**Guidelines:**

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

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| **Requesting country or countries:** | Commonwealth of Dominica |
| **Request title:** |

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| **Technical and economic feasibility of solar units and water storage on public buildings in Dominica** |

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| **NDE**  | Ministry of Environment Rural and Urban Modernisation and Kalinago Upliftment. |
| **Request Applicant:** | Mr. Edgar Hunter Senior technical Advisor Ministry of Environment Urban and Rural Modernization and Kalinago UpliftmentPhone: +767 266 5358Email: huntere@dominica.gov.dm  |

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| **Climate objective:** |
| ☐ Adaptation to climate change ☐ Mitigation of climate change [x] Combination of adaptation and mitigation of climate change |

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| **Geographical scope:** |
| ☐ Community level ☐ Sub-national [x]  National ☐Multi-countryIf the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.). |

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| **Problem statement related to climate change** (up to one page): |
| *This section should answer the question “what is the problem?” Please summarize the problem related to climate change and/or the negative impacts of climate change in the country that the request aims to address.* Accordingly the Energy Transition Initiative[[1]](#footnote-1), like many island nations, Dominica is reliant on imported fossil fuels, leaving it vulnerable to global oil price fluctuations that directly impact the cost of electricity. However, Dominica is not as reliant on imported fossil fuels as other islands in the region thanks to three hydroelectric plants on the Roseau River that produce 27.4% of the electricity supply.Dominica drafted a National Energy Plan in 2011 and revised it in 2014 to state its objective of using sustainable and indigenous resources to make electricity generation on the island self-sufficient by 2020. It does not set binding targets but describes a scenario in which Dominica becomes a net exporter of electricity from its geothermal resources. Renewable energy installations have the potential to lower the fuel charge portion of electricity rates and increase the reliability of electricity services through appropriate planning and operating procedures. However, the island may be able to secure additional international and private sector funding for these projects. Small solar energy generation units can become in additional mechanisms toward the energy transition in Dominica.The island does not have a detailed analysis to identify the feasibility and benefits of expanding self-sufficient renewable energy generation solutions that can reduce the dependency of the expensive fossil fuels energy generation and increase the island energy self-sufficiency with low carbon technologies. These self-sufficient energy solutions can be off-grid or on-grid systems. The first ones are completely independent from the electricity grid and rely on batteries when there is not solar irradiation, and the second ones are still connected and use the electricity grid as an energy back-up.On the other side, Dominica has abundance of rivers and water. Other Caribbean countries consider Dominica as an alternative source of water supply in times of need. Supply systems are generally adequate to satisfy the demands of the communities. However, at some periods during the dry season, intermittent shortages can be experienced in a few of the systems (FAO, 2015[[2]](#footnote-2))The total DOWASCO (Dominica Water and Sewerage Company Dominica Water and Sewerage Company) coverage is estimated at over 90 percent of the total population. In remote areas, rainwater harvesting is practiced by individual households and institutions. Some small communities with less than 200 persons that are not served by DOWASCO are serviced through small water supply systems built by non-governmental organizations (IWCAM, 2011[[3]](#footnote-3)).The Integrated Water Resources Management (IWRM) Policy mentions that in order to minimize problems associated with droughts, the Dominican Government will encourage and support optimization of the storage facilities to contain wet season runoff for use in the dry periods.Besides, in order to minimize difficulties in the water supply, the Government will promote harnessing and utilizing rainwater from roof catchments for individual households in cisterns or on a small scale in surface storage tanks in areas of water deficit, and developing a program to support retrofitting public buildings with water efficiency/conserving measures. However, there is no plan at the moment for promoting these measures. |

