

Simplified Approval Process Concept Note

Project/Programme Title:	Leveraging the National Green Energy Fund to Achieve Rural Electrification in Vanuatu
Country(ies):	Vanuatu
National Designated Authority(ies) (NDA):	Ministry of Climate Change, Change Adaptation, Meteorology, Geo-Hazards, Environment, Energy and Disaster Management
Accredited Entity(ies) (AE):	The Pacific Community (SPC)
Date of first submission:	17.06.2021 V.1
Date of current submission:	27.10.2021 V.3
Version:	3



Eligibility for SAP is determined by the review of the concept note and the ESS screening.

A. Project / Programme Summary (max. 1 page)					
A.1. Project or programme	<input checked="" type="checkbox"/> Project <input type="checkbox"/> Programme	A.2. Public or private sector	<input checked="" type="checkbox"/> Public sector <input type="checkbox"/> Private sector	A.3 RFP	Not applicable
A.4. Indicate the result areas for the project/programme	<p><i>Check the applicable GCF result area(s) that the proposed project/programme targets. Indicate for each checked result area(s) the estimated percentage of GCF budget devoted to it. The summed up percentage should be equal to 100%.</i></p> <p>Mitigation: Reduced emissions from:</p> <input checked="" type="checkbox"/> Energy access and power generation: 80 % <input type="checkbox"/> Low emission transport: 0 % <input type="checkbox"/> Buildings, cities and industries and appliances: 0 % <input type="checkbox"/> Forestry and land use: 0 %				
A.5. Impact potential	A.5.1. Estimated mitigation impact (tCO ₂ eq over project lifespan)		65,231		
	A.5.2. Estimated adaptation impact (number of direct beneficiaries)		31,270		
	A.5.3. Estimated adaptation impact (number of indirect beneficiaries)		200,855		
	A.5.4. Estimated adaptation impact (% of total population)		Direct 10.2% Indirect 65.4%		
A.6. Financing information					
A. 6.1. Indicative GCF funding requested (max 25M)	Amount: 14,240,022 Currency: usd Financial Instrument: Grants				
A.6.2. Indicative co-financing	Amount: 6,754,540 Currency: usd Financial Instrument: Grants				
A.6.3. Indicative total project cost (GCF + co-finance)	Amount: 21,332,350 Currency: usd				
A.7. Implementation period:	5 years	A.7.2. Total project/ programme lifespan		20 years	
A.8. Is funding from the Project Preparation Facility needed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	A.9. Is the Environmental and Social Safeguards Category C or I-3?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
A.10. Provide rationale for the ESS categorization (max 100 words)	The proposed project will provide access to electricity including equipment i.e. solar refrigeration systems for rural Small and Medium-sized Enterprises (SME)				

	<p>solar equipment to rural households, public institutions and community, where there is no to minimal Environmental and Social Safeguard (ESS) issues; the project will complement the ongoing rural electrification program implemented by the Vanuatu Department of Energy. The investments planned through the project are focused at the household or micro-grid scale and in line with IFC/GCF ESS standards under Category C or I-3. Screening criteria for investments are provided below in the Annex 1. A full Environmental and Social Assessment and Management Plan will be developed at the Funding Proposal stage to ensure that relevant safeguards are in place.</p>		
<p>A.11. Has the CN been shared with the NDA?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>A.12. Confidentiality¹</p>	<p><input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential</p>
<p>A.13. Executing Entity information</p>	<p>SPC – Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE)</p>		
<p>A.14. Project/Programme rationale, objectives and approach of programme/project (max 200 words)</p>	<p>The majority of the country’s inhabitants live in rural, off-grid areas, rely largely on subsistence agriculture and are not part of the formal economy. The nation’s primary energy supply is dominated by fossil fuel products for urban energy production and transportation, as well as firewood for cooking purposes. It is estimated that approximately 80% of urban households have access to electricity but only 17% of rural households have access to electricity. Of this electrified rural population, 31% only have solar lanterns for lighting, while another 23% rely on solar home systems (SHS) of smaller than 150 watts². The remaining 46% of the electrified households obtain electricity from unsustainable and imported fossil-fuel-derived sources.</p> <p>The low (17%) access in rural areas is due to the population’s large spatial disbursement over 65 inhabited islands. This has made the delivery of energy technologies, fuel supply and services costly and logistically difficult, especially during climate events such as tropical cyclones or prolonged heavy weather periods (as seen in La Nina periods). Thus, only a small portion of the rural population has been able to access electricity technologies to date and only</p>		

¹ Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

² GGGI. 2018. Feasibility Study of the Vanuatu National Green Energy Fund Development.

an even smaller proportion having access to reliable (nondependent) sources of electricity such as solar.

Despite this, energy demand is increasing, with 77% of households indicating a desire to use electricity for at least one income-generating activity. At present, incoming generating households energy sources are primarily met by diesel generators as they have lower upfront costs than renewable energy³. Consequently, this business-as-usual scenario will lead to increased greenhouse gas (GHG) emissions as the rising energy demand is met by fossil fuel combustion. This is in contrast to Vanuatu's Nationally Determined Contribution (NDC) objective of achieving "close to 100% renewable energy in the electricity sector by 2030". Further, the dependence on fossil fuel sources results in reliability issues, with climate impacts cutting off supply chains to remote islands, sometimes for days or weeks. It also leaves communities exposed to impacts of global events (e.g. Russia-Ukraine war and COVID19) that inflate fuel prices or restrict supply.

The proposed project will provide solar photovoltaic (PV)-based electricity to 2,225 rural households, 125 schools and 150 Micro, Small and Medium Enterprises (MSME) in Vanuatu, through the installation or upgrade of solar mini-grid and solar home systems (SHS). This will be achieved by leveraging the National Green Energy Fund (NGEF) investment programme supported by the Government of Vanuatu⁴ (GoV) to provide solar energy access to off-grid areas.

At present, the NGEF does not have sufficient capital to subsidise renewable energy technologies to a degree that increases rural households' willingness to pay over fossil fuel alternatives. GCF resources will therefore supplement the NGEF. Grant resources will be used to subsidise costs to de-risk green energy investments by a cross-subsidy approach, proven by the Department of Energy (DoE). This will accelerate progress towards the achievement of 100% rural electricity access and close to 100% electricity generated from renewable energy sources by 2030⁵.

³ Vanuatu. 2019. Vanuatu National Energy Road Map (2016–2030): Implementation Plan.

⁴ NGEF is the country's first national financing vehicle for the Vanuatu energy sector, launched in August 2018.

⁵ Updated Vanuatu National Energy Road Map 2016-2030

	PCREEE ⁶ will function as the EE, separately and with differentiated responsibilities from, but under the oversight of SPC Climate Finance Unit as the AE. A Project Management Unit (PMU) will be based within Vanuatu’s DoE and manage implementation alongside the established NGEF unit facilitating the shared expertise and local capacity development. The PMU will ensure that project ESS monitoring and implementation and procurement processes are in alignment with SPC standards as applied under its accreditation scope with the GCF.
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B. Project / Programme information

B.1. Context and Baseline (700 words)

Describe as relevant the climate vulnerabilities and impacts, GHG emissions profile, and mitigation and adaptation needs that the prospective intervention is envisaged to address.

Context

Vanuatu's Third National Communication to the United Nations Framework Convention on Climate Change details greenhouse gases (GHG) emissions and removals for the period 2007–2015. Net national GHG emissions in 2015 amounted to 610.2 MtCO₂e (up from 299.4 MtCO₂e estimated in 1994 and 585.4 MtCO₂e in 2000). This comprised 128.2 Mt of CO₂ emissions, 14.8 Mt of CH₄ emissions and 0.3 Mt of N₂O emissions⁷. The energy sector is responsible for 32.5% of CO₂ emissions in Vanuatu and its total output of CO₂ is expected to double by 2030⁸. This is primarily due to Vanuatu’s energy mix being dominated by imported fossil fuel products⁹, with 71% of electricity being derived from diesel¹⁰. The dependence on fossil fuel derived energy poses a significant risk to Vanuatu in terms of energy reliability, particularly for rural populations.

The distribution of Vanuatu’s population over 65 islands makes delivery of energy services technologically challenging and costly. There is currently a marked gap in energy provision between urban and rural areas, with 80% of urban households having access to electricity compared to only 17% for rural households. Rural areas in Vanuatu are outside of concession areas and as such are highly dependent on individual energy systems for electricity production. Demand for energy in rural areas is increasing dramatically, with 77% of households in rural areas indicating a desire for greater electricity access for income generating activities but indicating a lack of willingness to pay due to high upfront costs¹¹.

In addition to the complexities created by Vanuatu’s highly dispersed population, the country’s energy supply is extremely vulnerable to climate impacts. Ranked as being at the highest risk level in the 2019 World Risk Index for disaster exposure and consistently featured among the top 10 most climate-

⁶ <https://www.pcreee.org/> The PCREEE addresses gaps in the current effort to address existing barriers and strengthen drivers for sustainable energy markets, industries and innovation through regional methodologies and tools. The PCREEE is part of a global network of regional centres. Its design allows for the leveraging of a network of intra and extra regional partnerships, thereby serving as a “hub” for knowledge and technical expertise on matters related to sustainable energy project implementation. PCREEE is integrated into the Pacific Community's Geoscience Energy and Maritime (GEM) Division. It is embedded within the Georesource and Energy Programme (GEP) of GEM and operates under its Finance, Admin and M & E services. Within the GEP, it works side-by-side with the Policy & Governance, Technical Assessment and Capacity, Data and Strategy teams and projects within the programme.

⁷ MoCC. 2020. The Republic of Vanuatu Third National Communication to the United Nations Framework Convention on Climate Change.

⁸ <https://www.greenclimate.fund/sites/default/files/document/vanuatu-country-programme.pdf>

⁹ Vanuatu imports 100% of its petroleum, over 56million litres of fuel each year. Diesel makes up the largest part of this volume at 63%, from which 38% goes to electricity generation.

¹⁰ MoCC. 2020. The Republic of Vanuatu Third National Communication to the United Nations Framework Convention on Climate Change.

¹¹ GGGI. 2018. Feasibility Study of the Vanuatu National Green Energy Fund Development.

impacted countries in the world¹², climate-related impacts have a large influence on economic growth and national development in Vanuatu¹³.

As detailed in Annex 2, projected climate change is predicted to result in more intense tropical cyclones and extreme weather events that can damage fuel supply centres or greatly impact supply chains. Further, altered rainfall patterns are predicted to negatively impact sea travel for fuel contributing to supply issues (please see Table 1 for further summary information). The resulting increase in fuel inconsistency and lack of energy reliability will influence the country's economic growth and national development. Such climate-related impacts have already had a large influence on economic growth and national development through damage to infrastructure and restricted access to common energy sources. For example, Cyclone Pam (2015) directly impacted 188,000 people (approximately 70% of the population) and cost an estimated USD 600 million in damages, with similar impacts seen under Cyclone Harold (2015). Over these events, the energy sectors fuel supply was heavily disrupted with supply chains being negatively impacted for extended periods of time. These frequent disruptions to energy provision negatively impacts the resilience of rural communities, including reducing access to information services, reducing the ability to light up dwellings or shelter, preventing the processing and preservation of food, disrupting schools, and reducing opportunities for business innovation.

