

# GEF-8 PROJECT IDENTIFICATION FORM (PIF)

## TABLE OF CONTENTS

|                                                                                               |           |
|-----------------------------------------------------------------------------------------------|-----------|
| <b>GENERAL PROJECT INFORMATION .....</b>                                                      | <b>3</b>  |
| Project Summary .....                                                                         | 4         |
| Indicative Project Overview .....                                                             | 4         |
| <b>PROJECT COMPONENTS .....</b>                                                               | <b>4</b>  |
| <b>PROJECT OUTLINE .....</b>                                                                  | <b>7</b>  |
| A. PROJECT RATIONALE.....                                                                     | 7         |
| B. PROJECT DESCRIPTION.....                                                                   | 11        |
| Project description.....                                                                      | 11        |
| Coordination and Cooperation with Ongoing Initiatives and Project.....                        | 17        |
| Core Indicators.....                                                                          | 18        |
| Key Risks .....                                                                               | 20        |
| C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES .....          | 22        |
| D. POLICY REQUIREMENTS.....                                                                   | 23        |
| Gender Equality and Women’s Empowerment: .....                                                | 23        |
| Stakeholder Engagement .....                                                                  | 23        |
| Private Sector.....                                                                           | 26        |
| Environmental and Social Safeguard (ESS) Risks .....                                          | 26        |
| E. OTHER REQUIREMENTS.....                                                                    | 26        |
| Knowledge management.....                                                                     | 26        |
| <b>ANNEX A: FINANCING TABLES .....</b>                                                        | <b>26</b> |
| GEF Financing Table .....                                                                     | 26        |
| Project Preparation Grant (PPG) .....                                                         | 26        |
| Sources of Funds for Country Star Allocation .....                                            | 27        |
| Indicative Focal Area Elements .....                                                          | 27        |
| Indicative Co-financing .....                                                                 | 27        |
| <b>ANNEX B: ENDORSEMENTS .....</b>                                                            | <b>28</b> |
| GEF Agency(ies) Certification .....                                                           | 28        |
| Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):..... | 28        |
| <b>ANNEX C: PROJECT LOCATION .....</b>                                                        | <b>28</b> |
| <b>ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING .....</b>                   | <b>30</b> |
| <b>ANNEX E: RIO MARKERS.....</b>                                                              | <b>30</b> |
| <b>ANNEX F: TAXONOMY WORKSHEET .....</b>                                                      | <b>31</b> |

## General Project Information

### Project Title

Global programme on climate-resilient renewable and efficient systems in small island developing States – national project in Cuba

|                                 |                        |
|---------------------------------|------------------------|
| Region                          | GEF Project ID         |
| Latin America and the Caribbean | 12369                  |
| Country(ies)                    | Type of Project        |
| Cuba                            | MSP                    |
| GEF Agency(ies):                | GEF Agency ID          |
| UNIDO                           | 260258                 |
| Executing Partner               | Executing Partner Type |
| Determined at PPG               |                        |
| GEF Focal Area (s)              | Submission Date        |
| Climate Change                  | 6/8/2026               |

### Project Sector (CCM Only)

Climate Change Adaptation Sector

### Taxonomy

Climate Change Adaptation, Climate Change, Focal Areas, Adaptation Tech Transfer, National Adaptation Plan, Small Island Developing States, Mainstreaming adaptation, Climate resilience, Climate information, Gender Mainstreaming, Gender Equality, Gender results areas, Capacity, Knowledge and Research, Capacity Development, Knowledge Generation, Training, Workshop, Knowledge Exchange, South-South, Field Visit, Sex-disaggregated indicators, Knowledge Generation and Exchange, Strengthen institutional capacity and decision-making, Influencing models, Transform policy and regulatory environments, Education, Communications, Stakeholders, Awareness Raising, Academia, Civil Society

|                                |                             |
|--------------------------------|-----------------------------|
| Type of Trust Fund             | Project Duration (Months)   |
| SCCF                           | 60                          |
| GEF Project Grant: (a)         | GEF Project Non-Grant: (b)  |
| 2,639,726.00                   | 0.00                        |
| Agency Fee(s) Grant: (c)       | Agency Fee(s) Non-Grant (d) |
| 250,774.00                     | 0.00                        |
| Total GEF Financing: (a+b+c+d) | Total Co-financing          |
| 2,890,500.00                   | 18,478,082.00               |
| PPG Amount: (e)                | PPG Agency Fee(s): (f)      |
| 100,000.00                     | 9,500.00                    |

PPG total amount: (e+f)

109,500.00

Total GEF Resources: (a+b+c+d+e+f)

3,000,000.00

Project Tags

CBIT: No NGI: No SGP: No Innovation: No Competitive Window: No

## Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? (iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B "project description". (max. 250 words, approximately 1/2 page)

The project aims to strengthen the adaptive capacity of Cuba's electricity system and energy-dependent critical services by integrating climate-resilient renewable energy, grid and storage solutions, supported by climate vulnerability assessments, resilience planning and targeted demonstration projects. It will do so through an integrated approach combining: (i) climate risk assessments, resilience planning tools and priority action roadmaps for selected energy systems and critical services; (ii) strengthened technical capacities, institutional mechanisms and knowledge products to support the planning, operation and broader uptake of climate-resilient energy solutions; and (iii) demonstration projects in selected critical facilities and communities to generate practical evidence on approaches that can maintain service continuity during and after climate-related disruptions.

The project is expected to generate adaptation benefits through improved resilience of selected facilities and communities, enhanced continuity of essential services during extreme weather events, stronger institutional capacity to assess and manage climate risks in the energy sector, and improved conditions for the replication and broader uptake of climate-resilient energy solutions in Cuba.

## Indicative Project Overview

### Project Objective

Strengthening the adaptive capacity to climate impacts Cuba's electricity system and energy-dependent critical services by integrating climate-resilient renewable energy, grid and storage solutions, supported by vulnerability assessments, climate resilience planning and targeted demonstration projects

## Project Components

### Climate Risk assessment and climate resilience planning for energy systems and critical services

|                            |                   |
|----------------------------|-------------------|
| Component Type             | Trust Fund        |
| Technical Assistance       | SCCF-A            |
| GEF Project Financing (\$) | Co-financing (\$) |
| 479,726.00                 | 3,358,082.00      |

Outcome:

1.1 Climate vulnerability assessments, climate resilience planning tools and priority action roadmaps are developed and applied for selected energy systems and critical services.

Output:

1.1.1 Climate vulnerability assessments conducted for selected energy systems and critical services.

1.1.2 Climate resilience planning tools and methodologies developed and applied to support climate-resilience-informed decision-making.

1.1.3 Priority action roadmaps prepared to strengthen the climate resilience of selected energy systems and critical services

## 2. Strengthening Capacities and Institutional Mechanisms for Climate-Resilient Energy Systems

|                            |                   |
|----------------------------|-------------------|
| Component Type             | Trust Fund        |
| Technical Assistance       | SCCF-A            |
| GEF Project Financing (\$) | Co-financing (\$) |
| 400,000.00                 | 2,800,000.00      |

Outcome:

2.1 Knowledge, technical capacities and institutional mechanisms are strengthened to support the planning, operation, replication and broader uptake of climate-resilient energy solutions.

Output:

2.1.1 Training courses on prioritized energy systems climate resilience and climate adaptation topics are developed for and delivered to key national stakeholders.

