



Achieving a rapid decarbonization of the energy sector in Saint Kitts and Nevis

Basic Information

GEF ID

10856

Countries

St. Kitts and Nevis

Project Title

Achieving a rapid decarbonization of the energy sector in Saint Kitts and Nevis

GEF Agency(ies)

UNEP

Agency ID**GEF Focal Area(s)**

Climate Change

Program Manager

Satoshi Yoshida

PIF

Part I – Project Informatic

Focal area elements

1. Is the project/program aligned with the relevant GEF focal area elements in Table A, as defined by the GEF 7 Programming Directions?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comment cleared.

Sep 15, 2021: Currently only CCM1-3 is chosen. However, as one of the main pillars of this project is to increase renewable energy share in the country, CCM1-1 is also relevant. Please amend.

Agency Response

October 12, 2021:

Noted, Table A has been amended.

Indicative project/program description summary

2. Are the components in Table B and as described in the PIF sound, appropriate, and sufficiently clear to achieve the project/program objectives and the core indicators?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comments cleared.

Sep 15, 2021: Largely yes. Please address the below general comments as well as the comments in alternative scenario below.

On the title of Component 1, this is not only decarbonizing the electricity sector but improving energy efficiency in building and other sectors.

Some outputs under Component 1 with description such as “has access to a revised National Energy Policy/roadmap/energy efficiency legislation” are not clear in terms of the final output. Please clarify. It seems “develop” or similar terms would fit better than “has access.” The title of Component 2 is “Barrier removal” while outcome is just to increase share of electricity (which is not clear as well), as opposed to removing barriers. Please reconsider the title. Also, please clarify “provision models.”

Some outputs/outcomes are described differently on the status of achievement, such as “has improved,” “demonstrate,” or “increased.” Please use the common terms, as appropriate.

Agency Response

October 12, 2021:

1. Component 1 title revised.
2. Component 1 output title texts revised.
3. Component 3 title revised.
4. Thanks for the comment, most appreciated. All outputs and outcomes have been revised to use common terms:
 - a) Outputs 1.6, 2.1, 3.1 and 3.3 have been harmonized to use common term: with the [actor] “demonstrating increased” [capacity] [awareness]
 - b) Outputs 1.3 and 3.2 focus on the “improvement” of something. (i.e. For these we can’t use “increased”.)
 - c) Outcomes 2 and 3 focus on “increased”. Outcome 1 is different so cannot be harmonized with 2 and 3.

Co-financing

3. Are the indicative expected amounts, sources and types of co-financing adequately documented and consistent with the requirements of the Co-Financing Policy and Guidelines, with a description on how the breakdown of co-financing was identified and meets the definition of investment mobilized?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: We note that the co-financing from international donors will come from the Ministry Public Infrastructure, Posts, and Urban

Development or Ministry of Finance rather than each fund, and co-financing letters would come from them.

Sep 15, 2021: Please address below points.

Ministry of Sustainable Development is recurrent expenditures rather than investment mobilized. As such, the description on the Ministry of Sustainable Development may not be relevant.

It is not clear how much will be allocated to Ministry of Public Infrastructure, Posts, and Urban Development. contributions from which international funding (EDF, GCF, and Sustainable Energy Facility of Eastern Caribbean) while only EDF funding has the number of financial contributions.

Also, please clarify if these international funding are directly used for specific relevant projects or the Ministry partly disburses from such funding. Depending on the clarification, these funding sources may be listed in the table C rather than the ministry.

It is not clear how the private sector investment (equity) is relevant to the project objective and outputs other than “providing valuable insights.”

Agency Response

October 12, 2021:

Thanks for your comments. The following adjustments were made to the revised version of the PIF:

The Ministry of Sustainable Development was removed from the “Investment mobilized” sub-section in section C, part I of the PIF.

This same section was revised to show the total allocation from each project. Co-finance letters (to be obtained during the project preparation grant phase) are expected from the Ministry of Public Infrastructure, Posts, and Urban Development, which will disburse resources from these funds. A correction was added as the funding from the European Development Fund (EDF) will be disbursed through the Ministry of Finance.

Relevance of the 35.7 MW solar PV farm with 45.7 MWh battery energy storage system mentioned as private sector investment (equity) cofinance has been further elaborated in section C of Part I of the PIF, as well as in the context of component 1 (output 1.2). Said power plant is expected to become the first utility-scale variable renewable energy power plant in the country, and as such the first private sector experience towards a decentralized, zero-carbon energy grid. This project will contribute directly to the achievement of the GEF project’s outcome 2 of the proposed GEF project, i.e. by increasing the share of renewables in the grid. This private sector co-financing will develop experiences and operational regulations for the integration of this private sector plant into the operations of the St. Kitts Electricity Company (SKELEC). As such, this co-financing will generate key experiences, data and regulatory lessons learned as well as increase the capacity of local actors, all of which will support the elaboration of outputs 1.1 (the National Energy Policy) and 1.2 (the roadmap for the achievement of the NEP). Given the wide range of technical challenges that can arise with variable renewable energies integration (e.g. in terms of load flow, stability, etc), the Leclanché PV co-financing will also contribute to efforts for establishing the formal planning process to identify, understand and quantify the issues that are most relevant for the power system and the planned renewable deployment strategy. Said

issues will include the long and mid-term expansion plan (aimed at defining the technical requirements to be imposed by the grid code for the connection of load and generating units) and the short-term operational planning required to determine the optimal generation schedule for the upcoming operation periods. In small-island power systems, operational planning is usually carried out only when significant changes to the system happen (i.e., commissioning of new equipment, generating unit out of service for maintenance, exceptional climate conditions leading to uncommon load pattern, etc.). It is expected that this experience will be the first of many of such instances that are to come as renewables replace fossil fuels in the grid.