Table 1 Mapping of specific climate impacts on the energy sector and the impact of this project on building resilience of rural communities

Phenomena	Projected change	Climate Impacts	Project impact
Increased temperature	Approximate increase in temperature by 1°C between baselines and the year 2050.	T.1. Accelerated food produce deterioration. T.2. Increased pest prevalence that can result in greater food produce deterioration.	<ul style="list-style-type: none"> Access to consistent and affordable energy supply, with increase energy output will allow for the utilisations of refrigeration systems so that beneficiaries can store produce for extended periods of time, enabling greater market prospects and reduced wastage.
Increased intensity of precipitation events	Variability of individual rainfall events will be considerable. Extreme precipitation events are expected to increase. On average, across the country, daily extreme rainfall events are expected	P.1. Enhanced inundation events will lead to more frequent market access disruption due to deterioration of roads. P.2. Prolonged rough seas during precipitation weather event will disrupt value chains and result in energy	<ul style="list-style-type: none"> Access to consistent and affordable energy supply, with increase energy output will allow for the utilisations of refrigeration systems so that beneficiaries can store produce for extended periods of time, enabling greater market

¹² World Risk Report 2021, see: <https://reliefweb.int/sites/reliefweb.int/files/resources/2021-world-risk-report.pdf>

¹³ For example, Cyclone Pam (2015) directly impacted 188,000 people (approximately 70% of the population) and cost an estimated USD 600 million in damages, with similar impacts seen under Cyclone Harold (2015). Over these events, the energy sectors fuel supply was heavily disrupted with supply chains being negatively impacted for extended periods of time

	to produce an average of 6.5% more precipitation by 2050.	limitations due to lack of fuel.	prospects and reduced wastage. <ul style="list-style-type: none"> Continued and consistent provision of energy through mini-grids and solar home systems that are not reliant on supply chains. Increased energy resilience and reduced disruptions to rural households and businesses.
Extreme wind speed, tropical cyclones (TC)	Extreme wind speed is projected to increase between 1 and 5%. Increase in the average TC intensity (category 4-5)	<p>E1. Intense TCs can bring torrential rains and have embedded severe thunderstorms that are accompanied by tornadoes – causing wind damage to rural infrastructure and energy systems.</p> <p>E2. Enhanced inundation events will result in more frequent market access disruption due to deterioration of roads</p> <p>E3. Prolonged rough seas during precipitation weather event will disrupt value chains.</p> <p>E4. Energy access will decrease due to greater damages inflicted across supply chain.</p> <p>E5. Energy reliability will decrease for single systems due to disrupted value chains</p>	<ul style="list-style-type: none"> More reliable energy provision through non-dependent mini-grids and solar home systems that are not reliant on supply chains will increase energy resilience. Increase energy resilience supports greater accessibility to early warning services with the ability to charge phones and access warning alerts, and communication services post disaster. Provision of training on management and maintenance of RETs will allow for quick and simple repairs to household solar systems and mini-grids.
Sea-level rise	By 2050, an increase of 40–60 cm in mean sea level is projected.	<p>S1. Increased sea level rise and king tides will lead to increased coastal erosion and infrastructure damage that could reduce market access</p> <p>S2. Energy demand for refrigeration will increase, to store</p>	<ul style="list-style-type: none"> Access to consistent and affordable energy supply, with increase energy output will allow for the utilisations of refrigeration systems so that beneficiaries can store produce for extended periods of time, enabling greater

		produce for longer periods of time and allow provision of high-quality produce to market.	market prospects and reduced wastage.
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The challenges associated with fossil fuel provisioning and distribution causes fuel prices and therefore household energy prices to be high during operation. However, this is offset by the relatively low upfront costs compared to other technologies (solar), maintaining fossil fuel energy sources as more attractive than alternatives such as solar systems. With the high probability of the disrupted supply chains for diesel and other fossil fuels, it is important that pricing for non-dependent energy sources such as solar be made more accessible to rural communities.

Providing this access to affordable and sustainable renewable energy is a key development challenge for the country. Subsidised green energy solutions that incur reduced upfront costs, provide lower operating costs (in comparison to fossil fuel sources) and provide a more reliable (nondependent) source of energy, have been prioritised by the Government of Vanuatu (GoV) in national plans and programmes for sustainable national economic development.

National mechanism to support transfer to green energy solutions

The NGEF was established in 2018 to serve as the national financing vehicle for Vanuatu's energy sector to increase electricity access and renewable energy investments in pursuit of Vanuatu's National Energy Roadmap (NERM) targets. The NGEF's primary objectives are to equitably disburse resources for green energy investments at a national scale, through a transparent and systematic process. It operates as a revolving fund, with resources from international sources as well as annual domestic contributions. Four types of funding support are offered by NGEF, namely:

- Debt via intermediaries including financial and non-financial institutions
- Equity for project developers and technology providers
- Risk sharing in the form of a first loss facility for local banks
- Small grants and subsidies

Financial intermediaries include institutions that provide lending products to individuals, enterprises, communities and other entities that are able to borrow and repay loans to the intermediary. Non-financial intermediaries include private sector and enterprises that provide energy products and services to end-users.

Funding support can take the form of: i) financial products (loans, credit lines, guarantees, equity) to intermediaries serving end users; and ii) grants and subsidies to enable specific end users to access energy services. This project will focus on the latter, providing grant support in the form of subsidies to reduce total costs and reduce interest rates on NGEF repayable mechanisms. This will enhance accessibility of energy products to end users in rural communities. Although the GoV can provide limited financing to NGEF, it does not currently have the grant resources necessary to subsidies at scale, nor at the rate needed to reach the country's 2030 targets. This in part is due to large costs incurred due to COVID 19 and loss and damages from severe Tropical Cyclones such as Pam, Harold,

and others¹⁴. The GCF grant investment will specifically focus on subsidies to accredited solar suppliers in Vanuatu to enable them to reduce costs to the end user, lowering the cost below rural end users 'willingness to pay' threshold. Under the NGEF mechanism, selection of solar suppliers and decisions on lending products follow transparent and equitable processes based on criteria including:

- Strategic focus on the sustainable energy markets
- Track record in providing financing or energy services to end users
- Need for NGEF's financial and non-financial products
- Sound governance structure and financial position

GCF grant resources will allow the NGEF to scale up support to end users who would otherwise be unable to afford sustainable energy products and services. This is crucial if Vanuatu is to meet its 2030 NDC targets (see below). End users that are eligible for subsidised NGEF products include: i) poor households with limited income and access to financial services; ii) community projects that provide public benefits to poor communities; and iii) micro, small and medium enterprises (MSMEs) and cooperatives with income generating potential that are challenged by limited economies of scale, remoteness from markets, and limited purchasing power.

Please indicate how the project fits in with the country's national priorities, action plans and programs and its full ownership of the concept.

Provision of carbon neutral energy to meet the rural population's energy demands whilst also reducing dependence on fossil fuels is necessary for GoV to meet its NDC commitments. Vanuatu's NDC specifies a target of 100% of households electrified and close to 100% of electricity generated from renewable energy sources by 2030. It also sets a target of saving 73MtCO_{2e} by 2030. This is aligned with the National Energy Roadmap (NERM) 2016-2030 which outlines five priorities, namely: i) accessible energy; ii) affordable energy; iii) secure and reliable energy; iv) sustainable energy; and v) green growth. The NERM specifically prioritises increased energy access for rural populations and calls for amendments to regulation and legislation to make energy provision more accessible and sustainable.

Further to this, the proposal was initiated by the NGEF in pursuit of the priorities of Vanuatu's NDC and the National Sustainable Development Plan (NSDP) and People's Plan (2016-2030), which also both outline an objective of 100% electrification from renewable energy sources by 2030. The proposal has been endorsed by the Vanuatu Climate Finance Working Group under the National Advisory Board on Climate Change and Disaster Risk Reduction (NAB)¹⁵. The NAB is the lead policy making and advisory body for Vanuatu's disaster risk reduction and climate change initiatives. Thus, this project has been prioritised by GoV at the highest level as a key priority for the country with full national ownership. Due to the barriers presented below, the project was selected to target GCF funding and was included in Vanuatu's GCF country programme. The Pacific Community (SPC) was selected as the AE to take this forward considering its strong and long-lasting collaboration with Vanuatu (as a Member country of SPC) and its strong experience in the energy sector across the region.

This project will improve energy access for households and businesses in rural and peri-urban areas, resulting in improved livelihoods, job creation and greater opportunities for income generation whilst

¹⁴ [Vanuatu: 2023 Article IV Consultation](#), 2023. The IMF 2023 Article IV Consultation on Vanuatu stated that "the pandemic, increase in global commodity prices, and lower revenues from the ECP reduced macroeconomic policy buffers". In addition to this the 2023 Debt Sustainability Analysis (DSA) indicates that the risk of debt distress for Vanuatu remains moderate. The public debt stock and public debt service costs are forecast to grow over the long term. It was the recommendation of the DSA that the authorities of Vanuatu continue to seek grants and concessional loans for infrastructure projects.

¹⁵ The NAB is made up of government and non-government members. It is co-chaired by the Director-General of the Ministry of Climate Change and its members are senior-level representatives from key sectoral government agencies and NGO representatives.

reducing carbon emissions across the country. Directly targeting GCF results areas MRA1 and ARA1. This will be achieved by improving energy access to households that are below the “extreme energy poverty line” with provision of SHSs above the 120W threshold. It will also target schools and SMEs that have greater energy needs or are currently powered by fossil fuel generators that have high operating costs. Improved access to renewable energy will enable households and SME owners to improve livelihoods and living conditions, without utilising fossil fuel alternatives that increase carbon emissions. Through this, the project will contribute to the NERM target of saving 73MtCO_{2e} by 2030¹⁶ to help Vanuatu meet its NDC targets. It builds on the ongoing government subsidy and rural electrification programme, benefiting from the institutional infrastructure set in place by the Vanuatu Rural Electrification Project (VREP) project that ends in 2022. Key lessons learned will be used to increase impact and sustainability of investments in the sector.

Further to aligning with Vanuatu’s energy supply and mitigation targets under the NDCs, the enhanced role of reliable energy access will also contribute to community resilience and adaptation benefits. Please refer to Annex 2 for full detail of historical and predicted climate change trends and their associated impacts on the rural energy sector in Vanuatu. In summary, more intense tropical cyclones and extreme weather events are predicted. These can damage fuel supply centres. Further, altered rainfall patterns and increased wind speeds will negatively impact sea travel, contributing to supply chain issues for fuel generators. During Tropical Cyclones Pam and Harold, the energy sector’s fuel supply was heavily disrupted with supply chains being negatively impacted for extended periods of time, impacting reliability of electricity provision in rural and remote areas.

Fuel inconsistency and lack of energy reliability will influence the country’s economic growth and national development, impacting the livelihood resilience of rural communities in the country. Thus, a faster diversification of the energy mix and progressive provision of renewable energy is needed to improve energy security and reliability to enhance resilience for the county’s most vulnerable people and communities. This will allow them to adapt to climate conditions that impact on their ways of life. Please refer to Annex 2 for further details of climate impacts on rural populations and adaptation needs under the lens of the energy sector.