2.1.2 Knowledge products, technical guidance materials and operational tools are developed and disseminated.

2.1.3 Institutional coordination and knowledge-sharing mechanisms established or strengthened to facilitate replication and broader uptake of project results are developed and supported

## 3. Demonstration of climate-resilient renewable energy, storage, and grid solutions for selected critical systems, facilities and communities

|                            |                   |
|----------------------------|-------------------|
| Component Type             | Trust Fund        |
| Investment                 | SCCF-A            |
| GEF Project Financing (\$) | Co-financing (\$) |
| 1,574,299.00               | 11,020,093.00     |

Outcome:

3.1 Selected critical energy systems, facilities and communities demonstrate enhanced resilience to climate-related disruptions through climate-resilient renewable energy, storage and grid solutions

Output:

3.1.1 Priority demonstration sites identified, assessed and prepared for demonstration projects

3.1.2 Climate-resilient renewable energy, storage and related climate resilience solutions installed and operational in selected demonstration sites/communities

3.1.3 Performance, lessons learned and replication potential of demonstration projects documented and assessed

## M&E

|                            |                   |
|----------------------------|-------------------|
| Component Type             | Trust Fund        |
| Technical Assistance       | SCCF-A            |
| GEF Project Financing (\$) | Co-financing (\$) |
| 60,000.00                  | 420,000.00        |

Outcome:

4.1 Adequate monitoring of all project indicators, including gender-disaggregated data and gender-sensitive performance metrics

Output:

4.1.1 Project monitoring and reporting conducted

4.1.2 Mid-term review carried out

4.1.3 Terminal evaluation conducted

## Component Balances

| Project Components                                                                                                                              | GEF Project Financing (\$) | Co-financing (\$) |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------|
| Climate Risk assessment and climate resilience planning for energy systems and critical services                                                | 479,726.00                 | 3,358,082.00      |
| 2. Strengthening Capacities and Institutional Mechanisms for Climate-Resilient Energy Systems                                                   | 400,000.00                 | 2,800,000.00      |
| 3. Demonstration of climate-resilient renewable energy, storage, and grid solutions s for selected critical systems, facilities and communities | 1,574,299.00               | 11,020,093.00     |
| M&E                                                                                                                                             | 60,000.00                  | 420,000.00        |

|                                |                     |                      |
|--------------------------------|---------------------|----------------------|
| <b>Subtotal</b>                | <b>2,514,025.00</b> | <b>17,598,175.00</b> |
| Project Management Cost        | 125,701.00          | 879,907.00           |
| <b>Total Project Cost (\$)</b> | <b>2,639,726.00</b> | <b>18,478,082.00</b> |

Please provide justification

## PROJECT OUTLINE

### A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

#### 1.1 Global Context and Environmental Imperative

Small Island Developing States (SIDS) are confronting a convergence of global climate and environmental crises that threaten to reverse decades of development gains. The IPCC Sixth Assessment Report (AR6) confirms that climate change is rapid, intensifying, and disproportionately harmful to tropical island systems, with human activity driving atmospheric GHG concentrations to levels unprecedented in 800,000 years. Without accelerated, systemic climate mitigation efforts, global warming is projected to surpass 1.5 degrees Celsius within the coming decades, resulting in compounding and irreversible impacts on ecosystems, infrastructure, and human systems.

Across SIDS, intensifying cyclones, accelerated sea-level rise, ocean warming, marine heatwaves, and chronic heat stress are driving significant disruption to key economic sectors—particularly tourism, energy, water, and the agri-food industry. These pressures interact with long-standing structural vulnerabilities typical of SIDS: high reliance on imported fossil fuels, escalating waste and pollution burdens, fragile freshwater resources, and degraded marine ecosystems.

Critically, the IPCC AR6 finds that observed climate adaptation responses are currently fragmented, incremental, and unequally distributed (high confidence). Climate adaptation gaps exist across sectors and regions, and these gaps will continue to grow under current levels of implementation. Soft limits to climate adaptation—resulting from financial, governance, institutional, and policy constraints—are already being experienced by households and sectors along low-lying coastal areas. Furthermore, climate change is affecting SIDS through compound events (e.g., simultaneous storm surge, heavy rainfall, and prolonged power outages), severely amplifying risks to business continuity for settlements and critical infrastructure.

The international community recognizes that incremental adjustments are insufficient. SIDS require deep, sectoral economic transformation, restructuring entire value chains to become climate-resilient, adaptive, and resource-efficient. This imperative is strongly reflected in the 2024-2034 Antigua and Barbuda Agenda for SIDS (ABAS), which specifically calls for integrated and systemic climate resilience strategies that restructure key value chains—including energy, water, tourism, agri-food, and the blue economy—supported by targeted finance and technology transfer.

#### 1.2 Cuba's climate-hazards and vulnerabilities

Climate change is already having tangible, disruptive impacts on Cuba, with the island exposed to frequent and intense storms, droughts, and steady temperature and sea-level rises.

Hurricanes and intense storms have been consistent sources of flooding, damages to households and infrastructure, and widespread power outages, which in the case of hurricane Ian (2022) affected the entire island. Over the last 10 years hurricanes and tropical storms have caused damages to more than 1 mio households and to the whole country in excess of 15 billion USD, according to Cuban estimates.

Temperature and heat-waves have steadily increased and are projected to continue to do so. The most recent evaluation of climatic variation and change in Cuba, carried out by the Meteorological Institute, provides observation-based evidence which clearly indicates that the climate in Cuba has become warmer. Since the middle of the last century, the median annual temperature has increased by almost 0.9°C. By 2050, mean annual temperatures in Cuba are projected to rise by roughly 1.6° C to 2.0° C, with the most extreme hot days (>35° C) increasing by 20 to 21 days under both RCP 4.5 and RCP 8.5 scenarios, with sustained heat stress covering July, August, and September. Regional Climate Modelling, including the use of a large multi-parameter ensemble, suggests that the climate in Cuba in 2070 will be 3.5 °C warmer.

Cuba is also projected to likely experience a reduction in average annual precipitation and an increase in evapotranspiration rates, especially during the summer season. This in turn will heighten the risk of severe droughts, a particular threat for agriculture and water reservoirs in eastern Cuba. Sea level in Cuba has risen by 10 cm over the last three decades and it is expected to increase by 29 cm by the year 2050 and between 22 cm and 95 cm by the year 2100.

International and national assessments consistently suggest a challenging future for Cuba, imposing a growing climate adaptive load on the country, its infrastructure, economy and society. Key projected climate adaptation loads will include:

- **Temperature and Energy Stress:** Warming is projected to continue, bringing hotter days and nights and more frequent heat extremes. This will directly increase the demand for cooling and energy, leading to significant-to-substantial spikes in power and energy demand that will put under stress an already struggling grid infrastructure. Higher temperatures for prolonged number of days will have further detrimental impact on the power transmission and distribution capacity of an already heavily constrained grid system.
- **Water Insecurity:** Rainfall patterns are and will be changing, with models suggesting a challenging combination of average annual rainfall decreases with more extreme rainfall events, leading to more frequent or prolonged droughts and possible water supply shortages.
- **Extreme Events:** Consistent with global and regional projections, Cuba along with other Caribbean SIDS is likely to experience more intense tropical storms and hurricanes, raising the risk of catastrophic damage to critical infrastructures, including centralized power and water networks.

The passage or near-passage of hurricanes in Cuba are always accompanied by extreme wind speeds and high rainfall. Cuban Standard “NC 285:2003. Wind Load. Calculation Methods” has been and is used for structural calculations in Cuba, including those for renewable energy systems such as wind parks and solar photovoltaic parks. Nevertheless, hurricanes passage or near-passage always leave their mark on Cuba’s energy infrastructure and systems.

For instance, Hurricane Melissa (29 October 2025) left particularly severe marks on the Gibara I wind farm in Holguín, and isolated rural communities such as La Plata in Santiago de Cuba.

The Gibara I wind farm, one of the pioneering renewable energy projects in Cuba, suffered significant structural damage, with more than 40% of the wind turbines taken out of service by the force of the winds, with fractured blades and deformed towers. The transmission lines that connected the wind park to the national grid were knocked down, disrupting the supply of clean energy to the region. The shutdown of the wind park resulted in losses of millions of dollars and delays in the country's energy transition plans.

Hurricanes’ passage always causes damages also to other energy system/grid assets such as substations, distribution lines and pole transformers due to flooding, strong wind and flying debris, water incursion and

contamination. Cuba's power substations are particularly critical, yet highly fragile, nodes of the island's energy/power system. Crippled by aging Soviet-era infrastructure and underinvestment, these substations struggle to manage the distribution of electricity from thermal plants, a handful of independent producers (like Energas), and newly integrated solar PV parks. In an effort to avoid total dependence on its failing thermoelectric power stations and imported oil, Cuba has rapidly expanded its renewable energy infrastructure, adding roughly 800 MW of new solar park capacity. However, the integration of these localized solar facilities into the aging, centralized power substations and system continues to pose severe technical hurdles due to the lack of adequate power management infrastructure capacities and consequent inevitable grid instability.

It is imperative for Cuba to fully factor-in climate resilience in the repowering of the Gibara I Wind Farm and development and construction of future wind and solar PV parks. Measures such as the use of medium-power (e.g. smaller) wind turbines capable of withstanding stronger wind loads; the introduction of underground power lines in grid critical locality; reinforcement and other climate resilience solutions for solar PV parks; are examples of interventions that would allow to reduce the economic and social damage caused to the country by these phenomenon. In addition to that, it is imperative for Cuba to also fully integrate climate resilience in the medium- and long-term strategies and plans for the modernization of its power grid, to maximise value creation for the country and minimize costs and losses. The potential to reduce climate vulnerabilities and increase adaptive capacity to climate change impacts through modern transmission and distribution networks monitoring and communication systems and energy planning will be analyzed by the project.