GEF Resource Availability

4. Is the proposed GEF financing in Table D (including the Agency fee) in line with GEF policies and guidelines? Are they within the resources available from (mark all that apply):

Secretariat Comment at PIF/Work Program Inclusion Yes.

Agency Response

The STAR allocation?

Secretariat Comment at PIF/Work Program Inclusion Yes.

Agency Response

The focal area allocation?

The focal area allocation.

Secretariat Comment at PIF/Work Program Inclusion

Agency Response

The LDCF under the principle of equitable access?

Secretariat Comment at PIF/Work Program Inclusion

Agency Response

The SCCF (Adaptation or Technology Transfer)?

Secretariat Comment at PIF/Work Program Inclusion

Agency Response

Focal area set-aside?

Secretariat Comment at PIF/Work Program Inclusion

Agency Response

Impact Program Incentive?

Secretariat Comment at PIF/Work Program Inclusion

Agency Response

Project Preparation Grant

5. Is PPG requested in Table E within the allowable cap? Has an exception (e.g. for regional projects) been sufficiently substantiated? (not applicable to PFD)

Secretariat Comment at PIF/Work Program Inclusion Yes.

Agency Response

Core indicators

6. Are the identified core indicators in Table F calculated using the methodology included in the corresponding Guidelines? (GEF/C.54/11/Rev.01)

Secretariat Comment at PIF/Work Program Inclusion

Oct 15, 2021: Comment cleared.

Oct 12, 2021: The numbers (16,015t and 455,540t for direct and indirect emissions reduction, 998,837,401MJ for energy saved) are changed from the previous version, which are now different from those in the section vi) Global environmental benefits (GEFTF). Also, there seem to be some discrepancies between Annex B and D, including these numbers and the start/end year of accounting. Please correct and unify these numbers in section (vi) and/or Annexes.

Sep 15, 2021: Please explain how these numbers (sub-indicators 6.2, 6.3, and 6.4 and indicator 11) are derived. Also, sub-indicator 6.4 only lists solar photovoltaic as a source but micro-hydro seems another a renewable energy source from the PIF.

Agency Response

October 15, 2021:

Apologies for the inconsistency. During the past submission, the estimate for direct emissions was revised to consider only the useful lifetime of the capacity to be installed by the project as per GEF guidelines. Moreover, the starting year of the project was revised from 2022 to 2023.

The project document was mistakenly reporting direct MWh reduced in the box for tCO₂. This has been fixed in this submission and all values are consistent across documents and in the portal.

October 12, 2021:

Details of the assumptions and the calculation of direct and indirect emission reductions, as well as for direct beneficiaries, are now provided in Annex D of the PIF.

Project/Program taxonomy**7. Is the project/program properly tagged with the appropriate keywords as requested in Table G?**

Secretariat Comment at PIF/Work Program Inclusion Yes.

Agency Response

art II – Project Justification

1. Has the project/program described the global environmental/adaptation problems, including the root causes and barriers that need to be addressed?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comment cleared.

Sep 15, 2021: Largely yes. On the global environmental problems, please add more descriptions on the energy demand side including the major sectors of the electricity demand which need to be addressed and their potential to improve.

Agency Response

October 12, 2021:

Additional information on the potential for energy efficiency savings at the country level has been added to the baseline section (see sub-section on energy efficiency).

2. Is the baseline scenario or any associated baseline projects appropriately described?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comment cleared.

Sep 15, 2021: Yes. Please add relevant regional projects if any, other than national projects (in such a case please add under the coordination section).

Agency Response

October 12, 2021:

Table 7 now distinguishes between national and regional projects. These are also reflected under the coordination section of the PIF.

3. Does the proposed alternative scenario describe the expected outcomes and components of the project/program?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: All comments cleared.

Sep 15, 2021: Please address the below points.

- ToC: Please add root causes and barriers (e.g. financial and technical) that are listed in the PIF and will be addressed by the project, how such barriers are addressed with linkages with interventions and project outputs, and short- and long-term objectives. Please present a revised ToC in the next submission.

- Component 1

Please clarify if the roadmap or institutional mechanisms will consider mobilization of domestic and international financial institutions and investors and financial mechanisms to be evolved and if public procurement reform and other public-led initiatives are considered to increase RE and EE. Also, please explain what regulatory reforms are envisaged at this stage under this Component. On the adaptation aspects, it may be worth noting that switching to RE and EE can mitigate climate risks as it decreases the dependence on imported fossil fuel, other than consideration of climate risks on investments in RE and EE.