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| **Past and on-going efforts to address the problem** (up to half a page):Geothermal potential in Dominica is high, with estimates ranging from 300 MW to 1,390 MW. Dominica is expected to develop more than 100 MW of geothermal power and has secured funding for early-stage investment through the World Bank’s Geothermal Development Plan.Besides, Dominica has high solar potential with a solar resource and wind power potential. Notwithstanding, Dominica has implemented only few renewable energy projects to date. For example, a project in the Rosalie Bay Resort with a 225-kilowatt (kW) wind turbine that produces 596 megawatt-hours (MWh) annually. This was the first renewable energy project to be interconnected to the DOMLEC grid. An additional 1-kW turbine is in operation, but is not connected to the grid. The report from NREL[[4]](#footnote-4) mentions that the Island has interesting opportunities for clean energy transformation. Wind, solar, and geothermal resources, paired with expand­ing hydropower, offer the greatest potential for renewable energy development in Dominica. Few policies currently support renewable energy development, but none inhibit them. In addition, the Government of Dominica has undertaken a programme to make its public buildings more energy efficient and slash its energy bill, with the financial support from the [Caribbean Development Bank (CDB)](http://caribank.org/), the [European Union](http://europa.eu/) and the United Kingdom’s [Department for International Development (DFID)](https://www.gov.uk/government/.../department-for-international-development).However, there is no plan to promote the use of renewable energy systems in public buildings as a measure to reduce electricity from fossil fuels consumption. Nor have any analysis been carried out on the costs and benefits of electricity self-generation and the sale of energy surpluses to the grid. |
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| **Specific technology[[5]](#footnote-5) barriers** (up to one page): |
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|  There is scarce experience on stand alone solar systems in the island  There are no reliable studies that supports taking decisions to electricity consumers on the feasibility of stand-alone solar systems and installation of water capture and storage systems There is a need to identify key local actors along the value chain of solar power generation and to develop strategies to effectively develop a solar market  There is a need for identifying business models to execute solar and water capture/storage investments There is the need to address potential synergies but also conflict of interest between stakeholders in the electricity sector in the scenario of sales of electricity surplus to the grid  |

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| **Sectors:** |
| Please indicate the main sectors related to the request: |
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| ☐ Coastal zones | ☐ Early Warning and Environmental Assessment | ☐ Human Health | ☐ Infrastructure and Urban planning |
| ☐ Marine and Fisheries | [x]  Water | ☐ Agriculture | ☐ Carbon fixation  |
| ☐ Energy Efficiency | ☐ Forestry | ☐ Industry | [x]  Renewable energy |
| ☐ Transport | ☐ Waste management |  |  |

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| Please add other relevant sectors:  |

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| **Cross-sectoral enablers and approaches:** |
| Please indicate the main cross-sectoral enablers and approaches

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| ☐ Communication and awareness | [x]  Economics and financial decision-making | [x]  Governance and planning | ☐ Community based |
| ☐ Disaster risk reduction | ☐ Ecosystems and biodiversity | ☐ Gender |  |

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| **Technical assistance requested** (up to one page): |
| The overall objective of the technical assistance is to develop a technical and economic feasibility analysis of small solar generation units and water storage systems on public buildings in Dominica.The priority activities to be carried out as part of the technical assistance are as follows: Activity group 1: Development of implementation planning and communication documentsActivity group 2: Review of small solar generation units and buildings water capture/storage already present in Dominica and in other similar islands Activity group 3: Analysis of current electricity and water consumption patterns in public buildings, and identification of appropriate technical options Activity group 4: Identify relevant stakeholders in the value chain for fostering small solar generation units and water capture and storage systemsActivity group 5: Analysis of impacts on: climate change mitigation goals in the energy sector, public buildings resilience, financial and other co-benefitsActivity group 6: Financial feasibility analysis and modeling scenarios of electricity and water consumption, costs and savingsActivity group 7: Revision and analysis of the current technical, policy and regulatory, organization capacity, and financial barriersThe expected deliveries of the technical assistance are:1. Report with existing stand alone solar units and water capture/storage systems in Dominica and similar islands
2. Report on potential public buildings that could be interested in stand alone solar generation systems and water capture/storage systems. Estimation of scenarios of potential market size
3. Detailed stakeholders map with classification by type and sector, and potential participation in a solar energy market
4. Report on estimations and conclusions of the impact of the stand alone solar units and water capture/storage systems on mitigation and resilience objectives to climate change, financial benefits for public organizations and other co-benefits
5. Report on the existing legal, technical and financial barriers for incorporating stand alone solar units and water capture/storage systems
6. Report to summarize recommended technical solutions and good practices for the solar and water capture/storage systems implementation
7. Report on barriers for solar and water capture/storage systems implementation
8. Report with summary of current legal framework and identification of the main legal barriers impacting the use small solar units and energy surplus sales to the grid, and recommendations to manage these barriers
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| **Expected timeframe:** |
| Please indicate the expected duration period for the requested technical assistance. Please note CTCN technical assistance is limited to a maximum duration of 8 months. |