In view of the above, Cuba is highly vulnerable to the impacts of climate change, including hurricanes, extreme rainfall, flooding, storm surge and rising temperatures, which place growing pressure on electricity systems and the critical services that depend on them. Climate-related disruptions to power supply affect the continuity of essential services such as health care, water supply, communications, emergency response and other community services, thereby increasing the vulnerability of institutions, communities and local economic activities.

Cuba is highly vulnerable to the impacts of climate change, including stronger hurricanes, tropical storms, extreme rainfall, flooding, storm surge, sea level rise and increasing temperatures. These hazards pose growing risks to infrastructure, livelihoods and essential services across the country, particularly in urban and exposed coastal. Within this context, the electricity system is of strategic importance, as climate-related disruptions to generation, transmission, distribution and localized supply can trigger cascading impacts across sectors that depend on reliable electricity. Health services, water supply and sanitation, communications, emergency response, food preservation and other community services are all affected when electricity systems are damaged or interrupted during and after extreme events. As climate hazards intensify, these disruptions are expected to become more frequent and severe, increasing the vulnerability of communities, institutions and local economic activities.

Cuba has already established an important policy and institutional foundation for climate adaptation and resilience-building, including through the State Plan for Climate Change, Tarea Vida, and national efforts to strengthen the role of renewable energy in the electricity mix. At the same time, significant gaps remain in the systematic assessment of climate risks affecting energy systems and energy-dependent critical services, in the application of climate resilience planning tools tailored to these systems, and in the operational experience needed to deploy and manage climate-resilient energy solutions under Cuban conditions. Existing efforts provide an important baseline, but without additional support, climate-related hazards will continue to increase pressure on electricity systems and on the continuity of critical services, while practical opportunities to build climate resilience through targeted renewable energy, storage and grid solutions will remain insufficiently tested, documented and replicated.

The proposed project has therefore been designed to address a clearly identified climate adaptation need: strengthening the adaptive capacity to climate impacts of Cuba's electricity system and energy-dependent critical services through an integrated package of climate vulnerability assessments, climate resilience planning, institutional and technical capacity development, and targeted demonstration projects. This approach has been selected because it responds directly to the main barriers currently limiting adaptation

action in the sector. These barriers include the limited availability and application of methodologies for assessing climate risks in energy systems and critical services; insufficient climate resilience planning tools and priority action frameworks to guide decision-making; limited technical and operational experience in the design, implementation and operation of climate-resilient renewable energy, storage and grid solutions; and the need for stronger institutional coordination, knowledge-sharing and practical evidence to support replication and broader uptake. By addressing these barriers together, the project will move beyond isolated interventions and help establish the technical, institutional and operational basis for a more resilient energy-service system.

The project will contribute to this transformation through three components. First, it will support climate vulnerability assessments, climate resilience planning tools and priority action roadmaps for selected energy systems and critical services, thereby strengthening the knowledge base for climate adaptation and improving the ability of relevant institutions to identify, prioritize and address climate-related risks. Second, it will strengthen technical capacities, institutional mechanisms and knowledge-sharing processes needed to support the planning, operation, replication and broader uptake of climate-resilient energy solutions. Third, it will implement demonstration projects in selected critical systems, facilities and communities, generating practical evidence on how climate-resilient renewable energy, storage and grid solutions can help maintain the continuity of essential services during and after climate-related disruptions. Together, these interventions will support changing the baseline by moving from a situation in which climate risks are only partially assessed and climate resilience solutions remain limited in application, to one in which institutions have improved tools, capacities and practical models for integrating resilience into energy-related planning and service delivery.

The project is also justified as a strategic response to the uncertain future climate context facing Cuba. Under scenarios of increasing climate variability and more severe extreme weather events, and a heavy reliance on fossil fuels, the resilience of electricity systems and the services that depend on them will become even more critical. By combining upstream planning with downstream implementation and learning, the project is expected to produce outcomes that remain relevant even as climate risks evolve, while also creating a basis for future scaling and adjustment. The demonstration component, in particular, will provide real-world operational lessons under Cuban conditions, helping to ensure that future efforts are informed by tested experience rather than assumptions alone.

A broad set of stakeholders will be critical to achieving these outcomes. CUBAENERGIA is expected to play a central role in partial project execution, while relevant national authorities, energy sector institutions, operators of selected critical facilities, and academia will contribute to planning, implementation and uptake. Other relevant public institutions involved in climate adaptation, energy planning and service delivery will be involved to ensure coherence and sustainability. Private sector participation may be relevant in selected areas related to technology supply, technical services and implementation support, as appropriate. These actors will not only contribute to project delivery, but will also be among the main beneficiaries of strengthened capacities, improved planning tools and more resilient service provision.

The project fits within the current landscape of national climate and energy efforts by complementing ongoing investments and policy processes rather than duplicating them. It will build on existing national priorities on climate adaptation, resilience and renewable energy, while helping to bridge the gap between policy ambition and operational practice in the specific area of climate-resilient energy services. It also draws on lessons from previous and ongoing work in Cuba and elsewhere showing the importance of combining institutional strengthening with practical demonstrations and knowledge capture. Its main climate adaptation benefits will include improved resilience of selected critical systems, facilities and communities, enhanced continuity of essential services during climate-related disruptions, stronger institutional capacity to assess and manage climate risks in the energy sector, and better conditions for replication and broader uptake of climate-resilient energy solutions in Cuba.

In this sense, the project is aligned with national priorities for climate resilience and sustainable development, while contributing directly to the objectives of the Global Program on Climate-Resilient Renewable Energy Systems (G-RES). As a national project under the wider G-RES framework, it will address country-specific barriers to climate-resilient renewable energy deployment in Cuba, while drawing on the programme's global-

regional support architecture, including shared knowledge, methodologies, standards and cross-country learning. In doing so, the project will support the broader G-RES goal of advancing climate-resilient renewable energy systems that enhance energy security, reduce vulnerability to climate-related disruptions and strengthen the sustainability of energy transition efforts in climate-exposed island contexts.

### Global Program on Climate Resilient Renewable Energy Systems for SIDS

**Global-regional component:** provides a common umbrella and joint tools, builds coherence across policies and "child" projects, facilitates SIDS-SIDS knowledge transfer and replication (funded by GEF and donors - e.g. Austria)  
**National child projects:** national implementation funded through GEF STAR, LDCF, SCCF, GCF and co-financing



**FIGURE 1: GLOBAL PROGRAM ON CLIMATE RESILIENT RENEWABLE ENERGY SYSTEMS FOR SIDS**



**FIGURE 2: OBJECTIVES AND SCOPE OF INTERVENTION OF THE G-RES PROGRAM FOR SIDS**

## B. PROJECT DESCRIPTION

### Project description

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

he proposed project is designed to strengthen the adaptive capacity to climate impacts of Cuba's electricity system and energy-dependent critical services through an integrated approach that combines climate risk assessment and resilience planning, institutional and technical capacity development, and targeted demonstration projects. The project responds to the growing exposure of Cuba's energy systems and critical services to climate-related disruptions, and to

the need for practical, context-appropriate solutions that can enhance the continuity of essential services during and after extreme events. The proposed interventions are intended to generate climate adaptation benefits by reducing vulnerability, strengthening institutional readiness, and demonstrating climate-resilient renewable energy, storage and grid solutions that can be replicated and more broadly adopted over time.

The project is part of the broader Global Program on Climate-Resilient Renewable Energy Systems (G-RES), and is therefore designed not only to address national barriers in Cuba, but also to contribute to the programme's wider objective of promoting renewable energy systems that are climate-resilient, operationally robust and supportive of sustainable development in highly climate-exposed contexts. Within this framework, the Cuba project will focus on the specific challenge of improving the climate resilience of electricity-dependent critical services and selected communities in the face of increasing climate risks.

## **PROPOSED THEORY OF CHANGE (TOC)**

The theory of change underlying the project is that, if climate risks affecting energy systems and energy-dependent critical services are better understood; if institutions and technical stakeholders have improved tools, knowledge and coordination mechanisms to plan and operate climate-resilient energy systems; and if practical demonstration projects generate evidence on the performance and operational value of renewable energy, storage and grid solutions under climate-related stress conditions, then Cuba will be better positioned to maintain the continuity of essential services during and after climate-related disruptions. This, in turn, will reduce the vulnerability of selected communities and facilities, strengthen climate adaptive capacity in the energy sector, and provide a basis for replication and broader uptake of climate-resilient energy solutions.