Describe the main root causes and barriers (social, gender, fiscal, regulatory, technological, financial, ecological, institutional, etc.) that need to be addressed. Where relevant, please describe the key characteristics and dynamics of the sector or market.

Assessments at the national-level and across the five main islands in Vanuatu highlighted a series of barriers that impact rural household ability and willingness to engage in renewable energy options at the household-level.

Table 2: list of barriers to efficient and effective scaling up of renewable energy systems in rural areas of Vanuatu

Barrier	Category	Description
1. Regulatory landscape	Regulatory	There is no operational national regulatory framework for governing off-grid areas, limiting operations in rural areas. Without standard regulation or enforcement, roll out of renewable energy is thus limited.
2. Technical capacity of extension agents	Institutional	There is a low level of quality assurance in provision of services. This is compounded by limited awareness of the

¹⁶ Vanuatu NAMA Report, 2015

		technical requirements of renewable systems and their medium- to long-term benefits.
3. Financial capacity to invest in renewable energy systems	Financial	Energy demand at household level is for energy provision over 120W systems to power refrigeration and cooling appliances to increase income generation opportunities and improve quality of life. However, the upfront cost of such systems is prohibitive and above the capital capacity and willingness to pay of individual households and SMEs.
4. Technical capacity of Financial Institutions (FI)	Institutional	FIs have limited experience in the renewable energy sector, causing them to have limited risk appetite for renewable energy investments at the household or SME level. Resulting in the setting of upfront costs and interest rates that are too high.
5. Lack of access to affordable finance	Financial	SME energy needs are high (e.g. refrigeration, lighting and water pumping). Due to the low-risk appetite, financing options for renewables are prohibitively expensive, making SMEs more likely to borrow for fossil fuel systems with cheaper initial costs.
6. Logistical challenges for installation in rural settings	Logistical	Costs for transportation and distribution of equipment and materials are high as the geographic dispersal of rural communities necessitates sea and land transportation. Further, vendor and installation companies are not widely distributed across the country, meaning that technical services must be acquired at distance, increasing costs further.

To address these barriers, the proposed project will leverage the existing NGEF infrastructure with GCF resources to scale up operations and enhance technical capacities to roll out renewable energy technologies (RETs) in rural areas. This scaling up and operationalisation of the NGEF is a concrete step towards meeting the targets and commitments outlined in *inter alia* the NDC, NERM and NSDP. The NGEF invests in energy technologies across the country through a variety of financial mechanisms, including:

- 1) Lending products
- 2) Guarantees
- 3) Equity
- 4) Grants

These mechanisms are provided through financial and non-financial intermediaries as well as SHS service providers. The project will use **GCF grant resources to subsidise concrete investments in RETs** in rural areas and to support institutional capacity building. Grants will be provided directly to selected service providers to support and reinforce NGEF operations by keeping interest rates and upfront costs to end users low.

By leveraging the NGEF, the project will complement and scale up ongoing/closing projects targeting the energy sector in Vanuatu.

1. **Vanuatu Rural Electrification Project (VREP) funded by the World Bank¹⁷.** Phase 1 of the project provided 11,000 households with ‘plug and play’ SHSs by 2018. Phase 2 (VREP II) of the project (2018-2022) provided additional financing to scale up these systems to raise households above the energy poverty line through energy generation for economic activities. VREP II identified five solar mini-grid sites, three of which have been commissioned by the GoV. This project will finance an additional five mini-grids, including the remain 2 identified by VREP..
2. **Solar Refrigeration for Vanuatu Rural Tourism Operators Project (SRVRTOP) piloted by the GoV (see Annex 6).** This project provided resources for the establishment of solar refrigeration systems for rural SME operators and small businesses in off-grid sites. A project implementation survey for SRVRTOP demonstrated that monthly earnings increased to over USD 1,000 with at least half of that being profit to the individual SMEs, indicating a strong proof of concept. The GCF project will provide grant subsidies to help SMEs and small businesses overcome the high capital costs associated with solar technologies.
3. **The Barrier Removal for Achieving the National Energy Road Map Targets of Vanuatu (BRANTV) Project¹⁸** (2018-2022) was funded by the GEF and implemented by UNDP in partnership with the Vanuatu Department of Energy. BRANTV supported the NERM goals related to energy access, sustainable energy, and green growth through a focus on productive, livelihood-enhancing uses of RE and EE. The success and replication of such activities depends on the payment and management systems introduced to support repairs of the RET systems. This GCF project will build on the awareness raising for RETs provided by BRANTV and incorporate training of beneficiaries in financial planning for long-term operations and maintenance.

B.2. Project / Programme description (1500 words)

Describe the expected set of components and activities to address the above barriers identified that will lead to the expected outcomes.

The specific goal statement for the project is: ***IF renewable energy technologies are made more accessible and affordable to community beneficiaries, schools, and MSMEs THEN emissions from fossil fuel technologies will be avoided or displaced and more reliable energy provision secured in rural communities, enhancing livelihoods BECAUSE improving the enabling environment will support faster delivery of subsidies for RETs and these subsidies will reduce the up-front costs of RETs to a degree that increases community beneficiaries’, MSMEs’ and schools’ willingness to pay for RETs over fossil fuel alternatives.***

The project will directly contribute to GCF IRMF outcomes for emission reductions and enabling environments through two integrated outcomes. Under Outcome 1, national regulations and capacities will be strengthened to roll out RETs effectively in rural areas. Under Outcome 2, grant resources will be channelled through established NGEF mechanisms to scale up operations to meet the 2030 NDC targets. Detailed descriptions of the outputs and activities are presented below, with project-specific indicators and targets to be presented in the Funding Proposal following the GCF IRMF guidelines.

¹⁷ VREP Implementation Completion and Results Report, World Bank, 2022 <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099050204272216000/p1509080c23e9c0b0bfb306d4043c0decc>

¹⁸ BRANTV, Mid-term Review, 2021, UNDP, <https://www.thegef.org/projects-operations/projects/9574>

Outcome 1: Enhanced enabling environment with the NGEF through institutional strengthening, effective knowledge generation and learning

Output 1.1: Strengthened institutional capacity to scale up NGEF operations.

This output will focus on the provision of technical assistance and capacity building to strengthen capabilities in the NGEF to design, assess and deliver renewable energy projects at scale. With enhanced capacity across the NGEF management and extension structure, roll out of future energy projects will be more effective and efficient. Ultimately this will enable faster provision of subsidised RETs to rural populations. This will reduce emissions from fossil fuel sources through i) replacement of existing fossil fuel systems; and ii) avoidance of investments in fossil fuel technologies to meet increasing energy demands.

Activity 1.1.1. Technical assistance and capacity-building activities will be provided across the NGEF value chain¹⁹ to enhance understanding of RETs and financial literacy to capitalise on NGEF products. Tailored information materials will be developed, and trainings delivered across rural energy value chain actors or users. Specifically, this technical assistance will target:

- i. **Households, schools and communities** – enhancing financial literacy concerning subsidised RET options that are accessible to them, and development of financial management systems and repayment plans.
- ii. **Aspiring SMEs** – improving technical knowledge of RETs and related financial products for installation, operations and maintenance, and development of financial management systems and repayment plans.

Financial intermediaries – strengthen risk assessment processes to include aspects related to RETs and enhance assessment and identification processes for business identification of bankable projects. **Outcome 2: Reduced emissions and enhanced reliability of energy through greater uptake of renewable energies in rural Vanuatu.**

Activity 1.1.2. A training-of-trainers programme will be delivered to NGEF staff regarding financial products available under the NGEF framework as well as technical parameters of RETs to allow more accurate tailoring of energy systems to beneficiary needs. Further training will be provided on project development and implementation, including monitoring and evaluation and knowledge management to ensure that lessons are identified, and operations adapted to enhance performance in the long-term.

Activity 1.1.3. Technical assistance will be provided for policy and regulatory assessments and gap analyses. Results from these assessments will be used to formulate policy reforms around taxation and inform enhancement of relevant regulations to accelerate rural electrification and provisioning of RETs through the NGEF.

Outcome 2: Reduced emissions and enhanced reliability of energy through greater uptake of renewable energies in rural Vanuatu.

Output 2.1: Direct subsidies for households, schools and MSMEs reduce costs to end users for renewable energy investments and increase uptake of RET instalment.

¹⁹ Please refer to Figure 1 of the [NGEF resource mobilisation and financial sustainability plan](#): governance management and delivery diagram and Appendix 1: Funds operational structure in the same document. This provides an overview of the key stakeholders involved in the NGEF.

This output will directly provide subsidies to reduce costs of RETs across the country. Targeting all 6 provinces. Activities will specifically target provisions of subsidies to households, schools and MSMEs to reduce upfront costs and increase willingness to pay to invest in RETs. This will increase installation of RETs in rural settings. Specifically, the project will target a portion of end users currently utilising diesel generators and will provide new RET systems or upgrades to additional end users without energy access or access below the energy poverty threshold. In total this will result in a reduction or avoidance of 64,308 tCO₂eq and build energy resilience within communities. This access to reliable energy will increase the resilience of local economic activities to future climate change impacts. The provision of RET means that energy supply will be much more reliable in remote areas and islands, as communities will not need to depend on supply shipments of fuel. Increased energy output will also allow for utilisation of refrigeration, allowing households or MSME's to cold store food products for extended periods of time, enabling greater market prospects and reduced wastage or devaluation in the case market access is cut off due to poor weather conditions or cyclones.

Activity 2.1.1. Approximately 31% of households in rural Vanuatu own small businesses in which reliable and cost-effective energy is crucial to success. In 43% of these businesses, owners indicated the need for additional energy supply for refrigeration while 36% indicated a need for more energy for reliable lighting. However, the upfront costs of investing in RETs over 120Wh are higher than those related to investing in fossil fuel energy sources. This reduces households' willingness to pay for RETs in favour of fossil fuel generators. To address these needs, the project will provide up to 60% grant²⁰ subsidies to reduce the upfront cost of investments in RETs for such households, thereby avoiding them turning to fossil fuel sources. These subsidies will follow NGEF's mechanisms and approval processes described in the NGEF operations manual. The project will target 2,225 households. Providing, energy access to 500 households, upgrading SHS to units over 120W in 1500 households, and replacing the 225 diesel generators with estimated 1,559 tCO₂eq/year outputs. Consequently, the output would result in a total reduction of 31,173 tCO₂eq over the 20-year lifespan of the technologies installed and result in increased resilience in rural communities with consistent and operationally low cost energy solutions that meet growing energy needs

Activity 2.1.2. Currently, rural primary schools largely rely on diesel generators for energy needs (e.g. basic lighting, printing of school materials). Fuel costs are high in remote rural areas and operation of these generators is thus costly to schools. However, despite the high cost of operation, the opportunity cost for switching to RETs is too high due to the upfront costs required to install RET systems at scale. Accessing reliable energy for school improvement has already been demonstrated in a pilot project whereby the NGEF provides soft loans (at 3–6% interest) guaranteed by the Ministry of Education and Training directly to two primary schools. This highlighted that under the right financial conditions, schools are willing to switch from fossil fuel technologies to RETs. Through this GCF project, a 60% subsidy will be provided to schools to offset the opportunity cost and increase willingness to invest in RETs over fossil fuel alternatives. This output would target 125 schools (102 primary and 23 secondary). The project would target a switch from diesel generators to renewable energies technologies across 32 primary schools and provide access to or upgrade RET systems in the other 93. This would result in a reduction of carbon emissions estimates at 2,169 tCO₂eq over the project lifespan, and an avoidance of 17,219 tCO₂eq over the project lifespan resulting in reductions of 19,388 tCO₂eq over the 20-year lifespan of the technology. The reduced operational costs of RET systems and increased energy resilience will support schools to access the resources they need (such as lighting and printing).