- Component 2

Please elaborate what added values these pilot projects will create on top of lessons learned from past and ongoing projects such as public building energy efficiency and grid-integration of renewable energy. Please also explain why both renewable energy introduction and improvement of energy efficiency take place in the same facility or building as a necessary integration of renewable energy and high energy efficiency in public buildings.

Please explain the potential of replication and scaling-up of these pilot projects and please consider integrating adaptation consideration.

- Component 3

Output 3.1: Please specify who will receive these trainings and clarify if public and private financial officers are involved for the strengthened review capacities of RE and EE projects.

Output 3.2: Please explain why this output focuses solely on the blended loan mechanism among other financial tools and mechanisms. Please also clarify roles of private financial institutions (national and regional).

Output 3.3: Awareness campaign is important but not sufficient to mobilize such investors. Please elaborate how the project will involve them in Component 1 and 2 as well. Please revise deliverable numbers

them in Component 1 and 2 as well. Please revise deliverable numbers.

Agency Response

October 12, 2021:

ToC

A revised ToC is now included in the document, presenting barriers, root causes and linkages to project interventions, short- and long-term effects and impacts. A problem tree was also included in the end of the barrier section.

Component 1

- Mobilizing domestic and international financial institutions and investors is at the heart of the proposed project, as the resources required to implement a transition to 100% renewables will be above the financial capacities of the country (and, in general, of any SIDS). Work is expected to be undertaken on both ends of the equation: Component 1 will work on the investment plan for the roadmap, resulting in the identification of a pipeline of projects that are classified along the spectrum of finance, from grants to commercial loans. Component 3, on the other hand, will focus on the design of a blended financial mechanism that increases the mobilisation of commercial finance and is tailored to the local context of St. Kitts and Nevis. The form of this mechanism (e.g. senior loans, subordinated loans, guarantees, equity) will be explored and identified during the PPG phase. Output 1.2, 3.2 and 3.3 have been adjusted to reflect this clarification.

- Procurement reform is not included in the project as a such reform is currently being undertaken, spearheaded in St. Kitts and Nevis by the Ministry of Finance in partnership with the Caribbean Development Bank (CDB) under the Public Procurement Reform in the Eastern Caribbean Project. This initiative commenced in January 2020 with the provision of Technical Assistance to revise towards modernization of the Procurement and Contracts Administration Act (2012) to address gaps identified during the execution of a Methodology for Assessing Procurement Systems (MAPS) completed in 2019. The legislation will also serve to more clearly articulate its applications which will include all public corporations which encompasses both the St. Kitts Electricity Company Ltd (SKELEC) and the Nevis Electricity Corporation Ltd (NEVLEC). The legislation is also expected to include matters pertaining to sustainable procurement, through the development of a Sustainable Procurement Policy. The drafting process is ongoing and the second round of review of the revised legislation will commence shortly. This reform process is a critical component in the national agenda of the Government of St. Kitts and Nevis in its efforts to ensure sustainable growth and development while ensuring value for money, poverty reduction, addressing inequality, climate change and environmental degradation. Kindly note that this information has been added in the baseline section of the PIF (see "Public procurement" sub-section and Table 7).

- The proposed project will develop a revised National Energy Policy (NEP) and develop a roadmap that establishes which regulations will be required along the transition to a renewable grid. Moreover, it will propose a draft Energy Efficiency Act at the federal level, that is to be aligned with the NEP. In terms of regulations, the current grid is extremely simple, with one single entity acting as generator and distributor on each island. Thus, at this point, no technical regulations are required for its operation. However, new regulations will be required as renewable projects enter the grid, but also depending on the degree of decentralization that is technically and economically viable for such a

small country. As the system evolves, technical regulations will be required to ensure that there is sufficient firm capacity for generation adequacy, sizing of operating reserves to address flexibility needs, ensuring system stability (frequency, voltage, rotor angle), compliance with physical limitations of the network, protection systems, etc. The project will identify such needs in alignment with the chosen transition pathway and incorporate them into the roadmap. This clarification has been reflected under output 1.2 of the PIF.

- On the adaptation aspects, generation diversification, distributed energy solutions and technical advancement to increase the resilience of physical assets are among the most common mitigation measures that increase the adaptation capacity of the energy sector. Renewable energies reduce vulnerability to climate risks by diversifying power grids that are heavily dependent on fossil fuels and introducing innovative solutions such as battery storage. Off-grid renewables can play a key role in disaster hit regions and increase resilience of infrastructure and communications. Moreover, in the specific context of this project, water is the key nexus between renewable capacity and adaptation measures. The technical assessment to be prepared to inform the roadmap will explore the potential for renewable-based desalination, decentralized water supply solutions and solar- and wind-powered systems for water purification, along with the impact of the alternative pathways on adaptation and resilience. This clarification has been reflected under output 1.2 of the PIF.

Component 2

The approach chosen for the pilots (to be further refined during the PPG phase) is to have one generation and one energy efficiency pilot on each island, for a total of four micro-scale interventions (i.e. 1xgeneration and 1xenergy efficiency pilot in St. Kitts; plus 1xgeneration and 1xenergy efficiency pilot in Nevis). The choice to include small pilots on both islands is to ensure that the benefits are shared equally among the population of St. Kitts and the population of Nevis, as buy-in from local stakeholders is crucial for the success of the project.