This logic is based on several key assumptions. First, that relevant institutions and stakeholders will remain engaged in climate resilience planning and implementation processes. Second, that the demonstration projects will be designed in a manner that is technically feasible, locally relevant and operationally maintainable. Third, that the knowledge, tools and lessons generated by the project will be sufficiently practical and credible to inform future action. The project has therefore been structured to combine upstream planning and capacity building with downstream demonstration and learning, so that climate resilience is not treated only as a concept, but also as an operational practice tested under real conditions.

### **Component 1: Climate risk assessment and climate resilience planning for energy systems and critical services**

The first component will strengthen the analytical and planning basis for climate adaptation in selected energy systems and energy-dependent critical services. It will support the development and application of climate vulnerability assessments, climate resilience planning tools and priority action roadmaps, with the aim of improving the ability of relevant institutions to identify, assess and address climate-related risks affecting essential service delivery. This component is particularly important in the Cuban context, where climate risks increasingly affect exposed and ageing infrastructure, contributing to service interruptions and cascading impacts across critical sectors. A stronger evidence base and more tailored planning tools are therefore necessary to support earlier, risk-informed and strategic resilience action.

The principal outcome of this component is that climate vulnerability assessments, climate resilience planning tools and priority action roadmaps are developed and applied for selected energy systems and critical services. To achieve this outcome, the component will deliver three main outputs:

- 1.1 Climate vulnerability assessments conducted for selected energy systems and critical services;
- 1.2 Climate resilience planning tools and methodologies developed and applied to support climate-resilience-informed decision-making;
- 1.3 Priority action roadmaps prepared to strengthen the climate resilience of selected energy systems and critical services

These outputs are expected to help address institutional and technical barriers linked to limited climate risk information, insufficiently tailored tools, and weak prioritization of climate adaptation measures in the energy-service nexus.

## Component 2: Strengthening Capacities and Institutional Mechanisms for Climate-Resilient Energy Systems

The second component will focus on the human, institutional and organizational dimensions of climate resilience. Even where climate risks are known and technical solutions exist, climate adaptation outcomes will remain limited unless relevant stakeholders have the technical capacities, institutional arrangements and operational guidance needed to plan, implement and manage climate-resilient solutions. This component will therefore strengthen capacities among key national stakeholders involved in energy systems' climate resilience and adaptation, while also promoting institutional coordination and knowledge-sharing mechanisms that support replication and broader uptake.

The outcome of this component is that knowledge, technical capacities and institutional mechanisms are strengthened to support the planning, operation, replication and broader uptake of climate-resilient energy solutions. The corresponding outputs include:

- 2.1 Training courses on prioritized energy systems climate resilience and climate adaptation topics are developed for and delivered to key national stakeholders;
- 2.2 Knowledge products, technical guidance materials and operational tools are developed and disseminated;
- 2.3 Institutional coordination and knowledge-sharing mechanisms to facilitate replication and broader uptake of project results are developed and supported

Together, these outputs will help address knowledge and capacity barriers, support more coherent action across institutions, and improve the operational readiness needed for climate resilience-oriented implementation. This component will also contribute to the longer-term sustainability of project results by ensuring that the project leaves behind not only infrastructure or plans, but also strengthened competencies and institutional linkages.

## Component 3: Demonstration of Climate-Resilient Renewable Energy, Storage and Grid Solutions for Selected Critical Systems, Facilities and Communities

The third component will support demonstration projects for selected critical system facilities and communities in order to generate evidence on how climate-resilient renewable energy, storage and grid solutions can improve the continuity of critical services during and/or after climate-induced hazards and disruptions. The purpose of this component is to demonstrate solutions that are operationally relevant in the Cuban context and that can inform future decision-making, replication and broader uptake. This is particularly important in a context where adaptation investments must be technically appropriate, feasible to operate and maintain, and clearly linked to climate resilience outcomes.

The outcome of this component is that selected critical systems, facilities and communities demonstrate enhanced resilience to climate-related disruptions through climate-resilient renewable energy, storage and grid solutions. The component will achieve this through three outputs:

- 3.1 Identified priority Climate-resilience demonstration sites are fully assessed and prepared for demonstration projects.
- 3.2 Climate-resilient renewable energy, storage and related climate resilience solutions installed and operational in selected demonstration sites/communities.
- 3.3 Performance, lessons learned and replication potential of demonstration projects documented and assessed

These outputs will help address demonstration barriers by providing practical operational experience and evidence on what works under local conditions, thereby reducing uncertainty and strengthening the case for future application.

During the PPG an initial baseline assessment of Cuba's grid infrastructure will identify the key climate/temperature-induced vulnerabilities and risks, taking into account network location, type of asset (e.g.

thermal or renewable generation, transmission line, distribution line, substation, sub-substation, etc.), impact on continuity of services, impact on population health and well-being, impact on the economy, impact on medium-and long-term grid-investments planning and development. In consultation with national counterparts and stakeholders the identified vulnerabilities/risks will be prioritized for intervention within the GEF project. While criteria and weights for prioritization will be set in consultation with national counterparts and stakeholders, it is expected that focus will be on addressing vulnerabilities/risks with higher negative impact on the population. Once vulnerabilities/risks will have been prioritized, UNIDO in collaboration with Cuban counterparts and stakeholders will identify and assess different technology solutions and climate-resilience enhancement interventions, taking into account potential impact of GEF project's intervention, time-bound feasibility, cost-efficiency, sustainability and deployment at scale. At this stage, without pre-empting discussion and decisions with Cuban counterparts and execution partners, it is envisaged that the GEF project will concentrate on building and strengthening Cuba's capacities to anticipate and prepare for top climate change induced risks in order to re-duce/minimize their damages and to ensure continuity of essential services and functions.

## 1 Problem Statement

Cuba's current energy infrastructure and systems' operations, planning and investments do not adequately integrate climate-resilience and climate-adaptation principles, best-practices and solutions, increasing the vulnerability of Cuba's energy assets, population and businesses to immediate and long-term climate change impacts and associated socio-economic costs. Cuba faces multiple barriers for the adoption of climate-resilient renewable energy solutions and grid's infrastructure.

## 2 Impact / Ultimate Goal

Climate adaptation and resilience of Cuba's electricity system and energy-dependent critical services is strengthened through integration of climate-resilience renewable energy, grid and storage solutions in operations, planning and investments.

## 3 Long-Term Outcomes

Climate-resilient energy systems and infrastructure planning combined with robust policy incentives and regulatory frameworks provide conducive conditions for systemic adoption and deployment of climate-resilience practices and solutions.

Cuba's market provides climate-resilience qualified gender-balanced workforce and services for planning, design, installation and operation of key climate-resilience solutions and technologies

Experienced and highly competent developers of climate-resilience renewable energy, grid and storage solutions, in a market well-aware of the costs & benefits of climate-resilience preparedness and with availability of and access to sufficient financing, sustain and drive deployment at scale

## 4 Short-term Outcomes

Climate-resilience relevant Cuban institutions have the adequate climate-resilience information and technical competencies to upgrade their national energy systems operations and planning methodologies, associated regulatory frameworks and investment strategies.

Cuba's education and professional training systems in the technical areas of energy systems and infrastructures design and safety integrate climate-resilience and most Cuba's relevant solutions/ technologies as key curricula's topics.

Actual operations experience and performance of climate-resilience demonstration solutions for energy systems and facilities reduce risk perception and support investment confidence of Cuban government, developers and key energy systems market actors.

## 5 Outputs

1.1 Climate vulnerability assessments for selected systems and services;  
1.2 Resilience planning tools and methodologies to support climate-informed decision-making;  
1.3 Priority action roadmaps to guide resilience-enhancing interventions.

2.1 Training courses on prioritized energy resilience and climate adaptation topics are developed for and delivered to key national stakeholders;  
2.2 Knowledge products, technical guidance materials and operational tools are developed and disseminated;  
2.3 Institutional coordination and knowledge-sharing mechanisms to facilitate replication and broader uptake of project results are developed and supported

3.1 Identified priority Climate-resilience demonstration sites are fully assessed and prepared for demonstration projects.  
3.2 Climate-resilient renewable energy, storage and related resilience solutions installed and operational in selected demonstration sites/communities.  
3.3 Performance, lessons learned and replication potential of demonstration projects documented and assessed

## \* Assumptions

### Governance

Government of Cuba maintains its political will to engage in climate-resilience and to strengthen its institutional capacities and policy frameworks.