Activity 2.1.3. This activity will scale up the efforts of the 2017 Global Green Growth Institute's pilot for MSME investments through the NGEF. This pilot targeted 10 bungalows in the tourism sector by

²⁰ VREP evaluation indicates that take up of RETs is only sufficient to be effective at a 60% subsidy rate. The 33% rate provided in VREP was deemed ineffective. Please see the VREP Completion report for further details on this, found [here](#).

provision of finance to aspiring business owners to access solar refrigeration technologies to meet the Department of Tourism accreditation requirements. This finance prevented the 10 selected SMEs from investing in fossil fuel technologies with cheaper upfront costs, as is noted in the SRVEP Post Project Implementation report²¹. This GCF project will expand the pilot to include other MSMEs such as registered cooperatives, fisherpersons' associations, and privately-owned trading businesses. The selection of MSMEs for investment will follow the NGEF selection criteria as detailed in Annex 3. This includes only investing in organisations that have been registered by the Vanuatu Office of Registrar of Cooperatives and Business Development Services (ORCBDS) or Department of Tourism to ensure they have capacity to sustain the operations of the RET. The activity will target 150 MSMEs for provision of solar refrigeration, providing a 60% grant subsidy to reduce the costs associated with investment. Of these MSMEs it is estimated that 60 will replace existing fossil fuel systems. The other 90 investments will be provided with upgrades or access to energy for MSMEs, offsetting the opportunity cost of investing in renewable technologies and avoiding inclusion of fossil fuels into the energy mix. This would result in a reduction of carbon emissions estimates at 5,499 tCO_{2e} over the project lifespan, and an avoidance of 8,248 tCO_{2eq} over the project lifespan resulting in total reductions of 13,747 tCO_{2eq} over the 20-year lifespan of the technology.

Output 2.2: Installation of five micro-grids at target communities

In remote rural areas of Vanuatu, communities are located far from points of access to the national energy grid. These remote areas rely predominantly on fossil-fuel generators for electrical power. However, the majority of households do not have access to energy and the few that do rely on imported fuel to power generators. This is expensive and results in high operational costs. To overcome the high logistical costs in such remote communities, it is more cost-effective to invest in singular micro-grid systems than in household-level NGEF investments. This output will provide resources to establish five micro grids in remote rural communities. Analysis will be done during the funding proposal development to ensure the micro-grid sites have no geographical overlap with other grids, nor that they will fall within areas for possible expansion of the concession area. These non-dependent micro-grid systems will increase energy resilience in remote areas and islands, as communities will not need to depend on supply shipments of fuel. Increased access to energy will improve community resilience supporting access to information services, providing power to light up homes, and providing sufficient energy to for refrigerators. The use of refrigeration will allow households or MSME's to cold store food products for extended periods of time, enabling greater market prospects and reduced wastage or devaluation in the case that market access is cut off due to poor weather conditions or cyclones.

Activity 2.2.1. Five communities were identified as part of the VREP II programme for micro-grid development under additional funding sources. The communities targeted do not have access to reliable sources of electricity. They largely operate off fossil fuel generators and do not have access to RETs. Their remote location means that procurement and installation costs are exorbitant, making upfront costs excessive. Creation of a micro-grid in each location is deemed to be more cost-effective than investments into individual households and MSMEs through NGEF. This GCF project will establish five micro-grids, the two micro-grids identified and not installed during the VREP II programme and an additional three in remote locations identified during funding proposal development. Assessments will be done on all five to ensure there is no geographical overlap with existing or planned future grids. This will provide a further 500 connections to households, schools, health centres and/or MSMEs with electricity. Electrifying health infrastructure and expanding access to resilient energy systems will improve each community's ability to respond to climate impacts and build long-term resilience . The

²¹ Solar Refrigeration for Vanuatu Rural Tourism Operators, Post Project Implementation Report Jan 2018.

grids will provide an output of 365 kwh/connection/year. This will result in a total of 923 tCO₂eq of avoided emissions over the 20-year lifespan of the technology.

Please refer to Table 4 for a summary breakdown of emission reductions across the target end users.

Monitoring, Evaluation and Knowledge Management

Activity M.1.1. Project-level monitoring and evaluation (M&E), reporting, knowledge management and dissemination will be undertaken to inform adaptive management of the project. This will include annual M&E as well as mid-term and final evaluations of project progress against the approved log frame (to be developed at full proposal stage). All annual and periodic reporting (financial and progress) requirements will be conducted in alignment with the obligations and timelines defined in the Funded Activity Agreement. This will build on national mechanisms for M&E and reporting.

Activity M.1.2 – The information produced from data collection and evaluations under Activity M1.1 will be used to synthesise key lessons learned from project operations. These lessons will inform recommendations provided to the NGEF steering committee. Moreover, project knowledge and learnings will be incorporated into wider knowledge products for enhanced awareness raising of the success of NGEF and the benefits of RET investments.

Targeting: This project will specifically focus on supporting the NGEF to increase reliable energy access to remote rural populations outside of concession areas. By providing solar systems for rural Small and Medium-sized Enterprises, and solar equipment to rural households, public institutions and communities, this project will support 31,270 direct beneficiaries and 200,855 indirect beneficiaries, respectively 10.2% and 65.4% of the total population. Calculations for direct beneficiaries were made based on the average number of households and school sizes targeted by the project. Indirect beneficiaries were calculated based on Vanuatu’s total rural population, as the whole rural population will benefit from improved institutional capacity of extension structures and service providers post project. A breakdown of direct beneficiaries is presented in Table 2 below.

Table 2 - Beneficiary breakdown

Unit	Number / unit	Beneficiaries / unit	Beneficiaries Total
Households	2,225	5	11,125
Primary schools	102	140	14,280
Secondary schools	23	230	5,290
MSMEs	150	1	150
Microgrid	5	-	425
Direct Beneficiaries			31,270
% population			10.2
Vanuatu population			307,150
Urban			75,025
Rural			232,125
Indirect beneficiaries			200,855
% population			65.4

Please explain why this project or programme is ready for scaling up and has the potential for transformation. Has it been piloted in the country or region? Are the proposed interventions well documented for their costs and benefits?

This project is to scale up the existing operations of the NGEF, prioritising energy access and sustainable energy for off-grid areas in Vanuatu. At NGEF's inception in 2018, it had a target of electrifying 40,000 rural households. This target remains beyond NGEF's implementation capacity in the absence of additional external funding at scale. To address this, the GCF project will provide additional grant resources to enable NGEF to scale up its operations and meet its targets.

After four years of implementation, NGEF has refined its processes and gained experience in delivering RETs in rural and remote areas that are off the national energy grid. The institutional infrastructure is now in place for NGEF operations to be effective through selection of appropriate service providers and procurement of required equipment at economies of scale. Currently, operations are in a position to benefit rural households, schools and MSMEs with increasing energy demands. However, this is only possible with the subsidies provided under the NGEF model to overcome the opportunity cost of investing in cheaper upfront and running costs associated with fossil-fuel alternatives.

The grants provided by the GCF will be used to subsidise costs for beneficiaries. Grant subsidies from GCF funds will be paid directly to renewable energy service suppliers through a project-specific account in parallel to NGEF investments. This will follow transparent, fair and equitable procurement processes in compliance with GCF and SPC standards.

This model will be transformative across Vanuatu. The provision of affordable RETs will prevent investments into fossil fuel technologies by household and MSMEs. This will directly reduce carbon emissions from beneficiaries currently making energy transitions and avoid future emissions from households or MSMEs that might otherwise invest in diesel generators. The reduced operation costs of RETs in the long term will increase profitability of household businesses and MSMEs that no longer have to pay expensive fuel prices. This will allow for investment by beneficiaries into local economies, education and health, thereby enhancing livelihoods and wellbeing. This is particularly important in the face of climate projections that indicated more extreme and variable weather. Strong local economies are essential to providing these communities with the resource to build resilience measures into their everyday operations.

Describe in what way the Accredited Entity(ies) is well placed to undertake the planned activities and what the implementation arrangements with the executing entity(ies) and implementing partners will be.

As the Accredited Entity (AE), SPC through its Climate Finance Unit within the Climate Change and Environmental Sustainability (CCES) programme will oversee and supervise the project implementation and M&E. In this capacity as AE, CCES will oversee overall reporting to the GCF, ensuring alignment with SPC and GCF's processes and requirements, oversight of financial management and ensuring M&E and learning activities are undertaken in alignment with the Funded Activity Agreement. SPC's comparative advantage as the AE for this project, lies in its:

- extensive ties with governments, administrations, agencies, and partners in all Pacific Island Countries;
- presence of SPC's Melanesia Regional Office in Vanuatu, creating close linkages at country level that will enhance communication between SPC and country partners;
- broad mandate on urgent development issues in the Pacific, including climate change mitigation and energy security;

- funding base with multi- and bilateral donors allowing for co-financing options, cost sharing and combined programmatic funding;
- extensive international partnerships which range from UN agencies to other IGOs, NGOs and civil society groups at grassroots level, including in Vanuatu. x

A Project Management Unit (PMU) will be based within Vanuatu's DoE and manage implementation alongside the established NGEF unit for shared resources and local capacity development. As the Executing Entity (EE), SPC through its Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE) will be responsible for the PMU. PCREEE will function as the EE, separately and with differentiated responsibilities from, but under the oversight of CCES as the AE. This ensures accountability and transparency of procedures during project implementation, as well as alignment of activities with existing projects. The NGEF's fiduciary arrangements are described in the Operations Manual (see Annex 4). As an implementing partner, staff from GGGI will be housed within DoE and provide support and capacity building to the NGEF and DoE staff. GGGI's role in the project will be governed through an agreement signed with SPC in its capacity as an EE.

Please provide a brief overview of the key financial and operational risks and any mitigation measures identified.

