

4. Technology Needs Assessments:

- The request is consistent with the Technology Action Plan, which prioritizes renewable energy technologies, including hydrogen production. This aligns with Zimbabwe's goal to foster innovation and technology transfer in the energy sector.

5. Long-term Low Emission Development Strategies:

- The development of a green hydrogen sector is integral to Zimbabwe's long-term strategy for achieving low emissions by diversifying the energy mix and reducing reliance on fossil fuels.

6. National Adaptation Plans:

- Enhancing energy resilience against climate impacts is a key objective of the National Adaptation Plan. Green hydrogen can provide a stable energy supply, helping communities adapt to climate variability.

7. Green Climate Fund (GCF) Country Programme:

- The GCF Country Programme emphasizes the importance of transitioning to renewable energy. The proposed technical assistance aligns with GCF objectives by promoting climate-resilient development through sustainable energy solutions.

8. Sectoral Strategies:

- The energy sector strategy highlights the need for renewable energy investments. The feasibility study for green hydrogen supports this vision by exploring sustainable solutions that align with national energy objectives.

Conclusion

Overall, the technical assistance request is fully aligned with Zimbabwe's national climate priorities, reinforcing commitments to sustainable development, poverty reduction, and climate resilience while promoting a transition to a green economy.

Reference document

Document Title:

Zimbabwe's Nationally Determined Contribution (NDC) 3.0 Country Statement **Date:** 10 February 2025

Document Title:

Reference Document

Document Title:

Zimbabwe National Development Strategy 2 (2021-2025) **Date:** December 2021

Document Title:

Zimbabwe Technology Needs Assessment Report **Date:** November 2019

Reference Document

Document Title:

Zimbabwe National Adaptation Plan **Date:** October 25, 2024

Document Title:

Green Climate Fund (GCF) Country Programme for Zimbabwe **Date:** June 2021

Extract:

Chapter: Chapter 3 – “Mitigation priorities and actions” **Page**

Number: 18 **Content:** "Zimbabwe commits to significantly increasing its renewable energy capacity, including the exploration of green hydrogen, to support global efforts in reducing greenhouse gas emissions."

Chapter: 4.3 (Energy and Power Development) **Page Number:**

157-158 **Content:** "The strategy emphasizes the need for sustainable energy solutions, including the scaling up of investments in renewable energy technologies to enhance energy security and drive economic growth."

Chapter: 3 (Prioritized Technologies)

Page Number: 12

Content: "The assessment identifies hydrogen production technologies as critical for Zimbabwe's transition to a low-carbon economy, emphasizing the need for capacity building and technology transfer."

Chapter: 5.1 (Energy Resilience) **Page Number:** 56 **Content:**

"Enhancing energy resilience through renewable energy sources is essential for adapting to climate variability and ensuring sustainable development."

Chapter: 4 (Investment Priorities)

Page Number: 10

Content: "The GCF Country Programme emphasizes transitioning to renewable energy as a key strategy for achieving climate resilience and sustainable development."

Nationally Determined Contribution (NDC)

Direct alignment and contribution to NDC implementation is required for all CTCN technical assistances.

Document Title:

Zimbabwe's Nationally Determined Contribution (NDC) **Date:** September 2021

Chapter: 3 (Mitigation Targets and Actions)

Page Number: 7

Content: "Zimbabwe aims to achieve a significant increase in renewable energy capacity, targeting at least 16% of total electricity generation from renewable sources by 2025, with a strong emphasis on solar and wind energy."