### Human capital

Cuba's highly-qualified and collaborative professionals, with women empowered to also lead, provide the competencies and drive needed for the sound execution of the project activities and to catalyze sustained change towards systemic climate-resilience.

### Market

Cuba's power utility, businesses and communities remain interested in implementing and operating solutions that enhance the resilience of their energy infrastructure, supply and systems to increasing climate-hazards and climate-induced costs.

### Key assumptions

The proposed approach is based on the assumption that relevant national institutions of the Government of Cuba, as well as stakeholders will remain engaged in climate resilience planning, implementation and knowledge-sharing processes throughout the life of the project. It also assumes that the selected demonstration projects will be technically feasible, operationally relevant and maintainable under Cuban conditions, and that the lessons generated through implementation will be sufficiently practical to inform future replication and broader uptake. These assumptions are realistic, but they are also shaped by a context in which climate exposure is increasing, infrastructure constraints remain significant, and implementation conditions may evolve over time.

The project has therefore been designed to be robust under different future climate and operational scenarios. Rather than relying on a single type of intervention, it combines climate risk assessments, planning tools, capacity development, institutional strengthening and practical demonstrations. It also helps ensure that the project remains relevant even if climate hazards intensify, institutional priorities evolve, or site-specific implementation conditions change. Careful site selection, phased preparation, targeted technical support and the use of practical knowledge products will help mitigate risks related to technology performance, institutional coordination and implementation capacity.

### Adaptation Benefits

Without the project, climate-related hazards would continue to place increasing pressure on electricity systems and energy-dependent critical services, while efforts to assess risks, strengthen resilience planning and test practical climate resilience solutions would remain limited, fragmented or insufficiently advanced. GEF support is therefore critical because it enables the assessment, planning and demonstration of climate-resilient renewable energy, storage and grid solutions, while also strengthening the institutional and technical capacities required to apply these solutions effectively under climate-related stress conditions.

Expected climate adaptation benefits include improved climate resilience of selected critical facilities and communities to climate-related disruptions; enhanced continuity of essential services during and after extreme weather events; stronger institutional capacity to assess and manage climate risks in the energy sector; and improved conditions for the replication and broader uptake of climate-resilient energy solutions.

### Financial Sustainability

The tools, assessments, guidance and trained staff produced under Components 1 and 2 remain useful and in place after the project ends, embedded within the national institutions that use them, so they do not require continued funding.

For Component 3, the demonstrated solutions are installed in operating critical facilities that already have their own staff and budgets, so the equipment is maintained as part of those facilities' normal operations. The renewable energy and storage solutions also reduce the facilities' fuel related costs, helping to cover ongoing maintenance. Detailed operation and maintenance arrangements, including for replication beyond the demonstration sites, will be defined during the PPG phase.

### Gender Dimensions

The project will take into account relevant gender dimensions in line with UNIDO's guidelines and will ensure that gender considerations are reflected in project design and implementation. The project will therefore seek to promote inclusive participation in relevant consultations, training and project activities, and will incorporate gender-responsive considerations in the further development of assessments, implementation arrangements and monitoring approaches during project preparation.

A more detailed gender analysis and corresponding gender-responsive actions will be developed during the PPG phase and reflected in the full project document and results framework, including, as appropriate, the use of sex-disaggregated data and gender-sensitive indicators.

### Knowledge Management (KM)

The project will generate technical, operational and institutional knowledge through climate vulnerability assessments, climate resilience planning processes, capacity-building activities and practical demonstration projects. This knowledge will be documented, managed and shared through technical guidance materials, operational tools, lessons learned and other knowledge products that support both national uptake and contribution to the wider G-RES programme.

The project will also promote learning and broader uptake by translating technical experience into practical guidance for future action. In particular, the documentation of demonstration results, operational lessons and replication potential will help strengthen the evidence base for climate-resilient renewable energy, storage and grid solutions in Cuba.

#### Private sector engagement

Private sector engagement is expected to form part of the project, particularly in relation to technology supply, engineering and technical services, installation support, maintenance arrangements and other specialized inputs associated with the demonstration and potential replication of climate-resilient renewable energy, storage and grid solutions. Although the project is not designed as a private sector-led operation, relevant private sector actors may play an important enabling role by contributing technical expertise, implementation capacity and practical solutions adapted to local conditions. Their engagement will be pursued, as appropriate and feasible, in ways that support project implementation, knowledge transfer and the broader uptake of resilient energy solutions.

#### Stakeholder coordination

UNIDO will serve as the implementing agency. UNIDO provides technical oversight and ensures that the project is synergetic and aligned with the Global-RES program. Drawing on its long-standing experience in Cuba as well as lessons learned from established SIDS initiatives, UNIDO will facilitate robust SIDS-SIDS cooperation through the Global Network of Regional Sustainable Energy Centres (GN-SEC).

As the host of the GN-SEC platform, UNIDO facilitates South-South and triangular cooperation between the centers. In coordination with the Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE)—and leveraging inter-regional exchange with the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) and other centers such as CEREEAC, SACREEE, SICREEE, and ECREEE—UNIDO will facilitate the transfer of clean energy expertise, technical blueprints, and gender-mainstreaming models to other SIDS regions. Further information on these global networks is available at [www.gn-sec.net](http://www.gn-sec.net).

### Coordination and Cooperation with Ongoing Initiatives and Project.

Does the GEF Agency expect to play an execution role on this project?

If so, please describe that role here. Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing

The project aligns closely with Cuba's national climate priorities, including Tarea Vida and the country's updated Nationally Determined Contribution (NDC 3.0, February 2025). It will coordinate with and complement ongoing initiatives to ensure coherence, avoid duplication, and maximize synergies, including:

- The GEF project in Cuba is part of the G-RES program, which comprises a global-regional component and a growing portfolio of national projects. The global-regional project (GEF ID: 12229) will accelerate national progress by strengthening coordination, ensuring policy coherence, facilitating SIDS-SIDS cooperation, and sharing best practices in climate risk assessments, energy policy development, and integrated resource and climate resilience planning—including gender responsive and socially inclusive approaches
- Accelerating Cuban low-carbon and circular solutions for micro-, small and medium-sized enterprises (GEF ID: 12227) – The project will coordinate, where relevant, with the GEF-8 Cuba project focused on low-carbon and circular solutions for MSMEs. Although primarily mitigation-oriented, important synergies are

expected in relation to institutional strengthening, capacity building, knowledge generation and the promotion of practical, context-appropriate solutions under Cuban conditions.

- Program for the Ecological Transition Towards Sustainable Municipalities (AICS–EU–UNDP): Coordination will focus on aligning local-level clean energy and capacity-building activities relevant to MSMEs and pilot demonstrations.
- Participation in Carbon Markets (UNDP – Climate Promise): Coordination will ensure consistency with national MRV systems and emerging voluntary carbon market frameworks.
- Technological and Business Upgrade Program for Agrochemical and Agricultural Machinery Industries (Government of Russia – UNIDO): Synergies are expected in industrial modernization, energy efficiency, and technology upgrading.
- Cuba’s Biennial Transparency Reports and National Communications (GEF-funded): Coordination will ensure consistency in greenhouse gas accounting and integration of results into national transparency processes.

Coordination mechanisms and institutional arrangements

As the GEF Agency, UNIDO is expected to support project execution through overall fiduciary oversight, technical supervision, and quality assurance in line with GEF policies and procedures. UNIDO will work with the Government of Cuba and the designated Executing Entity (once confirmed) to support the establishment of implementation arrangements and ensure coordination with relevant national and international initiatives. Project coordination will be ensured through the establishment of a Project Steering Committee (PSC) and a Project Management Unit (PMU). The PSC will provide strategic guidance, ensure alignment with national policies and ongoing initiatives, and endorse annual workplans and budgets. It is expected to include representatives from relevant ministries (including energy and environment), key national institutions, and the GEF Agency.

A PMU will be established within the Executing Entity (once confirmed) and will be responsible for day-to-day coordination, monitoring and reporting, stakeholder engagement, and implementation of project activities. The PMU will operate under the oversight of the GEF Agency and will serve as the primary interface for coordination with ongoing initiatives, facilitating information sharing, technical exchanges, and, where feasible, the sharing of expertise and resources.