The generation pilots proposed under this PIF consist of the addition of a solar PV micro-power plant at existing pumping stations in St. Kitts (the Taylor's Pumping Station) and Nevis (Camps Booster Water Pump). The choice of the water pumping stations is rooted on adaptation considerations regarding the water and energy nexus, which became more profound after the impacts from hurricanes Irma and Maria in September 2017. During these events, high winds caused fallen poles and downed power lines resulting in the interruption of electricity to power the pumps for the wells. Therefore, the Government of Saint Kitts and Nevis is taking steps to ensure that measures are put in place within the water and energy sector to ensure that basic needs such as water can be provided to the population, particularly to the most vulnerable in the society who are more severely impacted when these natural disasters affect the country. An increasing share of the potable water used by the population is sourced from twenty-six shallow wells located across the country and that require energy to be able to pump water into the supply network.

The measures to be considered for the generation pilots had been identified as theoretically viable options during the 2018 energy audits. A total of 54 measures have been identified at 19 water pumping stations in St. Kitt and in Nevis, none of which were implemented to date due to the barriers listed in this PIF.

During the preparation of this proposal (and conditional on the results from the feasibility assessment to be undertaken during the PPG phase), a suggestion was made to include additional in-line micro-hydro (<100 kW) capacity with a raised tank system as a way of having both daytime generation (solar) and night-time gravity flow for additional generation (hydropower), a scheme that would be a first-of-its-kind project in St. Kitts and Nevis. This way, the pumps fill in the tanks during sunny hours, and the water sent to distribution systems can activate a micro hydro generator that would provide additional electricity, further increasing the efficiency of the pumping station. While the

activate a micro hydro generator that would provide additional electricity, further increasing the efficiency of the pumping station. While the pilot of St. Kitts would have a bi-directional connection to the grid, the pilot in the Nevis pumping station would be connected to the grid but

only for passive consumption whenever the renewable sources are not available. Thus, the project touches on different elements that are central to the energy transition, i.e. the installation of renewable capacity, innovative approaches to maximizing the renewable resource, grid integration under different arrangements, and improvements in the resilient management of a key resource: water. If the feasibility of this concept is confirmed during the PPG phase, a successful pilot implementation would trigger the replication of similar approaches throughout the remaining water pumping stations in the country, replacing imported fossil-fuelled grid generation by resilient, on-site, renewable electricity. The efficiency measures in terms of water losses and water pipelines that are to be funded from co-finance from the European Development Fund (EDF) will further enhance the efficiency of the scheme.

As for the energy efficiency pilots, the concept also stems from the same study (i.e. the 2018 energy audits). Like in the case of the water pumping stations, none of the 60 measures for the 16 main administrative buildings in the country were put on practice to this date. The proposed GEF project will implement energy efficiency measures in two high-visibility public buildings, one in St. Kitts, and one in Nevis. Implementing these measures will constitute an important showcase to stimulate market transformation towards more efficient products, buildings and services, as well as to trigger behavioral changes in energy consumption by citizens and enterprises.

The specific buildings where the energy efficiency measures will be implemented are still under evaluation and will be determined during the PPG phase after an on-site assessment, as no country visits were possible during the PIF preparation due to the pandemic. Measures that are not implemented directly through GEF funds as part of this output will be compiled and further developed into fully bankable proposals through output 3.1, ensuring the replicability of the pilot to the remaining public buildings and beyond.

Component 3

- Output 3.1: A tentative list of training beneficiaries has been included in the PIF (see Annex D). Both public and private financial officers are expected to be involved in training activities in this output. Potential participants include, among others, the Development Bank of St. Kitts and Nevis; officials from private banks (e.g. St Kitts- Nevis- Anguilla National Bank Limited, First Caribbean International Bank, Republic Bank, Bank of Nevis, Nevis Co-operative Credit Union), SKELEC, NEVLEC, Ministry of Public Infrastructure, Posts, and Urban Development; Ministry of Sustainable Development; Ministry of Finance; Ministry of Environment and Cooperatives; St. Kitts Investment Promotion Agency, and representatives from micro, small and medium-sized enterprises.
- Output 3.2: This output will explore blended financing options instead of (specifically) blended loans; this has been amended in the revised PIF. The idea is to design a blended financial mechanism that uses concessional funding to increase the mobilisation of commercial finance from national and international private financial institutions and is tailored to the local context of St. Kitts and Nevis. Concrete mechanisms (senior loans, subordinated loans, guarantees, equity) will be explored during the PPG phase. Kindly note that output 3.2 has been adjusted to reflect this correction.
- Output 3.3: Comment well noted and much appreciated. This output has been revised to increase the scope and level of ambition, from a communication campaign to an active engagement strategy that informs policy making (component 1), facilitates replicability of the pilots (component 2), and is active in the preparation of a sound pipeline of bankable projects (output 3.1) that can be supported through the blended financial mechanism (output 3.2). The wording of the output has been revised to reflect these changes.

4. Is the project/program aligned with focal area and/or Impact Program strategies?

Secretariat Comment at PIF/Work Program Inclusion

Yes. Please see the comment on table A.