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| **Anticipated gender and other co-benefits from the technical assistance:** |
| ​The equitable participation of men and women in decision-making in relation to developing small solar units and water capture/storage systems to be ensured. Furthermore, when assessing current capacities, in terms of demonstration and development projects, gender-related topics will be addressed. The gender balance in the sector will be determined and affirmative measures will be proposed to reduce gaps. These will be taken into account in the design of the pilot project. The following potential indicators, proposed by CTCN, are suggested: * Number and percentage of women and men who attend planning and participatory consultation meetings;
* Number of men and women members of technical teams and demonstration and development projects, by profession with a particular focus on those in decision making or leadership roles in the planning process.

The technical assistance will set out a pathway for the development that will economic, environmental, social and cultural co-benefits with an emphasis on gender equality. These co-benefits could include: creation of new jobs in the solar value chain, the capture and storage of water increases the resilience of public buildings in case of damage of infrastructure for extreme climatological events, increasing renewable energy utilization and reducing dependence on fossil fuels, and the promotion of a culture of sustainable development among the population. |

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| **Key stakeholders:** |
| Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).  |
| **Stakeholders** | **Role to support the implementation of the technical assistance** |
| National Designated Entity:Ministry of Environment, Rural Modernisation and Kalinago Upliftment | Climate Change Focal Point and environmental regulatory entity with oversight industrial processes. The NDE will coordinate the technical assistance and will support the interaction with other stakeholders |
| Request Applicant:Ministry of Environment, Rural Modernisation and Kalinago Upliftment | As above  |
| Domical Electricity Company (DOMLEC)Dominica Association of Industry and commerce (DAIC)Dominica Manufacturers Association (DMA) | Private company which owns the national electricity grid and distribution network. A key stakeholder in all national industrial development efforts. DOMLEC will provide relevant information and will be consulted by interviews and workshops National private sector organization for advocacy and service to business operations. An important stakeholder for the development of linkages between technology providers. DAIC will provide relevant information and will be consulted by interviews and workshopsNational organization engaged in advocacy for the implementation of appropriate policy and procedures in support of manufacturing activities. DMA will provide relevant information and will be consulted by interviews and workshops |

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| **Alignment with national priorities** (up to 2000 characters including spaces): |
| Please describe how the technical assistance is consistent with national climate priorities such as: Nationally Determined Contribution, national development plans, poverty reduction plans, technology needs assessments, Low Emission Development Strategies, Nationally Appropriate Mitigation Actions, Technology Action Plans, National Adaptation Plans, sectorial strategies and plans, etc. |
| **Reference document** (please include date of document) | **Extract** (please include chapter, page number, etc.). |
| Nationally Determined Contribution (NDC) | The NDC proposes mitigation measures to enhance resilience such as the “Solar Photovoltaic (PV) conversion program for Commercial, Institutional and Manufacturing Facilities. This program will include schools, universities, hospitals, commercial buildings, manufacturing plants, government buildings, municipal facilities, etc.” pg. 9.  |
| National Resilient Development Strategy | Water Resource Management chapter: “Managing water quantity and quality 24/7 is a challenge especially due to the frequency of weather systems and occasional droughts. Efforts at improving supply management through intake relocation and reinforcement, water storage tank construction and consolidation of supplies will have to continue. Storage tanks capacity capable of maintaining supplies during the period of intake and water line restoration should continue to increase.” pg. 86“The policy for solar power development includes encouraging, where economically viable, the installation of solar energy technologies on all new public sector buildings”. pg. 46 |
| Low Carbon Climate Resilient Development Strategy | The Low-Carbon Development Pathway includes Harnessing of solar energy resources. Measures:“iii. Evaluate viable photo-voltaic technology options for Dominica” and “vi. Establish soft financing for community and small scale private solar power conversions”pg. 52 |