## Core Indicators

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

## META INFORMATION – SCCF

|                                                                             |                                                          |                                                               |
|-----------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------|
| LDCF <b>false</b>                                                           | SCCF-B (Window B) on technology transfer<br><b>false</b> | SCCF-A (Window-A) on climate Change adaptation<br><b>true</b> |
| Is this project LDCF SCCF challenge program?                                |                                                          |                                                               |
| <b>false</b>                                                                |                                                          |                                                               |
| This Project involves at least one small island developing State(SIDS).     |                                                          |                                                               |
| <b>true</b>                                                                 |                                                          |                                                               |
| This Project involves at least one fragile and conflict affected state.     |                                                          |                                                               |
| <b>false</b>                                                                |                                                          |                                                               |
| This Project will provide direct adaptation benefits to the private sector. |                                                          |                                                               |
| <b>false</b>                                                                |                                                          |                                                               |

This Project is explicitly related to the formulation and/or implementation of national adaptation plans (NAPs).

**true**

This project will collaborate with activities begin supported by other adaptation funds. If yes, please select below

|                    |                 |                                             |
|--------------------|-----------------|---------------------------------------------|
| Green Climate Fund | Adaptation Fund | Pilot Program for Climate Resilience (PPCR) |
| <b>false</b>       | <b>false</b>    | <b>false</b>                                |

This Project has an urban focus.

**false**

This project will directly engage local communities in project design and implementation

**true**

This project will support South-South knowledge exchange

**true**

This Project covers the following sector(s)[the total should be 100%]: \*

|                                 |         |
|---------------------------------|---------|
| Agriculture                     | 0.00%   |
| Nature-based management         | 0.00%   |
| Climate information services    | 10.00%  |
| Coastal zone management         | 0.00%   |
| Water resources management      | 0.00%   |
| Disaster risk management        | 10.00%  |
| Other infrastructure            | 50.00%  |
| Tourism                         | 20.00%  |
| Health                          | 10.00%  |
| Other (Please specify comments) | 0.00%   |
| Total                           | 100.00% |

This Project targets the following Climate change Exacerbated/introduced challenges: \*

|                  |                                       |                                |                 |
|------------------|---------------------------------------|--------------------------------|-----------------|
| Sea level rise   | Change in mean temperature            | Increased climatic variability | Natural hazards |
| <b>false</b>     | <b>false</b>                          | <b>true</b>                    | <b>false</b>    |
| Land degradation | Coastal and/or Coral reef degradation | Groundwater quality/quantity   |                 |
| <b>false</b>     | <b>false</b>                          | <b>false</b>                   |                 |

## CORE INDICATORS – SCCF

|                                                          | Total  | Male      | Female    | % for Women |
|----------------------------------------------------------|--------|-----------|-----------|-------------|
| CORE INDICATOR 1<br>Total number of direct beneficiaries | 24,000 | 12,000.00 | 12,000.00 | 50.00%      |

|                                                                                                                                             |              |        |        |        |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------|--------|--------|
| CORE INDICATOR 2<br>(a) Area of land managed for climate resilience (ha)<br>(b) Coastal and marine area managed for climate resilience (ha) | 0.00<br>0.00 |        |        |        |
| CORE INDICATOR 3<br>Number of policies/plans/ frameworks/institutions for to strengthen climate adaptation                                  | 3.00         |        |        |        |
| CORE INDICATOR 4<br>Number of people trained or with awareness raised                                                                       | 300          | 150.00 | 150.00 | 50.00% |
| CORE INDICATOR 5<br>Number of private sector enterprises engaged in climate change adaptation and resilience                                | 1.00         |        |        |        |

## Key Risks

|                          | Rating   | Explanation of risk and mitigation measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CONTEXT                  |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Climate                  | Moderate | Cuba is highly exposed to hurricanes, floods and droughts that may dis-rupt supply chains, pilot demonstrations and institutional workplans. The project would aim to mitigate these risks by prioritizing resilient technol-ogies, integrating climate-risk screening into design, and aligning with national climate adaptation planning. Residual risk remains substantial due to external climatic conditions.                                                                                                                                                                                                                                |
| Environmental and Social | Low      | The measures are expected to be well received by the public, as they will improve their current access to and use of electricity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Political and Governance | Moderate | Shifts in government priorities, inter-ministerial coordination delays or competing agendas may affect policy reforms. Mitigation includes strong PSC oversight, alignment with national strategies, and continuous dialogue with MINEM, CITMA, MINDUS, UNE and the Institute of Non-State Economic Actors. These measures keep residual governance risk at a moderate level.                                                                                                                                                                                                                                                                     |
| INNOVATION               |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Institutional and Policy | Moderate | The project depends on sustained coordination among multiple institu-tions involved in energy, climate adaptation and critical service delivery. Delays in inter-institutional coordination, limited alignment of mandates, or insufficient integration of climate resilience considerations into sectoral plan-ning could reduce implementation effectiveness and the uptake of pro-ject results. To mitigate this risk, the project will establish clear coordina-tion arrangements from the outset, define roles and responsibilities for participating institutions, and support regular technical consultation and validation processes. The |

|                              |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              |             | development of practical planning tools, technical guidance and priority action roadmaps will also help anchor project results in institutional processes and improve policy coherence.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Technological                | Moderate    | Technological obsolescence, lack of modern equipment and constraints related to energy storage or grid conditions may affect technology viability. Feasibility screening during PPG, prioritizing proven and serviceable technologies, engineering support and supplier-based financing mitigate these factors, leaving moderate residual risk.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Financial and Business Model | Substantial | The sustainability and broader uptake of project results may be affected by financial constraints, limited availability of follow-up financing, and challenges in mobilizing resources for replication after the end of the project. The implementation of demonstration projects may face cost pressures associated with equipment, logistics and specialized technical requirements. Mitigation measures will include the preparation of priority action roadmaps, documentation of demonstration performance and replication potential, and engagement with relevant institutions and partners to identify opportunities for follow-up support and broader uptake. The project is also designed to reduce investment uncertainty by generating practical evidence on viable climate resilience solutions under Cuban conditions. |

#### EXECUTION

|             |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capacity    | Moderate | Limited domestic expertise may affect implementation quality. The project addresses this risk directly through a dedicated capacity-building component, targeted technical assistance, development of operational tools and guidance materials, and knowledge-sharing mechanisms that support practical learning throughout implementation.                                                                                                                                                                                                                                                                                                                                                                                                             |
| Fiduciary   | Low      | UNIDO's financial management, procurement procedures and audit systems will apply, ensuring strong controls and transparent fund management. With clear roles and oversight, fiduciary risk is assessed as low.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Stakeholder | Low      | The project requires the engagement of a range of stakeholders, including national institutions, technical actors, local authorities, operators of selected facilities and beneficiary communities. At PIF stage, stakeholder-related risks are considered low, as the project is broadly aligned with national priorities and expected needs. Nevertheless, insufficient consultation or weak stakeholder ownership could reduce the relevance, acceptance or sustainability of project results. This risk will be mitigated through inclusive consultation processes, stakeholder participation in project preparation and implementation, and the development of coordination and knowledge-sharing mechanisms that facilitate ownership and uptake. |
| Other       | Moderate | External operational constraints, including delays in implementation processes, logistical bottlenecks, or changing operating conditions, may affect the timing and efficiency of project delivery. The project will mitigate these risks through flexible work planning, phased implementation of                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|                     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |             | demonstration activities, adaptive management, and regular review of implementation progress in order to identify and address bottlenecks early.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Overall Risk Rating | Substantial | The overall risk is rated Substantial due to the combination of institutional, financial and implementation capacity challenges, as well as the climate-exposed context in which the project will operate. At the same time, the project design includes important mitigation measures, including phased preparation, targeted technical support, institutional coordination, capacity development, careful site selection and adaptive management. These measures are expected to reduce residual risks to a manageable level and support the achievement of the project's intended outcomes. |

### C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Describe how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how. (max. 500 words, approximately 1 page)

The proposed project is aligned with the GEF-8 programming direction for Climate Adaptation by strengthening the climate resilience of energy systems and energy-dependent critical services to climate-related disruptions. Its focus on climate risk assessment, climate resilience planning, institutional strengthening and demonstration of climate-resilient renewable energy, storage and grid solutions is consistent with the objective of reducing vulnerability and enhancing adaptive capacity to climate impacts in climate-exposed contexts.

As part of the Global Program on Climate-Resilient Renewable Energy Systems (G-RES), the project also contributes to the broader programme goal of supporting renewable energy systems that are climate-resilient, operationally robust and supportive of sustainable development in highly exposed island and coastal settings. At the national level, the project is closely aligned with Cuba's climate and sustainable development priorities, including the State Plan for Climate Change (Tarea Vida), which provides the overarching framework for national climate adaptation efforts, particularly in relation to risk reduction, climate resilience-building and the protection of vulnerable territories and essential services.