Agency Response

October 12, 2021:

Noted (see our previous response on this).

5. Is the incremental/additional cost reasoning properly described as per the Guidelines provided in GEF/C.31/12?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comment cleared.

Sep 15, 2021: Please elaborate incremental cost/additional values from the baseline (and co-financing), in particular the SEEC and the SEF project of energy audits in public buildings where GEF funding is also utilized and EDF project of integrating renewable energy and energy efficiency in public facilities. Please also elaborate the contribution of the large grid-scale solar project by the private sector to this project.

Agency Response

October 12, 2021:

The project will support St. Kitts and Nevis to develop a clear and milestone-driven pathway towards a fully renewable electricity grid. The grant funds provided by the GEF and complemented by co-financing will be essential to achieve the project objective, i.e. to produce a dramatic turn compared to the business-as-usual scenario (depicted in the baseline section, and represented graphically in figure 12 of the PIF), through the alleviation of the barriers affecting the sector (summarized in the project's problem tree, figure 2) and building upon on-

going efforts from the country.

The following describes the incremental cost logic of the project in building upon these key existing efforts:

- The Sustainable Energy for the Eastern Caribbean Programme (SEEC) creates the Sustainable Energy Fund (SEF), a multi-donor effort that is split across various countries in the Eastern Caribbean. 16.35 million (68%) of the SEF funds assigned to St. Kitts and Nevis represent GCF funding, which focuses specifically on Geothermal Energy. While geothermal energy is one of the main sources of energy that is expected to play a role in the energy transition, other issues are also expected to be fundamental (wind and solar energy, battery storage, centralized vs distributed generation, grid integration, adaptation & resilience, among others). Thus the incremental logic of the GEF project is to build upon the SEEC/SEF investments in geothermal, by building a broad and sound enabling environment for facilitating the country's transition to decarbonization. SEF GEF funding, on the other hand, is limited only to interventions in Antigua and Barbuda, Grenada and St. Vincent and the Grenadines. The remaining funds in the SEF that are available to St. Kitts and Nevis include mostly loans from JICA and the IADB; these are the sources that funded the energy audits that are used as one of the main inputs for the conceptualization of the pilot under this project. Here the incremental logic is to build upon these audits by piloting these and demonstrating the feasibility of building retrofitting and RE introduction, as well as initiation creation of required market actors.
- Assistance from the European Development Fund (EDF) consists of a grant to promote the integration of renewable energy and energy efficient technology in public facilities. The programme also supports the government to build resilience within the energy and water sectors, to ensure that the population has access to the basic needs of water and electricity when the country is severely impacted by natural disasters such as hurricanes. Some specific outcomes will include the installation of energy efficient streetlights, the installation of underground electrical power supply to three pumping stations and the development of an operational framework and training plan for energy units in the country. These efforts will be essential to the achievement of the objectives in the proposed GEF project. EDF assistance will also be used to create technical capacity through the strengthening of Energy Units in St. Kitts and Nevis, which will be among the main stakeholders for the trainings on regulatory and technical elements involved in a transitioning grid (output 1.6) of the current GEF project. The energy efficient lighting and the implementation of underground electrical power supply will be direct contributions aligned with this GEF proposal, increasing energy efficiency and improving the resilience in the access to water – both of which are a direct contribution towards outcome 2).
- On the contribution from the Leclanché solar PV farm, kindly refer to the last item on Part I question 3 above (co-financing section of this review sheet). Similarly, to the SEEC/SEF, the incremental logic of the GEF project is to build upon these investments in solar, by building a broad and sound enabling environment for facilitating the country's transition to decarbonization. This investment is a key step in the direction of decarbonization; however, a full transition to 100% renewable energy can only be achieved through the development of a comprehensive policy, strategy, institutional arrangements, and regulations, which the GEF project will support St. Kitts and Nevis to develop.

Note that this explanation has also been reflected in the revised PIF (see PIF Part I section C, as well as output 1.2 in Part II and the specific section on incremental costs).

6. Are the project's/program's indicative targeted contributions to global environmental benefits (measured through core indicators) reasonable and achievable? Or for adaptation benefits?

Secretariat Comment at PIF/Work Program Inclusion

Oct 15, 2021: Comment cleared.

Oct 12, 2021 Please see the comment on the core indicator and address.

Sep 15, 2021: As stated in the core indicator box, please provide explanation how these numbers are derived.

Agency Response

October 12, 2021:

Details of the assumptions and the calculation of direct and indirect emission reductions, as well as for direct beneficiaries, are now provided in Annex D of the PIF (added as part of this revision).

7. Is there potential for innovation, sustainability and scaling up in this project?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comment cleared.

Sep 15, 2021: In terms of technical innovation, please elaborate the innovativeness of the pilot projects from the baseline on top of integration of solar and micro-hydro power generation. Also, please elaborate to what extent the pilot can be scaled up in terms of volume of replication and GHG emission reductions under the scaling-up.

Please include the role of knowledge management to ensure sustainability and promote scaling up.