Table 3 Overview of the key financial and operational risks and associated mitigation measures

Risk	Mitigation measure
<p>Operational Risk: Integration of external financing with the existing NGEF operations.</p>	<p>The EE will provide technical support and training to NGEF Fund Manager, as required. Through the grant, capacity building and training for skills development of NGEF staff and technical assistance to enhance NGEF's financial management system and operations will be provided. A separate ledger account will be established for GCF resources to ensure there is no blending of resources and traceability of GCF financing is assured.</p>
<p>Logistical Risk: Some communities are located in remote islands and provinces. Transportation to, and communication and outreach/engagement with these remote communities is a significant challenge, that can result in project delays as materials required for instalment of RETs are not obtained within planned timeframes, or travel of extension agents is limited, reducing interactions with beneficiaries, and delaying training delivery.</p>	<p>Under the project, beneficiaries, FIs and Service Providers, will be engaged through the NGEF, building on the established GoV processes to deliver project results. This disbursed approach, making use of existing delivery mechanisms helps to mitigate the risk, which will be strengthened within this project. This engagement will include communicating Project needs to provincial service providers, and beneficiaries based on the relative geographic isolation of their location. SPC will ensure that procurement meets SPC standards and established and efficient procurement protocols are in place. This will allow flexibility in procurement to adjust to needs, and the SPC and NGEF teams will adjust to transportation and communication needs accordingly.</p>
<p>Interagency co-ordination: Limited coordination between government ministries, SPC, beneficiaries, Service</p>	<p>Strong institutional and implementation arrangements for the project's management framework will ensure effective coordination and collaboration between</p>

<p>Providers, private sector, and other stakeholders reduces the efficiency and effectiveness of implementation of project interventions. Further, this could result in project delays as decision-making processes are delayed by lack of inter-stakeholder coordination.</p>	<p>project partners. The PMU will facilitate constant dialogue between project partners and stakeholders and ensure that the main stakeholders communicate regularly and coordinate actions. The project will also build institutional capacities for coordination between national and regional government, and supporting organisations covering data collection, communication, and knowledge management processes and tools. Moreover, project activities focus specifically on building capacities in relevant institutions.²²</p>
<p>COVID 19: Depending on the timeline of the extended pandemic, stakeholder engagement could still be constrained by COVID-19 and the resulting shifts in staff and protocols. Further, there is a risk to extension agents and beneficiaries on increased exposure to the virus through project activities.</p>	<p>The project has been adaptive and proactive in finding pathways to engage with needed stakeholders at the local-level during the COVID-19 pandemic by leveraging highly effective national consultants and local networks. This foundation will help the project to proactively plan for alternative pathways for stakeholder engagement. In addition, during cases of increased incidence of the virus, in alignment with government recommendations all necessary precautionary and protective measures will be in place for in-person meetings (personal protective equipment use, hand sanitation, social distancing etc) and wherever feasible, online virtual platforms will be used as appropriate.</p>
<p>AML/CFT and Prohibited Practices: Potential risks related to Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT).</p>	<p>SPC has adopted Financial Policies for AML/CFT to prescribe the principles and minimum safeguards to protect SPC from being misused for money laundering or terrorism financing. Although the risks of money laundering and terrorism financing are considered “low” for Vanuatu, SPC will take steps to ensure that its funds are not used to finance any illegal acts related to money laundering or terrorism financing. As for the prohibited practices, SPC has procedures to ensure their avoidance, including a whistle-blower policy. Manuals and emails for reporting of prohibited practices can be found at https://www.spc.int/accountability.</p>
<p>Major Hazards: Unexpected major natural hazards (major cyclones, earthquakes, volcanic eruptions, tsunamis etc) could damage project investments.</p>	<p>All investments and installations will account for severe climate risks, such as cyclones, ensuring that infrastructure is resilient to impacts of high winds and mitigates risk damages in alignment with national building codes. Supporting this, operation and maintenance plans will be in place to implement regular assessment of installations and ensure any</p>

²² No persons or entities listed on any UN Security Council sanctions list, including the UN Consolidated Sanctions list will be involved in any manner with the project or its activities, either as a counterparty, implementer, or beneficiary.

damages are identified and resolved quickly. Beneficiaries will also be required to show financing plans for operations and maintenance of investments.

Please explain how the M&E will be conducted as part of the project or programme (routine and concurrent monitoring, interim and final evaluations, and annual reports)

In its role as AE, CCES will oversee and supervise the implementation of this project, in accordance with the agreement signed between SPC and GCF. In its capacity as EE, PCREEE will be responsible for project-level M&E, learning and reporting undertaken by the PMU in compliance with approved SPC policies, the NGEF Operations Manual and GCF requirements. Further, coordination between CCES and SPC's Strategy, Performance and Learning (SPL) Team will allow for supervision and technical assistance support the PMU on tools and methods to monitor, evaluate and learn from the project activities.

M&E will allow the PMU to be flexible and adaptive to unexpected changes in implementation conditions as well as to build trust and respond to stakeholders' and communities' needs. The scope, robustness and frequency of M&E and reporting will vary depending on the type of activities and as well as the nature of any risks to project implementation. M&E requirements will take into consideration the implementation circumstances, ensuring indicator alignment with the GCF IRMF through the project logical framework developed for the funding proposal.

B.3.Expected performance against the GCF investment criteria (1000 words)²³

Please describe and provide an estimate of the expected impacts aligned with the GCF investment criteria: impact potential, paradigm shift, sustainable development, needs of recipients, country ownership, and efficiency and effectiveness.

Impact: The project impact is centred around: i) displacement of carbon emissions from fossil fuel generators currently in use in remote rural areas; and ii) avoidance of adoption of fossil fuel sources by remote rural communities to meet growing energy needs. This will be achieved through the provision of grant subsidies to overcome costs for RET adoption and increased access to financial resources for acquiring RETs. The overall targeting and reduction impact figures are presented below in Table 4.

Table 4: Breakdown of investments and their estimated outputs and total emission reduction/avoidance profile

Number of units	Litre of Diesel/day	Liters of diesel/year	Conversion Factor * (KgCO ₂ /litre)	Carbon mitigation / year/unit (kgCO ₂ e)	Carbon mitigation / year all units (kgCO ₂ e)	Carbon mitigation /year (tCO ₂ e)	Carbon mitigation 20 years (tCO ₂ e)
2,225	0.76	279.00	2.510	701	1,558,643	1,559	31,173
102	5.00	1,350	2.510	3,390	345,738	346	6,915
23	40	10,800	2.510	27,117	623,683	624	12,474
150	5	1,825	2.510	4,582	687,332	687	13,747

²³ For more information please refer to Annex XIV of document [GCF/B.07/11](#)

Number of units	Output 1 unit (Wh/year)	Output 1 unit (kWh/year)	Output total units (kWh/year)	Conversion factor (KgCO ₂ eq /kWh)*	KgCO ₂ eq Mitigated per year	Reduced emissions (tCO ₂ eq) per year	Reduced emissions (tCO ₂ eq) 20 years
5	100	365	182,500	0.2530	46,173	46	923
2,505	151	14,619	182,510	35,789	3,261,569	3,262	65,231

* Conversion factor used is for the conversion of kWh production from combustion of diesel average biofuel blend. Source - <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020>. This source is utilised and endorsed by the UNFCCC Greenhouse Gas Emission Calculator <https://unfccc.int/documents/271269>

** Estimate is based on VREPII concept design that has shown that individual connection demand in established grids is 1kWh/connection

Over the lifespan of the installed technologies (20 years) the project will result in reduction and avoidance of 65,231 tCO₂eq of emissions (medium-term impact)

There are also adaptation benefits through positive impacts from the increased access to low-carbon and renewable energy (direct/short-term impact). This access to reliable energy will increase the resilience of local economic activities to future climate change impacts and provide greater accessibility to early warning services with the ability to charge phones and access warning alerts (medium-term impact). The provision of RET means that energy supply will be much more reliable in remote areas and islands, as communities will not need to depend on supply shipments of fuel (long-term impact). Increased energy output will also allow for utilisation of refrigeration, allowing households or MSME's to cold store food products for extended periods of time, enabling greater market prospects and reduced wastage or devaluation in the case that market access is cut off due to poor weather conditions or cyclones (medium-term impact). Further, it will increase gender equity in access to finance RETs due to the gender requirements for investments that will be set under the project to align with GCF gender policy (direct/short-term impact). Please note that a gender assessment and action plan (GAAP) will be developed to ensure that the programme and its outcomes are context-specific, gender-sensitive, and incorporate principles of gender equality and social inclusion in the design, implementation, monitoring, and evaluation. This will include targets and indicators disaggregated by gender, as well as localised safeguarding mechanisms to ensure the programme does no harm to activity participants and beneficiaries.

Paradigm shift: The NGEF is designed to address Vanuatu's national target of close to 100% electrification generated from renewable energy sources by 2030. This is outlined in the NGEF Resource Mobilisation and Financial Sustainability Plan that seeks to unlock market potential for scaling and speeding up implementation in the long run. The structure of the NGEF enables the coordination of projects (government and donor funded) through a centralized financing mechanism removing administrative barriers whilst allowing for the development of expertise in the financing of energy projects and the achievement of financial autonomy in the long term. The funding from GCF will serve to catalyse and magnify the impact of NGEF's revolving fund, by strengthening the enabling environment and by providing direct subsidies for RETs.

This proposal builds on ongoing and past projects (VREP and SRVRTOP) and demonstrates potential to expand to other off grid areas in Vanuatu. The cost of solar systems in Vanuatu remains high in the region (approximately double the cost of that in Fiji), creating barriers for rural households, MSMEs and schools to access reliable, and sustainable sources of energy. Introduction of subsidies has already

seen increased uptake of such systems, demonstrating that the demand exists but is repressed by a low ability-to-pay. With scarce funding from public sources, concessional finance from donors such as the GCF is urgently needed.

The subsidy provided through the NGEF will support households, MSMEs and schools to gain access to clean and reliable, renewable energy resources. As an additional aim, the project will seek to increase certified RET vendors. The resultant outcome will be an increase in economies of scale and competitiveness of suppliers in Vanuatu. With these increases, costs of RETs should reduce and become more attractive against fossil fuel systems.

As customers climb the “energy ladder” the increased demand, supply, and access, combined with an enhanced enabling environment, will strengthen the commercial viability of RETs. The increased percentage of RETs contributing to the energy mix in remote areas and increased commercial viability will create a paradigm shift towards greener energy, driving down demand for fossil fuels.

In addition to a paradigm shift in the energy market, improved access to a reliable and cost-effective energy source will provide enhanced opportunities for rural communities and MSMEs. With lower operational inputs and more consistent energy generation the RETs will provide greater opportunities for local businesses, entrepreneurs, and households. Through enhancing local economies, the NGEF will support a more resilient future in the face of climate change.

Innovation: Vanuatu’s energy mix is focused on four larger concession zones that predominantly utilise imported fossil fuels to generate power. These concessions are limited to large islands of Efate, Melekula, Espirito Santo and Tanna. Outside of these concessions, remote rural areas are dependent on independent diesel-run generators for electricity. Utilising RET in the form of SHS is therefore an innovative approach in the context of Vanuatu. This has been piloted by the World Bank through VREP and has proven to be a successful option for rural and remote electrification. NGEF takes a more innovative approach to financing in its through the establishment of a revolving fund. Concessional rates are set at 3-6 per cent to ensure that costs are within beneficiary willingness to pay ranges but also cover operational costs for future investments, making the model sustainable in the long-term (see Section C3). This model is highly innovative in Vanuatu as it has not been utilised to date.

Sustainable development: The GoV established the NGEF as a revolving fund to support a low-carbon energy sector and contribute to sustainable development, directly linking to Vanuatu’s NDC, NERM and NSDP 2030. The NGEF investments are guided by the DoE and will continue to promote quality and certified RETs. It will also follow Vanuatu’s Environmental Code of Practice (ECOP) for used and damaged solar equipment to be collected from beneficiaries in rural areas and its safe disposal, including batteries, PV panels invertors and other hazardous materials identified in pre investment screening.