While Cuba's National Adaptation Plan (NAP) is still under formulation, the country's adaptation effort is framed by two principal national instruments: the State Plan to Confront Climate Change (Tarea Vida) and the updated Nationally Determined Contribution (NDC 3.0).

Tarea Vida is Cuba's national legislation on climate change — approved by the Council of Ministers on 25 April 2017, it is the instrument of highest legal status on the subject and is implemented and overseen by CITMA. It comprises five strategic actions and 11 tasks directed at reducing climate impacts in vulnerable zones, and explicitly includes the implementation of measures in programmes and projects linked to renewable energy, energy efficiency, health and tourism — the energy and energy-dependent critical-service sectors at the centre of this project. In its current implementation phase, Tarea Vida prioritizes the energy sector and frames renewable energy not only as a mitigation measure but as a means of ensuring service continuity under contingency and climate-related stress conditions, directly consistent with the project's focus on the climate resilience of the electricity system and the critical services that depend on it.

Cuba's updated NDC (NDC 3.0, February 2025) reinforces this framing: it identifies adaptation as the country's highest national priority, anchors adaptation action in Tarea Vida, raises Cuba's renewable energy ambition, and explicitly references the NAP process now underway, fostering coherence between the instruments as the NAP is completed.

The project is therefore aligned with Cuba's operative national adaptation framework. At the same time, explicit treatment of the climate resilience of energy systems and energy-dependent critical services remains limited in current national instruments; the project directly addresses this gap by generating the energy-sector climate-risk assessments, climate resilience-planning tools and priority action roadmaps (Component 1) that feed into national adaptation planning and the emerging NAP.

At the regional and international levels, the project supports implementation of the Paris Agreement through its contribution to adaptation and resilience-building, while also complementing the objectives of the Antigua and Barbuda Agenda for SIDS (ABAS) and the broader SIDS agenda on climate resilience, sustainable energy transitions and strengthened adaptive capacity to climate impacts.

## D. POLICY REQUIREMENTS

### Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

### Stakeholder Engagement

We confirm that key stakeholders were consulted during PIF development as required per GEF policy, their relevant roles to project outcomes and plan to develop a Stakeholder Engagement Plan before CEO endorsement has been clearly articulated in the Project Description (Section B).

Yes

### Were the following stakeholders consulted during project identification phase:

Indigenous Peoples and Local Communities:

Civil Society Organizations:

Private Sector: Yes

### Provide a brief summary and list of names and dates of consultations

Over the period 4-10 June 2026 the UNIDO team has met and consulted with the following Cuban counterparts and stakeholders. A full list of people consulted is enclosed as annex to the PIF.

Consultations with senior officials at the Ministry of Science, Technology and Environment of Cuba (CITMA) focused on the climate resilience theme in relation to the National Strategy, the Nationally Determined Contributions of Cuba, and the State Plan to address climate change in Cuba "Tarea Vida". CITMA's colleagues highlighted that the three documents are interconnected, recognizing the critical importance of adapting to the climate change impacts, as well as of developing guidelines and actions to minimize such impacts. Special emphasis was placed on the strengthening monitoring, surveillance and early warning systems; raising risk awareness, and increasing the level of knowledge and degree of participation of the population. CITMA's colleagues mentioned that the country's progress in early warning and notification

systems for extreme natural events—supporting decision-making—is acknowledged; but they recognized that regarding the vulnerabilities of the national electricity system and the increase in renewable energy sources more work is needed.

Discussion with the Ministry of Energy and Mines of Cuba (MINEM) centred around climate resilience in relation to the National Energy Transition Strategy (NETS). MINEM colleagues pointed out that climate resilience and climate adaptation are included indirectly in the principle of environmental sustainability which cut across the NETS. They highlighted that within the ongoing process and national effort of shifting the Cuba's energy matrix towards more renewable energy sources, climate adaptation is a critical factor for technology maintenance, which is the current initial focus of MINEM for the country.

MINEM colleagues see the proposed GEF SCCF-A project highly important and timely for Cuba.

Unión Eléctrica de Cuba (UNE) and its provincial Electric Companies in Santiago de Cuba province and Holguin province.

UNE colleagues highlighted that climate resilience work is just starting at UNE and that hurricanes and higher temperatures are the main climate hazards identified so far. The current initial focus of UNE's work on climate resilience is to reduce risks and damages from hurricanes to power stations and substations.

List of stakeholders consulted over the period 4-10 June 2026

| Name of stakeholder                                           | Person met/consulted                                          | Main topic(s) discussed                                                                                    | Key issues raised/ highlighted                                                                                                                                                                                                                   |
|---------------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unión Eléctrica de Cuba (UNE)                                 | Ovel Concepción Díaz, Director of Renewable Energy Department | i. Hurricanes and climate change impact on UNE assets and operations<br>ii. Climate-resilience work at UNE | - Climate-resilience work just started<br>- Main climate hazards are hurricanes, higher temperatures.<br>- Current initial focus of UNE is to reduce risks and damages from hurricanes to power stations and substations                         |
|                                                               | Félix Estrada Rodríguez, Director, National Cargo Office      | i. Hurricanes and climate change impact on UNE assets and operations<br>ii. Climate-resilience work at UNE | - Climate-resilience work just started<br>- Main climate hazards are hurricanes & higher temperatures<br>- Current initial focus of UNE is to reduce risks and damages from hurricanes to power stations and substations                         |
| Electric Company Santiago de Cuba province (belonging to UNE) | Javier Calero Román, General Director                         | iii. Climate - resilience in Guamá-La Plata Community                                                      | - A demonstration project in the community implementing renewable solutions from mini-hydroelectric – Solar Photovoltaic system + risks and damages reduction plan will be very convenient to increase the climate-resilience of the population. |
| Electric Company Holguin                                      | Rubert Reynaldo González, General Director                    | iv. Climate - resilience in Gibara, Holguin                                                                | - The restauration of the Wind park GIBARA 1 with integration of climate resilience                                                                                                                                                              |

| Name of stakeholder                                             | Person met/consulted                                                                        | Main topic(s) discussed                                                                                                                                 | Key issues raised/ highlighted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| province (belonging to UNE)                                     |                                                                                             |                                                                                                                                                         | considerations, plans and technologies would be very convenient to then scale-up the model to other wind parks and so reducing the climate change impacts on the population.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Ministry of Energy and Mines of Cuba (MINEM)                    | Rosell Guerra Campaña, Director, Renewable Energy Department                                | v. Climate- resilience in the National Energy Transition Strategy.                                                                                      | <ul style="list-style-type: none"> <li>- Climate resilience included indirectly in the principle of environmental sustainability.</li> <li>- In the process of shifting the energy matrix towards renewable energy sources, the climate adaptation is a critical factor for technology maintenance; current initial focus of MINEM for the country.</li> <li>- MINEM considers the project highly important and timely for Cuba</li> </ul>                                                                                                                                                                                                                                                                                                        |
|                                                                 | Elaine Moreno Carnet. Director, Human Resources for Directives                              |                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                 | Jorge Luis Isaac Pino. Specialist of renewable energy Department                            |                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Ministry of Science, Technology and Environment of Cuba (CITMA) | Rudy Montero Mata, Deputy Minister of Environment                                           | vi. Climate- resilience in the National Strategy, Nationally Determined Contribution of Cuba, State Plan to address climate change in Cuba “Tarea Vida” | <ul style="list-style-type: none"> <li>- The three documents are interconnected, recognizing the critical importance of adapting to the climate change impacts, as well as the guidelines and actions to minimize them.</li> <li>- Special Emphasis on strengthening monitoring, surveillance, and early warning systems, raising risk awareness, and increasing the level of knowledge and degree of participation of the population.</li> <li>- The country's progress in early warning and notification systems for extreme natural events—supporting decision-making—is acknowledged; however, is limited the scope regarding the vulnerabilities of the national electricity system and the increase in renewable energy sources.</li> </ul> |
|                                                                 | Odalys Goicochea Cardoso, General Director of Environment                                   |                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                 | Jesús Guerra Bell, Specialist of the International Cooperation Department (GEF Focal Point) |                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                 |                                                                                             |                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

(Please upload to the portal documents tab any stakeholder engagement plan or assessments that have been done during the PIF development phase.)

## Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in the section B project description?