Agency Response

October 12, 2021:

- Technical innovation: The pilot will be the very first experience in integrating renewables into water pumping stations used for the provision of drinking water. In doing so, the pilot increases the resilience of the water supply by reducing its dependency on the currently centralized, fossil-fuelled grid, a necessity that was made visible after the disruptions caused by hurricanes Irma and Maria in 2017. Moreover, the pilots will introduce an innovative layout that will maximize the usage of the renewable resources, by including in-line micro-hydro capacity with a raised tank system as a way of having both daytime generation (solar) and night-time gravity flow for additional generation (hydropower), a scheme that would be a first-of-its-kind in St. Kitts and Nevis. Battery capacity will also be assessed (to be defined at the latest as PPG stage) to maximize the resilient operation of the water facilities. It is important to stress that these pilots will also bring in institutional innovations, as they will require additional arrangements to establish e.g. a feed-in tariff for water pumping stations that are able to sell energy into the grid.
- During the 2018 energy audits, it was assessed that similar measures could be applied in at least 14 out of the total 19 pumping stations throughout the country; component 1 and 3 will create the enabling conditions for the replication of similar experiences across the remaining sectors of the economy. Similarly, the energy efficiency measures to be implemented in the buildings in St. Kitts and Nevis could be quickly replicated in other 14 of the main public buildings in the country, for which concrete measures have already been identified. The idea is that any measures that are not implemented as part of the pilot, are consolidated as a fully bankable package that fulfils all the requirements to access financing. The pilots would provide experience to demonstrate the viability of this package, decreasing its risk. Lastly, the engagement and communication strategy (output 3.3) will ensure that the experiences from the pilots reach the private sector, which will now have the capacities and the access to a funding mechanism (outputs 3.1 and 3.2) to replicate similar energy efficiency improvements in the residential, commercial and industry sectors of the country.
- The knowledge management mechanism will play an essential part in replication, systematically collecting and disseminating lessons learned to relevant stakeholders, identifying what works, what to avoid, potential savings in terms of electricity and emissions (and potential costs), and gains in resilience and autonomy from the grid. It will also play a key role in terms of technical information for the management of the transition, allowing to transparently document ways in which residential and commercial users can bring in renewable capacity without compromising the stability of the grid. Thus, the knowledge management system will provide transparency and signal to the wider public the price and technical conditions to inform their investment decisions.

Kindly note that these clarifications are reflected in output 1.2, sub-section vii ("Innovation, sustainability, and potential for scaling up") under the project description section, and section 8 ("Knowledge Management") of part II of the PIF.

Project/Program Map and Coordinates

Is there a preliminary geo-reference to the project's/program's intended location?

Secretariat Comment at PIF/Work Program Inclusion

Sep 15, 2021: Yes. Please indicate pilot project sites at the CER stage at the latest.

Agency Response

October 12, 2021:
Noted.

Stakeholders

Does the PIF/PFD include indicative information on Stakeholders engagement to date? If not, is the justification provided appropriate? Does the PIF/PFD include information about the proposed means of future engagement?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comment cleared.

Sep 15, 2021: The reasoning of not involving specific stakeholders is provided. Please elaborate more on expected stakeholder engagement with a table with potential stakeholders to be engaged, their roles, and means of engagement.

Agency Response

October 12, 2021:

The requested table was added to the PIF (see Part II, section 2. "Stakeholders")

Gender Equality and Women's Empowerment

Is the articulation of gender context and indicative information on the importance and need to promote gender equality and the empowerment of women, adequate?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comments cleared.

Sep 15, 2021: Largely yes. While some descriptions are provided under Project Activities to promote Gender Equity, please elaborate how the project will formulate a gender action plan with gender-responsive measures and gender-sensitive indicators given the identified gender context during the preparation phase.

It would be better to clarify why this project expects to closing gender gaps in access to and control over natural resources. There does not seem to be any activities planned that would corporate this. Please clarify further or revise the ticked box.

Agency Response

October 12, 2021:

Thanks for this comment, as it allowed us to review the gender section of the PIF to enhance clarity.

The approach to gender in this project will be based on the UNs Women Empowerment Principles, and aligned with the National Gender Policy and Action Plan (In the process of finalizing at the time of writing this PIF). The approach consists of two elements: a Gender Action Plan will be developed to assess each of the project's outputs and interventions, identifying risks, opportunities, and concrete measures in the context of each of the proposed project's interventions. The Gender Action Plan will likewise include indicators and targets, as well as responsibilities, budget, and timelines for its implementation. It will allow the project to engage gender issues in terms of its own activities, trainings, governance structure and recommendations, ensuring that gender considerations are cross-sectional throughout the entire project. This plan will be developed in the PPG phase and will guide gender considerations during project implementation.

The second element in the proposed project's approach to gender is the development of a Gender Strategy for the implementation of the NEP and its roadmap. The underlying idea is that the revised NEP is endowed with enough resolution to capture and confront gender inequalities in access to energy (in particular, renewables) and benefits derived from energy efficiency improvements. The scope of the Gender Strategy will cover three main areas: i) energy access through a gender lens, ii) gender inequalities in the energy sector workforce and iii) gender gaps in energy decision-making, providing a quantified baseline and concrete actions, indicators, targets, and timelines towards the reduction of these gaps. The knowledge management system (to be built as part of output 1.5. but expected to be maintained

after the project's own technical completion) will serve to keep track of the evolution of the indicators required to monitor progress on the

implementation of the roadmap, including its gender aspects. The Gender Strategy will be developed during project execution, and is expected to be a key contribution for the improvement of the NEP.