As highlighted above, increased access to low-carbon, renewable energy will provide increased resilience against climate change for small-scale economic activities. The provision of RETs will mean an increase in the supply, affordability, and reliability of energy for rural communities. This paired with increased energy output will allow, among other benefits, for the utilisation of refrigeration, reliable access to information services, and an ability to light homes and business. This will create better opportunities for beneficiaries to start new businesses or improve existing business practices. Ultimately, this will lead to increased incomes and improved livelihoods. With increased income, beneficiaries will be able to invest in household- and community-level sustainable development outcomes such as education, healthcare, and resilience building. In the case of cooperatives and

MSMEs, this may result in added investments into more resilient agricultural or fisheries practices, further contributing to adaptation and sustainable development. Finally, the gender action plan will detail actions to be taken to contribute to gender equity and enhance social norms around gender. The Project will thus greatly contribute to additional sustainable development co-benefits.

The technical assistance provided under Outcome 1 will enhance the sustainability of systems supported by project investments under Outcome 2. This will include establishment of financial mechanisms for long-term operation of such systems by the beneficiaries (households, schools, MSMEs and communities in the case of micro grids). This will ensure that after the two-year warranty period for the solar systems, the beneficiaries are able to replace parts without needing further financial support from the NGEF or other sources. Eligible beneficiaries will be required to show a financial plan that includes reserving a percentage of savings for maintenance and spares parts to ensure sustainability of investments over the lifespan of the technology installed. This is included in the NGEF training manuals.

Further, the NGEF Resource Mobilisation and Financial Sustainability Plan details the roadmap by which Memoranda of Understanding (MoUs) with the Ministry for Tourism, Cooperatives and Industries, the Department of Water Resources and the Shefa Provincial Government Council are established. These MoUs detail how the NGEF will contribute to the mandates of the respective institutions while the institutions will support repayments into the NGEF. As demonstrated in the NGEF Annual Reports from 2018 and 2020, the contributions to the NGEF from loan repayments are gradually increasing. The GCF grant proposed under this project would serve to catalyse and magnify the impact of NGEFs revolving fund by increasing the rate at which NGEF would become self-sustainable without needing external support by virtue of having higher reflows from loan repayments whilst also scaling up its ability to reach more beneficiaries.

Scale: The NGEF builds on the success of the VREP project implemented by the World Bank. This will ensure that NGEF is able to utilise a proven approach and technologies that are desirable in rural settings to enable enhanced role out across the six provinces of the country specifically targeting remote rural areas. Further, the capacity of the service providers and extension structures targeted in implementation will be enhanced under Outcome 1. With increased capacity in national institutions, the ability to roll out greater numbers of solar systems will be achieved by end of the implementation phase. Post project, national services in the sector will therefore be able to utilise the finance secured under the long-term financing strategy (see Section C3) to scale up service provision to rural areas and support Vanuatu meet its 2030 targets under the NDCs.

Needs of recipient: There is a strong need in Vanuatu to increase access to energy in rural areas and particularly in the form of RETs in compliance of the country's strategic objectives and targets under international conventions. It is estimated that only 20% rural populations (varying between islands) have access to electricity²⁴. As these areas are outside of concession areas single unit diesel generators make up a large portion of the rural energy mix. Due to the low population densities with high degrees of isolation, logistic and installation cost for grid expansion is prohibitive for the sector. Micro and Pico systems targeting home systems or community level grids are therefore the only economically viable options for electricity access in rural areas. At present, RETs have more expensive installation costs than fossil-fuel sources. Consequently, investment in fossil fuel systems is favoured in rural areas at present, resulting in greater emissions from the energy sector. Financial support is thus needed for individual households, schools and MSMEs to access NGEF opportunities to reduce dependence on fossil fuels and access green energy. The NGEF market demand assessment identifies various barriers

²⁴ <https://documents1.worldbank.org/curated/en/565971496664964804/pdf/Vanuatu-Second-Rural-Electrification-Project-Stage-Project.pdf>

for accelerating RETs in Vanuatu and proposes interventions to address these barriers²⁵. In brief, the assessment specifically identified the following areas to be addressed:

- i. regulatory landscape and enabling environment;
- ii. energy demand for households and MSMEs that exceed available options and have unaffordable costs;
- iii. limited supply from vendors and
- iv. inadequate channels and access to financial mechanisms.

Accordingly, under Outcome 1, the project will enhance regulatory landscapes and build capacity of GoV staff to support scaling up of RETs. Further, it will increase understanding and awareness of RETs for individual households, MSMEs and financial intermediaries to increase literacy on relevant mechanisms and financial options most suited to each beneficiary. In addition, the enhancement of NGEF capabilities, will also result in benefits for new service providers for the procurement of RETs, installation activities and logistics services at the national level. Further, the enhanced monitoring and learning mechanisms put in place by the project will support the GoV to refine policies and strategic plans in relation to energy and carbon commitments. This learning will also enable concession companies to have a better understanding of energy needs and willingness to pay thresholds in rural areas. This may result in diversification of the concessions to alternate energy provision methods that supports the NGEF approach. Ultimately, this will result in accelerating the greening of the energy sector in the country.

In addition, under Outcome 2, the project will directly subsidise RET investments, increasing beneficiaries' ability to access financial mechanisms for investment in the technologies. In addition, centralising the subsidies to support the existing NGEF mechanisms (rather than adopting a new mechanism) will support the country by reducing transaction costs by facilitating large scale procurement of materials and equipment to: 1) ensure adequate supply and 2) reduce logistical and import costs through economies of scale. Through these activities, the project is therefore directly contributing to addressing needs identified by the GoV.

Moreover, the GoV would be unable to repay a loan for this amount amidst competing development objectives and priorities (including health, basic services and education). This is especially true in the wake of the COVID-19 pandemic, where revenue from key sectors such as international tourism has dried up. Consequently, full concessionality of GCF proceeds are requested for this project as any loan (even if concessional) is not viable to ensure this project operates at a scale large enough to induce a paradigm shift.

Country ownership: This project is aligned with the objectives of Vanuatu's NDC, which outlines an urgent need to reduce CO₂ emissions from the energy sector specifically from combustion of fossil fuels. This includes a target of achieving close to 100% renewable energy provision by 2030. Further, this aligns with Vanuatu's GCF country Programme, that indicates the energy sector is a priority sector for engagement with a focus on renewable energy in the energy mix and enhancing access to renewable energy in rural areas. Noting that as per recently approved GCF readiness funding, Vanuatu is in the process of updating the country program in which this project will be incorporated into the pipeline of projects.

Achieving the 100% by 2030 target will require ensuring that the growing demand of households climbing the energy ladder is met by RET sources, avoiding them turning to and then locking in fossil-fuel energy sources because of their lower upfront costs. The NGEF was established specifically to

²⁵ Source: Table 17, NGEF Market Demand Report, 2018

address this, creating mechanisms to ensure that RET providers supply quality tested products in the country to households and MSMEs. The project will provide technical assistance and capacity building to enhance this mechanism and ensure it is robust in alignment with national policy and regulation.

Further to this, the Vanuatu NDC, the NERM and the NSDP Peoples Plan 2030 form the pillars for Vanuatu's sustainable energy ambitions and are supported across the highest levels of GoV. The NERM and NDC implementation are overseen by the Ministry of Climate Change (MoCC), while the NSDP is under the supervision of the Office of the Prime Minister. This proposal was initiated by DoE within MoCC and is a directive of the NGEF Board to seek external funding support. The NGEF Board comprises senior officials from MoCC, the Ministry of Finance and Economic Management, the Department of Strategic Planning, Policy and Aid Coordination, the Department of Provincial Affairs, the Department of Women's Affairs and a civil society organisation representative. The project was also submitted to the Vanuatu NAB's Project Screening Committee, which reviewed and endorsed this project to seek GCF financing. Consequently, the project enjoys broad-based support and strong country ownership across GoV.

During the PPF stage, a request for quotation will be advertised to support on consultations of key project stakeholders. This will engage multiple levels across the extension structure. The consultants will engage with questionnaires and in person interviews from National to local levels. Across these levels they will engage government staff but also CSO, NGOs, development project PMUs and the private sector where applicable. At the local level consultations will occur at household-level but also at community committee and school management levels to ensure that needs and requirements are assessed with end users in a participatory manner.

A key aspect of these consultations will be to draw out institutional capacity needs in relation to the implementation and rolling out of renewable energy technologies in rural settings. This assessment will largely be focused on government extension structures but will also target schools and community committees to ensure that technical knowledge and institutional capacities are built throughout outcome one. These needs will be directly detailed in the Funding Proposal narrative Outputs and activities.

Efficiency and effectiveness: The GoV is requesting USD 14.24 million from the GCF in the form of grant resources to support NGEF's upscaling of RET investments by households, MSMEs and schools. The GCF grant will allow the NGEF to provide subsidies on all investments under Outcome 2, leveraging 40% of financing from customer contributions through NGEF concessional loans. Consequently, the project is therefore expected to leverage USD 6.15 million in finance for RET installations. It is expected that the total financing cost of the project will be USD 21.33 million, of which USD 14.24 million grant funding is sought from GCF with the remaining USD 6.75 million made up of customer contributions and soft loan financing from NGEF.

The NGEF was designed to meet international best standards for quality assurance of RETs. This has been refined over lessons learned from investments under previous projects. These standards include ensuring strong regulatory and enforcement mechanisms for investments to ensure they remain functional and effective over the RET lifespan. Through Outcome 1, the project will further strengthen these measures to ensure that best international practices, standards and quality are adhered to throughout implementation for maximum effectiveness of NGEF investments.

- a) Total project financing USD 21.33 million
- b) Requested GCF amount USD 14.24 million

- c) Expected lifetime emission reductions (20 years) 65,231 tCO₂eq
- d) Estimated cost per tCO₂eq (d = a / c) USD 327.03 / tCO₂eq**
- e) Estimated GCF cost per tCO₂eq removed from GCF RET investments USD 170.27 / tCO₂eq**
- f) Total finance leveraged USD 6.75M
- g) Public source finance leveraged (GoV, SPC, GGGI) USD 6.75M
- h) Private source finance leveraged USD 0.00M
- i) Total Leverage ratio (i = f / b) 0.47**
- j) Public source leverage ratio (j = g / b) **0.47**
- k) Private source leverage ratio (k = h / b) **0.00**

Benchmark: VREP II is estimated to yield annual emission reductions of 5,300 tCO₂eq/year in Vanuatu resulting in USD 135 / tCO₂eq which indicates a lower cost per tCO₂eq. However, it is essential to note that VREP is focused predominantly on mini-grid investments (56%) over SHS or micro-grids (44%)²⁶. This NGEF proposal does not invest in mini grids but targets SHS and micro grids only. As larger grid investments reduce costs per household connection due to economies of scale and reduced logistical costs, the reduced costs / tCO₂eq in VREP is explainable through the project approach targeting larger scale infrastructure. These results are therefore not directly comparable to the NGEF model.

On the other hand, ADB terminal evaluation of the Promoting Energy Efficiency in the Pacific programme highlights yields for single systems more comparable to those proposed by NGEF investments. Pilot projects across five Pacific countries (including Vanuatu) targeted by ADB costed a total of USD 2,726,482²⁷. This yielded an average annual emission reduction of 3,206 tCO₂eq/year resulting in estimated cost of USD 850/tCO₂eq. This represents a **far higher cost than that of the model proposed under NGEF** under this proposal, as highlighted by bullet d) above.