	Chapter: 4 (Policy and Legal Framework) Page Number: 9 Content: "To enhance the implementation of renewable energy initiatives, Zimbabwe commits to developing partnerships and engaging in technology transfer, particularly focusing on innovative solutions like green hydrogen production."
Technology Needs Assessment and Technology Action Plan: Document Title: Zimbabwe Technology Needs Assessment Report Date: November 2019 Document Title: Zimbabwe Technology Action Plan Date: December 2020	☐ Chapter: 5 (Identified Technology Needs) ☐ Page Number: 15 ☐ Content: "The assessment identifies renewable energy technologies, including hydrogen production, as essential for Zimbabwe's transition to a low-carbon economy. It highlights the need for capacity building in these areas." Chapter: 2 (Prioritized Technologies) Page Number: 10 Content: "Green hydrogen is prioritized as a key technology for energy diversification and climate resilience. The action plan outlines specific measures for developing infrastructure and technical expertise in hydrogen production."
National Adaptation Plans Document Title: Zimbabwe National Adaptation Plan Date: March 2020	☐ Chapter: 3 (Strategic Actions for Adaptation) ☐ Page Number: 18 ☐ Content: "Promoting renewable energy sources, including green hydrogen, is critical for enhancing energy resilience and reducing vulnerability to climate impacts." ☐ Chapter: 5 (Energy Sector Adaptation) ☐ Page Number: 25 ☐ Content: "The plan emphasizes the importance of transitioning to sustainable energy systems to mitigate climate change effects and improve community resilience, with a specific focus on renewable technologies like hydrogen."
GCF Country Programme Document Title: Green Climate Fund (GCF) Country Programme for Zimbabwe Date: June 2021	• Chapter: 4 (Investment Priorities) • Page Number: 12 • Content: "The GCF Country Programme prioritizes investments in renewable energy technologies, including green hydrogen, to enhance climate resilience and support sustainable development initiatives." ☐ Extract Reference: • Chapter: 5 (Project Implementation Strategies) • Page Number: 15 • Content: "Key strategies include fostering innovation in renewable energy and engaging in technology transfer, with a

	focus on developing a robust hydrogen sector as part of the national climate response."
Long-term Low Emission Development Strategies Document Title: Zimbabwe Long-term Low Emission Development Strategy Date: December 2020	☐ Chapter: 2 (Vision and Goals) • Page Number: 8 • Content: "Zimbabwe envisions a transition to a low-emission economy by 2050, emphasizing the role of renewable energy technologies, particularly green hydrogen, in achieving sustainable development and reducing carbon footprints." • Chapter: 4 (Strategic Actions for Emission Reduction) • Page Number: 14 • Content: "The strategy outlines initiatives for developing renewable energy sources, with green hydrogen identified as a key technology for decarbonizing the energy sector and enhancing energy security."
Add others here as relevant Document Title: Zimbabwe National Development Strategy (NDS1) Date: December 2020 Document Title: Zimbabwe Climate Change Policy Date: July 2019 Document Title: Zimbabwe Energy Policy Date: March 2018 Document Title: Nationally Determined Contribution (NDC) Review Report Date: January 2023	☐ Chapter: 4.3 (Energy Development) ☐ Page Number: 34 ☐ Content: "The strategy emphasizes the need to promote renewable energy sources, including hydrogen, as part of the national effort to ensure energy security and drive economic growth." ☐ Chapter: 3 (Mitigation and Adaptation Strategies) ☐ Page Number: 11 ☐ Content: "The policy supports the development of renewable energy technologies, particularly green hydrogen, to mitigate climate change impacts and enhance adaptation efforts." ☐ Chapter: 2 (Renewable Energy Objectives) ☐ Page Number: 6 ☐ Content: "The policy aims to increase the share of renewable energy in the national energy mix, with specific targets for hydrogen production as a clean energy alternative." ☐ Chapter: 4 (Progress and Future Directions) ☐ Page Number: 20 ☐ Content: "The review highlights the need for technologies like green hydrogen in achieving updated emission reduction targets and enhancing energy resilience."

Development of the request:

- **Initiation of the Process:**

- The request for technical assistance in green hydrogen production was initiated and developed by Mr Humphrey Munzvengwa (MD of Mobility Africa Energy and Chairman of The Zimbabwe Hydrogen Association) who was Zimbabwe's Country Representative for the UN-CTCN 2025 Learning Visit focused on Green Hydrogen Production and Fuel Cells in Korea. Mr Humphrey engaged the Ministry of Energy and consulted the National Designated Entity (NDE) for climate change in Zimbabwe and a comprehensive national consultation process was done led by the National Designated Entity (NDE), recognizing the need to advance renewable energy technologies in line with Zimbabwe's Nationally Determined Contributions (NDC) and Long-term Low Emission Development Strategy.