Private Sector Engagement

Is the case made for private sector engagement consistent with the proposed approach?

Secretariat Comment at PIF/Work Program Inclusion

Sep 15, 2021: Yes, envisaged private sector engagements are provided.

Agency Response

Risks to Achieving Project Objectives

Does the project/program consider potential major risks, including the consequences of climate change, that might prevent the project objectives from being achieved or may be resulting from project/program implementation, and propose measures that address these risks to be further developed during the project design?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comments cleared.

Sep 15, 2021: Detailed COVID-19 and climate risks are provided. Please consider the below additional risks with potential measures, as appropriate, while these can be further elaborated during the project preparation stage.

Commitment risks: On top of oppositions, political will and government's priorities may change overtime and the project may not be able to

mobilize necessary resources and commitments including co-financing.

Operational risks: There are technical and financial risks of during O&M of pilot projects under Component 2 along with disaster risks described under climate change.

Environmental risks: Environmental impacts (including air and water pollution, waste and GHG emissions) by transportation of goods and construction and decommissioning of facilities through the pilot projects and policy development for renewable energy and energy efficiency may need to be mitigated.

Low participation risks: There are risks that the private sector entities including SMEs and financial institutions will not be engaged as expected.

Agency Response

October 12, 2021:

Risks have been added to Table 13 of the PIF.

Coordination

**Is the institutional arrangement for project/program coordination including management, monitoring and evaluation outlined?
Is there a description of possible coordination with relevant GEF-financed projects/programs and other bilateral/multilateral initiatives in the project/program area?**

Secretariat Comment at PIF/Work Program Inclusion

Sep 15, 2021: Yes. On the first paragraph of institutional arrangement, please note that the Implementing Agency is not allowed to support execution of this project.

Agency Response

October 12, 2021:

Noted. UNEP is not expected to provide support during the execution of this project.

Consistency with National Priorities

Has the project/program cited alignment with any of the recipient country's national strategies and plans or reports and assessments under relevant conventions?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comment cleared.

Sep 15, 2021: Yes. Please add energy related policy/strategy as appropriate.

Agency Response

October 12, 2021:

Added reference to the National Energy Policy.

Knowledge Management

Is the proposed "knowledge management (KM) approach" in line with GEF requirements to foster learning and sharing from relevant projects/programs, initiatives and evaluations; and contribute to the project's/program's overall impact and sustainability?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comments cleared.

Sep 15, 2021: Please describe how existing lessons and best practices informed the project concept and a plan to learn from ongoing relevant projects and initiatives to capture and assess best practices and knowledge.

Also please clarify what tools/platforms will be used under “KM system” to collect and disseminate domestically and internationally knowledge generated during the project.

Please elaborate how knowledge and learning will contribute to overall project’s objective, the sustainability and scaling up with potential knowledge products.

Agency Response

October 12, 2021:

Adoption of lessons learned and best practices to inform the project concept

The current lack of a repository of sectoral information (both in terms of activity data but also on on-going initiatives), as well as systematic processes and procedures to identify, capture, store, create, update, represent, and distribute knowledge for public and private decision-making and planning, awareness and learning across and beyond the energy sector, has been identified among the main root causes for one of the barriers that are preventing the large-scale adoption of renewable energies and energy efficiency measures (see Figure 2 of the PIF). As a SIDS, St. Kitts and Nevis also faces challenges in creating, consolidating, and maintaining the type of systematized data centre that would be required to operate a modern, decentralized, and smart grid that would be able to integrate variable renewable energies, and inform the decision-making process of the private sector. Current data limitations in the energy sector create the necessity to rely on secondary sources or ad-hoc requests to the utilities’ authorities. This has been the case in the preparation of this project’s concept, and as such the creation of a knowledge management system for the sector will have its own dedicated output (i.e. output 1.5). The project concept was mainly informed by the following lessons learned:

1. Foremost, the current difficulties in implementing the currently existing National Energy Policy. The 2014 revision changed the vision in the original NEP (2011) from “(becoming) a twin-island nation with a sustainable energy sector where reliable, renewable, clean and affordable energy services are provided to all its citizens” to “(becoming) an island nation with a sustainable energy sector where reliable, renewable, clean and affordable energy services are provided to all its citizens, where energy efficiency and the replacement of fossil energy by renewable energy sources will be promoted in all sectors of the economy, and where by 2020, 100% of the electricity supplied in the country will be produced from renewable energy sources”. Thus, a 6-year timeframe was established to achieve the ambitious goal of a 100% renewable-sourced electricity grid. However, this target was soon proven to be unattainable and unrealistic, as the capacities, funding, and the concrete projects to achieve this were not available. As a result, the level of generation from renewables in 2020 was only around 5%, and although the number of development partners and projects has increased, a shared vision and coordinated approach to channel these investments towards a realistic target were still lacking. The proposed project builds upon these lessons learned, and intends to develop costed, technically sound pathways for the energy sector to achieve and exceed its NDC targets, ultimately achieving total decarbonization.