B.4 Stakeholders consultation and engagement (300 words)

Please describe how engagement among the NDA, AE, EE and/or other relevant stakeholders in the country has taken place so far and what further engagement will be undertaken as the concept is developed into a funding proposal.

Vanuatu's Minister of Climate Change launched the NGEF in 2016 and requested GGGI to seek external funds to support initial NGEF activities. A National Energy Dialogue conducted jointly by SPC PCREEE, DoE and the Department of Climate Change in 2019 highlighted the need for significant progress on access to electricity in Vanuatu's rural communities and called for urgent and increased support to the NGEF through the GCF investment.

²⁶ <https://documents1.worldbank.org/curated/en/565971496664964804/pdf/Vanuatu-Second-Rural-Electrification-Project-Stage-Project.pdf>

²⁷ https://www.adb.org/sites/default/files/evaluation-document/635411/files/tper-ene-pacific_6.pdf

In response, GGGI convened an Investment Forum for the NGEF with representatives from NAB, development partners in Vanuatu and the Pacific region, energy retailers and financial intermediaries. A draft concept note was developed drawing from the NGEF Market Demand Assessment, surveys collected from 5 islands in Vanuatu, results from pilot projects and feedback from relevant workshops. This concept note was submitted to NAB and reviewed by its Project Screening Committee and endorsed. Following this strong national buy-in this concept note was submitted to the GCF for endorsement.

As highlighted above, on initiation of the PPF stage detailed consultations with stakeholders will be conducted to refine the project approach and detail out activities to ensure and effective design is put in place. This will be carried out via a third-party consultancy to ensure lack of bias in the approach. As per SPC policy, this will take a people centred approach and will ensure detailed engagement at the local/community level to ensure participatory practices is embedded in the design for a bottom-up approach. Further consultation will occur across government extension structures and to assess institutional capacities and needs. To complement this, CSOs, NGOs, development project PMUs and the private sector will be engaged to provide a wholistic view and validate capacity gaps and needs. The findings of these consultations will then inform refined definition of the project activities and the development of a Stakeholder Engagement Plan.

C. Indicative financing information (max. 2 pages)

C.1. Financing by components

Please provide an estimate of the total cost per component and disaggregate by source of financing.

Table 5 An estimate of the total cost per component, disaggregated by source of financing

Outcome	Output	Indicative cost (USD)	GCF financing		Co-financing			
			Amount (USD)	Financial Instrument	Type	Amount (USD)	Financial Instrument	Name of Institutions
Outcome 1: Enhanced enabling environment with the NGEF through institutional strengthening, effective knowledge generation and learning	Output 1.1: Strengthened institutional capacity to scale up NGEF operations	2,000,000	1,700,000	Grant	Public	100,000 100,000 100,000	In kind In kind In kind	NGEF SPC GGGI
Outcome 2: Reduced emissions and enhanced reliability of energy through greater uptake of renewable energies in rural Vanuatu.	Output 2.1: Direct subsidies for households, schools and MSMEs reduce costs to end users for renewable energy investments and increase uptake of RET instalment	14,761,350	8,856,810	Grant		5,904,540	Loan	NGEF

	Output 2.2: Installation of five micro- grids at target communities	2,500,000	2,250,000	Grant	Public	250,000	Grant	NGEF
Monitoring, Evaluation and Knowledge Management	*Figure is in alignment with the GCF Evaluation policy for 2- 5% for evaluation costs. This is estimated at approximately 4% of the project total. These costs are commensurat e with costs in FP 191. They will be further detailed a full proposal stage.	1,055,000	755,000	Grant	Public	100,000 100,000 100,000	In kind In kind In kind	NGEF SPC GGGI
Project Management Cost	Effective management of project	1,016,000	678,212	grant	public	337,788	in-kind	SPC
Indicative total cost (USD)		21,332,350	14,240,022	7,092,328				

Flow of Funds: On successful completion of conditions precedent to disbursement listed in the Project FAA, GCF will disburse funds to the AE. The SPC in its capacity as AE will then disburse funds to the DoE as EE. Resources will be used to staff the PMU, secure service providers and goods/materials for implementation of activities. In addition, resources will be used to provide technical assistance and capacity building to the NGEF and directly provide funds to the NGEF for the provision of subsidies.

All subsequent allocations and disbursements will be requested by the PMU based on AWPBs approved by the NPSC. The AE will make subsequent allocations and disbursements to the EE only in the case that previous instalments have been utilised in accordance with the GCF financial obligations and reported in Annual Progress Reports. Once there is consensus on the previous instalments financial and technical reporting, and on approval of the AWPB by the NPSC for the forthcoming disbursement request, the latter will be accepted and communicated to the EE. Following which disbursement will be made.

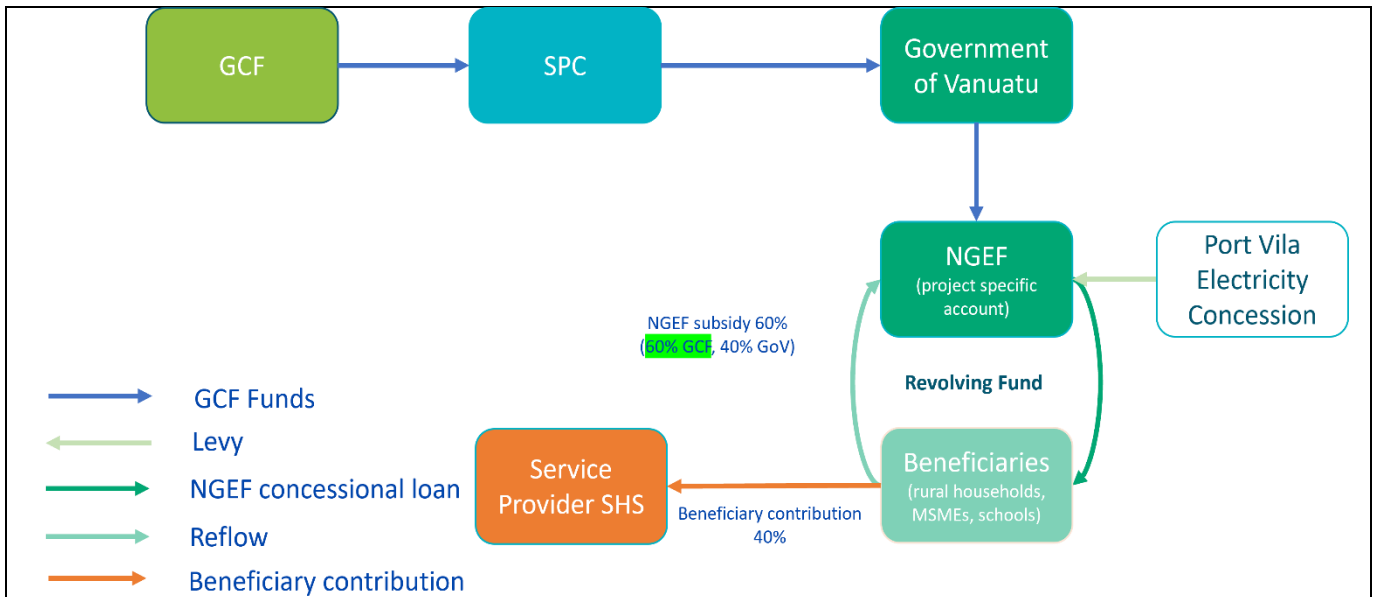


Figure 1: Flow of Funds Diagram

For private sector proposal, provide an overview (diagram) of the proposed financing structure.

C.2. Justification of GCF Funding Request (500 words)

Explain why the Project/ Programme requires GCF funding, i.e. explaining why this is not financed by the public and/ or private sector(s) of the country.

The GoV is fully committed to achieving its NDC targets and has provided initial funding support for this through NGEF's investment programme. However, greater financial support is required for such RET programmes to reach beneficiaries at scale. Vanuatu is unique in the Pacific as it utilises a private sector approach to energy provision that is based off a tariff system. Energy is generated under four separate concessions that are largely restricted to urban areas on the large islands of Efate, Melekula, Tana and Espiritu Santo. Concessions are controlled by the Utilities Regulatory Authority (URA) who sets tariff rates. Tariffs are set to enable affordable access to energy for the population, yet it is still deemed to be too high by the rural population, of which only 17% electrification is reached in rural settings. Access rates in rural areas are low for multiple reasons, a) as concessions are private sector based there is a lack of government obligation and funding for grid extensions, b) rural communities are largely below the poverty line and do not have the willingness to pay for grid energy²⁸, and c) due to dispersed geography of the islands and the large dependence of grid energy production on diesel provision, supply chain costs are very high, creating a disincentive for concession owners to extend grid provision to rural areas.

Rural households therefore depend on household or community driven systems, typically powered by diesel as the technologies are more affordable. Despite this, 77% of communities indicated a desire for increased energy provision to provide lighting or cold storage. This provides an opportunity to scale out SHS and RETs to increase clean energy provision in rural areas. However, capacity of service providers

²⁸ VREP II estimates that the grid provides output on average of 1kwh/connection at a price of USD 0.43/day. With average per capita income of USD 5 in rural areas, this rate is deemed too high for most of the rural population with out subsidies.

<https://unelco.engie.com/en/electricity/electricity-rates>

<https://documents1.worldbank.org/curated/en/565971496664964804/pdf/Vanuatu-Second-Rural-Electrification-Project-Stage-Project.pdf>

is limited, reducing the availability of SHS's. Further, as these technologies are relatively new to the market and imported from abroad, they are out priced by cheaper diesel-powered alternatives.

Consequently, under a business-as-usual scenario, constrained technical and financial capacities of service providers and government extension structures at national and local levels will mean that off-grid areas in Vanuatu will remain with limited or no access to RETs in the near to medium-term. Ultimately, leading to rural communities continuing to turn to fossil fuel systems to meet increasing demands for household and livelihood energy needs. Additional financing is essential for: i) building the capacities of institutions in Vanuatu to provide RETs at scale in rural areas; and 2) to provide capital in the form of subsidies to enable beneficiaries to access financial mechanisms for RET deployment.

In the face of this need, and the fact that the energy grid is under private sector management the GoV does not have the requisite capital to subsidise financial mechanisms for RETs to a degree that would make them attractive to rural beneficiaries. Compounding this, the combined impacts of Cyclones Pam (2015) and Harold (2020) as well the recent impacts of Judy and Kevin (2023) in combination with the economic impact of the COVID19 pandemic have diverted government spending to response and recovery from these disasters. This has reduced available financing for investments in RETs through mechanisms such as the NGEF. GCF grant resources are therefore vital to continue progress towards narrowing the energy access gap in rural areas in the country. The GCF proceeds under this project will thus focus on providing subsidies for rural households, MSMEs and schools that are currently below the extreme energy poverty line. These subsidies will lower the principal of soft loans under the NGEF. This will reduce upfront costs to a level that increases willingness to pay for RETs over fossil fuel alternatives in rural settings and support scaling out of RETs in rural areas and contributing to the countries NDCs. Without GCF grant resources, business as usual will continue, resulting in continued and potentially enhanced combustion of fossil fuels for energy provision. Through this, full GCF concessionality is justified to support Vanuatu reach its 2030 renewable energy targets under its NERM.