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| **Development of the request** (up to 2000 characters including spaces): |
| The request is in keeping with ongoing efforts at implementation of Dominica’s Low Carbon Development Pathway (DLCDP) as expressed in the National Climate Resilient and the Low carbon Climate Development Strategy. It is complementation to a broad range of actions tom achieve success in the DLCDP.The request has been developed by the Ministry of Environment Urban and Rural Modernization and Kalinago Upliftment. The request focuses on technical assistance that contributes to the decision making for promoting alternative renewable energy generation sources and implementing resilience measures in the water sector in public buildings that can be escalated to other users. For the presentation of the request for assistance, the NDE had the technical support of the CTCN. |

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

Intended Nationally Determined Contribution (NDC) of the Commonwealth of Dominica. [INTENDED NATIONALLY DETERMINED CONTRIBUTION (INDC) (unfccc.int)](https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Dominica%20First/Commonwealth%20of%20Dominica-%20Intended%20Nationally%20Determined%20Contributions%20%28INDC%29.pdf)National Resilient Development Strategy. [national\_resilience\_development\_strategy\_2030.pdf (dominica.gov.dm)](http://www.dominica.gov.dm/images/documents/national_resilience_development_strategy_2030.pdf)Low Carbon Climate Resilient Development Strategy. [DOMINICA’s LOW-CARBON CLIMATE-RESILIENT DEVELOPMENT STRATEGY (unfccc.int)](https://unfccc.int/files/cooperation_support/nama/application/pdf/dominica_low_carbon_climate_resilient_strategy__%28finale%29.pdf) |

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| **OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support** *The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms[[6]](#footnote-6).**The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country’s NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.**Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.* |
| ☐ Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support. ☐ Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance. NDA name: Edgar HunterDate: August 13, 2021Signature: C:\Users\Hunter\Downloads\e.hunter signature version 2 (1).png |

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

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| **Signature:** C:\Users\Hunter\Downloads\e.hunter signature version 2 (1).png |
| NDE name:  | Edgar Hunter |
| Date: | August 13, 2021 |
| Signature: | C:\Users\Hunter\Downloads\e.hunter signature version 2 (1).png |

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

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

1. Source: Energy Snapshot, Dominica. Energy Transition Initiative. National Renewable Energy Laboratory (NREL), 2015. <https://www.nrel.gov/docs/fy15osti/62704.pdf> [↑](#footnote-ref-1)
2. Source: Country profile-Dominica. FAO, 2015. <http://www.fao.org/3/ca0431en/CA0431EN.pdf> [↑](#footnote-ref-2)
3. Source: National Integrated Water Resources Management Policy. Commonwealth of Dominica. IWRM, 2011. <http://extwprlegs1.fao.org/docs/pdf/dmi161367.pdf> [↑](#footnote-ref-3)
4. Opcit. Ref 1 [↑](#footnote-ref-4)
5. *“****any equipment, techniques, practical knowledge and skills*** *needed for reducing greenhouse gas emissions and adapting to climate change” (Special Report on Technology Transfer, IPCC, 2000)* [↑](#footnote-ref-5)
6. Please see: https://unfccc.int/files/meetings/marrakech\_nov\_2016/application/pdf/auv\_cop22\_i8b\_tm\_fm.pdf [↑](#footnote-ref-6)