2. The most recent study undertaken in the country involving energy efficiency has been the 2018 energy audits, which assessed the potential for efficiency improvements in the main public buildings in the country and in the water pumping stations used for the provision of

drinking water. This study provides a list of short-term improvements that could have a strong and very visible effect in the consumption from the public sector, which as in most SIDS has a proportionately large share of the country's economy. While these actions have not been materialized to date, they are seen as an optimal (and cheap) starting point to present quick progress and kick-start the energy transition. Larger deployment of renewables will demand larger infrastructure projects that require more time and preparation in terms of the country's human and technical capacities.

3. The results of the Terminal Evaluation for the GEF project 4171 - "Energy for Sustainable Development in Caribbean Buildings" (implemented by UNEP) will be available during the PPG phase for the St. Kitts and Nevis GEF project, and will also inform its project design.
4. Lastly, the project concept was informed by similar efforts in comparable SIDS. Of particular relevance is the case of the Marshall Islands (one of the first countries to prepare and submit a long-term decarbonization pathway to the United Nations Framework Convention on Climate Change), as well as the efforts from other countries in the Eastern Caribbean Region, such as Antigua and Barbuda.
5. In terms of best practices, the project concept builds upon recommendations from technical actors that have been strongly involved in the region, e.g. the Caribbean Centre for Renewable Energy & Energy Efficiency (CCREEE) and IRENA. These entities are seen as key potential partners for the proposed project and will be engaged during the PPG phase.

Tools/platforms considered for the Knowledge Management system

The exact design, architecture and tools of the Knowledge Management and Monitoring System will be defined as part of the project itself (output 1.5). Potential KM solutions that will be considered in the context of this project include intranet-based systems, content management systems, BI tools, knowledge map systems and knowledge & information portals. Each of these different tools will be tailored to the needs (and capacities) of the different stakeholders and their roles in the energy sector (utility technicians, government officials, academics, civil society, banks, companies, etc.)

Knowledge and learning contribution to overall project's objective

Data will be an integral part of the roadmap, as plans are data-driven and data-intensive, requiring comprehensive technical data on electrical demand and demand-side matters, the existing grid infrastructure, electrical supply assets and their performance. In addition to the technical energy system dataset, information on policy, social and economic statistics and hazard and vulnerability data are also needed to align the various stakeholders that are involved in the transition to renewables, to provide the right market signals and to keep track of the progress. Thus, a robust information and knowledge management platform is paramount to the project's objective to accelerate St. Kitts and Nevis' transition towards a zero-carbon grid.

Knowledge Management section of the PIF has been updated to reflect these clarifications.

Environmental and Social Safeguard (ESS)

Are environmental and social risks, impacts and management measures adequately documented at this stage and consistent with requirements set out in SD/PL/03?

Secretariat Comment at PIF/Work Program Inclusion

Sep 15, 2021: Yes. The overall impact is categorized as medium, which will be elaborated during the PPG phase with “Environmental and Social Management Plan.” Further information has been provided in the ESS screening document.

Agency Response

art III – Country Endorsements

Has the project/program been endorsed by the country’s GEF Operational Focal Point and has the name and position been checked against the GEF data base?

Secretariat Comment at PIF/Work Program Inclusion

Oct 12, 2021: Comment cleared.

Sep 15, 2021: Yes. The attached letter of endorsement was signed by the current OFP. However, the portal entry does not have information. Please add.

Agency Response

October 12, 2021:

Thanks for your comment, section in the portal was revised.

Termsheet, reflow table and agency capacity in NGI Projects

Does the project provide sufficient detail in Annex A (indicative termsheet) to take a decision on the following selection criteria: co-financing ratios, financial terms and conditions, and financial additionality? If not, please provide comments. Does the project provide a detailed reflow table in Annex B to assess the project capacity of generating reflows? If not, please provide comments. After reading the questionnaire in Annex C, is the Partner Agency eligible to administer concessional finance? If not, please provide comments.

Secretariat Comment at PIF/Work Program Inclusion

Agency Response

EFSEC DECISION

RECOMMENDATION

Is the PIF/PFD recommended for technical clearance? Is the PPG (if requested) being recommended for clearance?

Secretariat Comment at PIF/Work Program Inclusion

Oct 15, 2021: Comment cleared on GEBs.

Oct 12, 2021: Thank you for the revisions. Please address the comment on GEBs/core indicators to eliminate discrepancies.

Sep 15, 2021: Not at this stage. Please address the comments above.

ADDITIONAL COMMENTS

Additional recommendations to be considered by Agency at the time of CEO endorsement/approval.

Secretariat Comment at PIF/Work Program Inclusion

Review Dates

	PIF Review	Agency Response
First Review	9/15/2021	10/12/2021
Additional Review (as necessary)	10/12/2021	10/15/2021
Additional Review (as necessary)	10/15/2021	
Additional Review (as necessary)		
Additional Review (as necessary)		

PIF Recommendation to CEO

Brief reasoning for recommendations to CEO for PIF Approval