- **Stakeholders Involved:**

- **Government Agencies:** Various ministries, including Energy and Power Development, participated to ensure alignment with national policies.
- **Academic Institutions:** Local universities contributed research insights on renewable energy technologies, particularly hydrogen.
- **Private Sector:** Renewable energy companies were engaged to provide practical perspectives on market potential and technology implementation.
- **Civil Society Organizations:** NGOs focused on climate advocacy provided input on community needs and sustainable development goals.

- **Consultations and Meetings:**

- A series of stakeholder workshops were organized to gather input on the technical assistance request. These workshops facilitated discussions on the benefits of green hydrogen, potential barriers, and strategies for implementation.
- Focus group meetings with industry experts helped refine the request, ensuring it addressed both technical and socio-economic aspects.
- Draft proposals were circulated among stakeholders for feedback, leading to a collaborative approach that aligned with national priorities.
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Background documents and other information relevant for the request:

Background Documents and Relevant Information

☐ **Zimbabwe Nationally Determined Contribution (NDC)**

- **Date:** February 10, 2025
- **Linkage:** Outlines Zimbabwe's commitments to renewable energy, including green hydrogen, essential for achieving climate targets.
- **Link:** [NDC Document](#)

☐ **Zimbabwe Technology Needs Assessment Report**

- **Date:** 2004 (no recent update available)
- **Linkage:** Identifies technology needs, emphasizing renewable energy technologies like hydrogen for low-carbon development.
- **Link:** [TNA Report](#)

☐ **Zimbabwe Technology Action Plan**

- **Date:** December 2021
- **Linkage:** Prioritizes green hydrogen as a key technology for enhancing energy resilience and climate adaptation.
- **Link:** [TAP Document](#) (URL not found)

☐ **Zimbabwe National Adaptation Plan**

- **Date:** October 25, 2024
- **Linkage:** Highlights the role of renewable energy, including hydrogen, in enhancing climate resilience.
- **Link:** [NAP Document](#)

☐ **Green Climate Fund (GCF) Country Programme for Zimbabwe**

- **Date:** June 2022
- **Linkage:** Prioritizes investments in renewable energy technologies, including green hydrogen.
- **Link:** [GCF Country Programme](#)

☐ **Zimbabwe Long-term Low Emission Development Strategy**

- **Date:** November 8, 2022
- **Linkage:** Provides a framework for transitioning to a low-emission economy, emphasizing green hydrogen.
- **Link:** [LEDS Document](#)

☐ **Zimbabwe Climate Change Policy**

- **Date:** November 2023
- **Linkage:** Supports the development of renewable energy technologies to mitigate climate change impacts.
- **Link:** [Climate Policy](#)

☐ **Zimbabwe Energy Policy**

- **Date:** March 2022
- **Linkage:** Aims to increase the share of renewable energy in the national energy mix, including hydrogen.
- **Link:** [Energy Policy](#)

☐ **Nationally Determined Contribution (NDC) Review Report**

- **Date:** January 2024

- **Linkage:** Highlights the necessity of green hydrogen in achieving updated emission reduction targets.
- **Link:** [NDC Review Report](#)

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Additional Information

- **Development Support:** N/A

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 and paragraph 4, 7 and 8 of 14/CP.24 that addresses Linkages between the Technology and the Financial Mechanisms³.

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:

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

³ Please see: https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

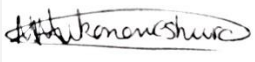
the technical assistance following standard CTCN procedures. This includes the active engagement as NDE together with the key project proponent / beneficiary in regular project steering meetings.

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. This includes the completion of NDE feedback and post-implementation forms.

Signature:

NDE name: Munashe Mukonoweshuro

Date: 22 July 2026

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.