Yes

## Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided indicative information regarding Environmental and Social risks associated with the proposed project or program and any measures to address such risks and impacts (this information should be presented in Annex D).

Yes

## Overall Project/Program Risk Classification

| PIF             | CEO<br>Endorsement/Approval | MTR | TE |
|-----------------|-----------------------------|-----|----|
| Medium/Moderate |                             |     |    |

## E. OTHER REQUIREMENTS

### Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described in the Project Description (Section B)

Yes

## ANNEX A: FINANCING TABLES

### GEF Financing Table

Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

| GEF Agency               | Trust Fund | Country/<br>Regional/<br>Global | Focal Area     | Programming of Funds      | Grant / Non-Grant | GEF Project Grant(\$) | Agency Fee(\$) | Total GEF Financing (\$) |
|--------------------------|------------|---------------------------------|----------------|---------------------------|-------------------|-----------------------|----------------|--------------------------|
| UNIDO                    | SCCF-A     | Cuba                            | Climate Change | SCCF-A Country allocation | Grant             | 2,639,726.00          | 250,774.00     | 2,890,500.00             |
| Total GEF Resources (\$) |            |                                 |                |                           |                   | 2,639,726.00          | 250,774.00     | 2,890,500.00             |

### Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount (\$)

100000

PPG Agency Fee (\$)

9500

| GEF Agency                   | Trust Fund | Country/<br>Regional/<br>Global | Focal Area        | Programming<br>of Funds      | Grant /<br>Non-Grant | PPG(\$)           | Agency<br>Fee(\$) | Total PPG<br>Funding(\$) |
|------------------------------|------------|---------------------------------|-------------------|------------------------------|----------------------|-------------------|-------------------|--------------------------|
| UNIDO                        | SCCF-A     | Cuba                            | Climate<br>Change | SCCF-A Country<br>allocation | Grant                | 100,000.00        | 9,500.00          | 109,500.00               |
| <b>Total PPG Amount (\$)</b> |            |                                 |                   |                              |                      | <b>100,000.00</b> | <b>9,500.00</b>   | <b>109,500.00</b>        |

Please provide justification

### Sources of Funds for Country Star Allocation

| GEF Agency                 | Trust Fund | Country/<br>Regional/ Global | Focal Area | Sources of Funds | Total(\$)   |
|----------------------------|------------|------------------------------|------------|------------------|-------------|
| <b>Total GEF Resources</b> |            |                              |            |                  | <b>0.00</b> |

### Indicative Focal Area Elements

| Programming Directions    | Trust Fund | GEF Project Financing(\$) | Co-financing(\$)     |
|---------------------------|------------|---------------------------|----------------------|
| CCA-2-1                   | SCCF-A     | 2,639,726.00              | 18478082             |
| <b>Total Project Cost</b> |            | <b>2,639,726.00</b>       | <b>18,478,082.00</b> |

### Indicative Co-financing

| Sources of Co-financing      | Name of Co-financier     | Type of Co-financing | Investment Mobilized   | Amount(\$) |
|------------------------------|--------------------------|----------------------|------------------------|------------|
| GEF Agency                   | UNIDO                    | Grant                | Investment mobilized   | 80000      |
| Beneficiaries                | CUBAENERGIA              | In-kind              | Recurrent expenditures | 500000     |
| Beneficiaries                | Unión Eléctrica de Cuba  | In-kind              | Recurrent expenditures | 600000     |
| Beneficiaries                | Unión Eléctrica de Cuba  | Public Investment    | Recurrent expenditures | 6000000    |
| Recipient Country Government | Min. of Energy and Mines | In-kind              | Recurrent expenditures | 1490000    |

|                           |                    |                   |                        |                      |
|---------------------------|--------------------|-------------------|------------------------|----------------------|
| Beneficiaries             | Government of Cuba | In-kind           | Recurrent expenditures | 500000               |
| Beneficiaries             | Government of Cuba | Public Investment | Recurrent expenditures | 4000000              |
| Beneficiaries             | Academia           | In-kind           | Recurrent expenditures | 200000               |
| Private Sector            | Pilots             | In-kind           | Recurrent expenditures | 3000000              |
| Others                    | National Funds     | Public Investment | Recurrent expenditures | 1818175              |
| GEF Agency                | UNIDO              | In-kind           | Recurrent expenditures | 289907               |
| <b>Total Co-financing</b> |                    |                   |                        | <b>18,478,082.00</b> |

Describe how any "Investment Mobilized" was identified

TBD at PPG, figures are estimations.

In line with the SCCF principle of additionality, the project is designed so that SCCF resources finance only the additional cost of climate resilience, not the cost of the underlying energy infrastructure. Investments in energy production, storage and transmission in Cuba would proceed under the baseline; SCCF financing is directed specifically to the incremental cost of making these solutions climate-resilient — for example, the added cost of disaster-resistant design and siting, redundancy and resilient storage required to maintain the continuity of critical services during and after climate-related events, with the project's substantial co-financing covering the underlying baseline investment.

## ANNEX B: ENDORSEMENTS

### GEF Agency(ies) Certification

| GEF Agency Type        | Name  | Date     | Project Contact Person | Phone            | Email                |
|------------------------|-------|----------|------------------------|------------------|----------------------|
| GEF Agency Coordinator | UNIDO | 6/5/2026 | Ganna Onysko           | +431260263647    | G.ONYSKO@unido.org   |
| Project Coordinator    | UNIDO | 6/5/2026 | Marco Matteini         | +43 1 26026 4583 | M.MATTEINI@unido.org |

### Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

| Name             | Position                          | Ministry                                         | Date (MM/DD/YYYY) |
|------------------|-----------------------------------|--------------------------------------------------|-------------------|
| Lisbet Font Vila | Director of International Affairs | Ministry of Science, Technology, and Environment | 6/3/2026          |

## ANNEX C: PROJECT LOCATION

Please provide geo-referenced information and map where the project interventions will take place

At this stage project locations include the three municipalities listed below. During the PPG phase, locations for project's interventions will be fully defined and detailed.

- 1) Havana, Cuba 23° 6' 48.9312" N and 82° 21' 59.7312" W.

2) Gibara in Holguín, Cuba 21° 06' 26" N and 76° 08' 12" W: Potential location of one of the climate resilience demonstration projects

3) Guama in Santiago de Cuba, Cuba 19°58'33"N and 76°24'36"W



## ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

(PIF level) Attach agency safeguard screen form including rating of risk types and overall risk rating.

Title

CUBA\_PIF-12369\_TOC

ESS GRES Cuba

## ANNEX E: RIO MARKERS

| Climate Change Mitigation | Climate Change Adaptation | Biodiversity      | Land Degradation  |
|---------------------------|---------------------------|-------------------|-------------------|
| Significant Objective 1   | Principal Objective 2     | No Contribution 0 | No Contribution 0 |

## ANNEX F: TAXONOMY WORKSHEET

| Level 1                          | Level 2                                      | Level 3                                                | Level 4 |
|----------------------------------|----------------------------------------------|--------------------------------------------------------|---------|
| Influencing Models               | Strengthen institutional capacity            | Training and technical assistance to institutions      |         |
| Influencing Models               | Transform policy and regulatory environments | Development of enabling laws/regulations               |         |
| Influencing Models               | Innovation platforms                         | Support innovation challenges/accelerators             |         |
| Influencing Models               | Economic/financial instruments               | Green public procurement, climate finance              |         |
| Stakeholders                     | Governmental institutions                    | Ministries/agencies                                    |         |
| Stakeholders                     | Academia                                     | Universities/research centers                          |         |
| Stakeholders                     | Civil Society                                | Communities, ONGs                                      |         |
| Stakeholders                     | International                                | Agencies                                               |         |
| Stakeholders                     | Non-state actors                             | MSMEs, cooperatives                                    |         |
| Capacity, Knowledge and Research | Institutional capacity                       | Energy audits, regulatory compliance                   |         |
| Capacity, Knowledge and Research | Technical training & technology transfer     | Training workshops, learning-by-doing                  |         |
| Capacity, Knowledge and Research | Research & innovation                        | Applied research, development of prototypes            |         |
| Capacity, Knowledge and Research | Knowledge management                         | Market/Technology Observatory, Communities of Practice |         |
| Gender Equality                  | Gender analysis                              | Gender participatory mapping                           |         |
| Gender Equality                  | Empowerment and training                     | Gender-sensitive capacity-building                     |         |
| Gender Equality                  | Participation and leadership                 | Women's representation in decision-making bodies       |         |