Other sources of finance from multilateral donors have been investigated. The World Bank was identified as a potential donor for grant resources for the project approach. However, World Bank has invested in phases 1 and 2 of VREP which is due to close in 2022/23 and has not envisioned further financing in the sector in Vanuatu at present. This leaves GoV with limited options for financing its NDC targets through the NGEF's activities, further necessitating this request for GCF resources.

C.3. Exit Strategy and Sustainability (500 words)

Please explain how the project/programme sustainability will be ensured in the long run and how this will be monitored, after the project/programme is implemented with support from the GCF and other sources.

The sustainability of the project will be addressed through each of the components. The NGEF has existing legislation as well as a Business Plan and Operations Manual. **As a GoV-owned initiative, the NGEF is designed as a long-term vehicle for supporting NERM implementation in pursuit of Vanuatu's NDC targets.** There are three sources of funding for the NGEF that will allow it to operate and disburse funding for RETs:

1) **Domestic funding** sourced from GoV's budget and/or extra-budgetary sources linked to the electricity concession areas, and any other financial streams allocated to the NGEF by GoV, including environmental taxes, levies, and similar instruments introduced for this purpose. An example of this is approved budget support from GoV to capitalise the NGEF revolving fund to provide investment funds for the next five years, much of which will be used to co-finance this project under concessional terms. A further contribution is expected from a levy of VT 0.17 (USD 0.0015) per kWh for over 13,000

customers from the Port Vila Electricity Concession per annum. With an estimated 5,639,995 kWh produced a month, this will equate to roughly USD 100,000 a year in financial support²⁹. Combined resources from the revolving fund and top ups from the concessions will result in long-term sustainability of the NGEF and will utilise the institutional capacity put in place by the project.

2) **International funding** from multi-lateral donors in the form of grants to provide subsidies to reduce the upfront and repayment levels of NGEF investments to increase accessibility for beneficiaries. These subsidies are required in the short-term (five years) to: i) offset the current high cost of RETs; and ii) reach a critical mass of NGEF investments to generate significant levels of reflows for continued investments after the five-year period. GCF resources are crucial to reaching this threshold.

3) **NGEF income** from the revolving fund that is providing concessional loans to beneficiaries. The interest generated from these concessional loans (at rates of 3–6%) will cover NGEF’s operational costs after the project lifespan and ensure continued functionality of the NGEF in the future. Through this mechanism the long-term operation of the NGEF will be self-sustaining.

In addition to this financial sustainability, the NGEF’s operating model ensures that applicants build in financing provisions for operation and maintenance of installed RETs over the equipment’s lifetime. This is achieved by ensuring RET investments do not exceed beneficiaries’ technical needs as well as providing capacity building, training and regulatory updates under Outcome 1. Connecting service providers and beneficiaries directly to operation and maintenance responsibilities increases their long-term buy-in and sense of ownership as they are directly responsible and financial linked to the operation of the technology. Ultimately, this will lead to sustained operation of investments during and after the project implementation.

Finally, the project will not provide grants directly to end beneficiaries but will channel the subsidies through contracts with service providers at the provincial and local level (depending on availability) to install RETs. In parallel to this, the project will provide capacity building to financial intermediaries to enhance their technical knowledge and understanding of risks and investment potential in RETs. This focus on provincial and local institutions and financial intermediaries will enhance decentralised capacities, thereby ensuring enhanced service provision for operations both within and beyond of the scope of the project investments and lifetime. Through this mechanism, the capacity building provided by the project and project staff will result in increased technical capacity in NGEF service providers. Post project, this increased capacity will lead to improved efficiency in service providers and decentralised extension agents, meaning that project staffed positions are not required in the long run. Beyond this, as NGEF scales up, reflows and the subsequent inputs from the 3-6% interest rate will grow accordingly, enabling NGEF to increase operational staffing commensurate to scale.

D. Annexes

- ESS screening check list (Annex 1)
- Map indicating the location of the project/programme (as applicable)
- Evaluation Report of previous project (as applicable)

²⁹ <https://pacific-data.sprep.org/system/files/02-%2520Monthly%2520Energy%2520Market%2520Report-%2520February%25202019.pdf>

Annex 1: Environmental and Social Screening Checklist³⁰

Part A: Risk Factors

Please indicate your answers to the questions below and provide an explanation on the response selected. In cases when the TBD response has been selected please explain briefly why you are not able to determine now and when in the project cycle the question will be addressed.

If the criteria is not applicable to the project you may write N/A in the justification box.

Risk Factors	YES	NO
Will the activities involve associated facilities and require further due diligence of such associated facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>No construction of facilities anticipated under this project that will impact on culturally sensitive lands, or sites of ecological relevance and importance. Further no activities are planned that will have lasting environmental impact either locally or beyond the immediate site.</i>		
Will the activities involve trans-boundary impacts including those that would require further due diligence and notification to affected states?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>This is a national project and the installation of the solar home systems including the small mini-grids will be localised.</i>		
Will the activities adversely affect working conditions and health and safety of workers or potentially employ vulnerable categories of workers including women and children?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>The project will comply with Vanuatu labour and working conditions regulations and ensure equal opportunity to all genders, youth and marginalised persons.</i>		
Will the activities potentially generate hazardous waste and pollutants including pesticides and contaminate lands that would require further studies on management, minimization and control and compliance to the country and applicable international environmental quality standards?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Potential waste from the project would be the disposal of the battery PV panels invertors and other hazardous materials after it reaches its useful lifetime. Battery disposal mechanisms have been established under VREP, specifically the environmental code of practice for the disposal of solar batteries PV panels invertors and other hazardous materials.</i>		
Will the activities involve the construction, maintenance, and rehabilitation of critical infrastructure (like dams, water impoundments, coastal and riverbank infrastructure) that would require further technical assessment and safety studies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>This project focused on localised solar homes systems and 5 mini/micro-grids which will have minimum impact on the environment. No need for technical assessment and safety studies except for electricity demand studies and ability to pay from the communities. For the mini-grid, distribution lines will be either underground or overhead and not envisioned to cause an impact on virgin habitat or impact community tenure rights.</i>		
Will the proposed activities potentially involve resettlement and dispossession, land acquisition, and economic displacement of persons and communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No resettlement necessary nor land acquisition for this project.		
Will the activities be located in or in the vicinity of protected areas and areas of ecological significance including critical habitats, key	<input type="checkbox"/>	<input checked="" type="checkbox"/>

³⁰ In answering this checklist, you may refer to Annex 1: Guidance on Part A ESS Screening of the [“Guidelines for the environmental and social screening of activities proposed under the SAP”](#)

biodiversity areas and internationally recognized conservation sites?		
<i>No activities will be conducted in the vicinity of protected areas and areas of ecological significance including critical habitats, key biodiversity areas and internationally recognized conservation sites. This will be ensured through the NGEF approval process.</i>		
Will the activities affect indigenous peoples that would require further due diligence, free, prior and informed consent (FPIC) and documentation of development plans?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>The project is designed based on the need of the local communities in the rural and remote communities of Vanuatu. No further due diligence studies required. Just awareness and education activities in the communities prior, during and after the project is completed. The community (men, women and youth) will actively participate in the proposed awareness and education so that they are aware of the project activities, responsibilities of the project and their own individual responsibility to the project.</i>		
Will the activities be located in areas that are considered to have archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values or contains features considered as critical cultural heritage?	<input type="checkbox"/>	<input type="checkbox"/>
<i>Solar home systems including the 5 small mini/micro-grids will be installed near the houses within the community. Exact location of the systems will be done in consultation with the households and the community, and no sites of cultural importance will be exposed to development.</i>		

Part B: Specific environmental and social risks and impacts

Assessment and Management of Environmental and Social Risks and Impacts	YES	NO	TBD
Has the E&S risk category of the project been provided in the concept note?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Has the rationale for the categorization of the project been provided in the relevant sections of the concept note?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are there any additional environmental, health and safety requirements under the national laws and regulations and relevant international treaties and agreements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Are the identification of risks and impacts based on recent or up-to-date information?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>This has been periodically updated and consulted with national specialists and endorsement through the NAB.</i>			
Labour and Working Conditions	YES	NO	TBD
Will the activities potentially have impacts on the working conditions, particularly the terms of employment, worker's organization, non-discrimination, equal opportunity, child labour, and forced labour of direct, contracted and third-party workers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Based on current understanding, no additional health and safety risks are anticipated under project activities that could breach national or international laws.</i>			
Will the activities pose occupational health and safety risks to workers including supply chain workers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>No activities will have negative impact on workers' health and safety and all national regulations and standards will be followed.</i>			

Resource Efficiency and Pollution Prevention	YES	NO	TBD
Will the activities generate (1) emissions to air; (2) discharges to water; (3) activity-related greenhouse gas (GHG) emissions, (4) noise and vibration; and (5) wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>There will be minimal/negligible emissions to air including noise and vibration and wastes during project installations. No discharges to water projected during the project. All the photo voltaic energy generation system material will be disposed using proper processes.</i>			
Will the activities utilize significant amount of natural resources including water and energy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>No significant use of natural resources anticipated in the project. Project will procure and install solar home systems for communities including 5 small mini-grids. These solar home systems will convert sunlight to useful energy stored in the battery and delivered to users when needed.</i>			
Will there be a need to develop detailed measures to reduce pollution and promote sustainable use of resources?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Basic pollution controls will still be required and developed as part of the project. An environmental code of practice for the disposal of waste batteries PV panels will also be established similar to what is operational under VREP.</i>			
Community Health, Safety, and Security	YES	NO	TBD
Will the activities potentially generate risks and impacts to the health and safety of the affected communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>No anticipated health and safety risks for the community during the implementation of the project. Training on the adequate use and maintenance of the PV energy generating system will be provided to all stakeholders during the installation process.</i>			
Will there be a need for an emergency preparedness and response plan that also outlines how the affected communities will be assisted in times of emergency?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Not applicable for the project. The communities would already have emergency response plans established by the National Disaster Management Office.</i>			
Will there be risks posed by the security arrangements and potential conflicts at the project site to the workers and affected community?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Not applicable for the project. For the solar home systems, individuals who are paying for the project will be responsible for their own systems although it will be installed by the contractor. No security arrangements necessary. For the 5 mini-grids, the project will be implemented in close collaboration with the communities. There are no anticipated risks of conflicts posed by the community.</i>			
Land Acquisition and Involuntary Resettlement	YES	NO	TBD
Will the activities likely involve land acquisition and/or physical or economic displacement?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>No acquisition of land required and/or physical or economic displacement anticipated in the project.</i>			
Biodiversity Conservation and Sustainable Management of Living Natural Resources	YES	NO	TBD
Will the activities potentially introduce invasive alien species of flora and fauna affecting the biodiversity of the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Not applicable</i>			
Will the activities have potential impacts on or be dependent on ecosystem services including production of living natural resources (eg.agriculture, livestock, fisheries, forestry)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<i>Not applicable</i>			
Indigenous Peoples	YES	NO	TBD
Will the activities potentially have any indirect impacts on indigenous peoples, ethnic minorities, or vulnerable and marginalized groups?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Project will improve the livelihoods of the local communities by providing electricity and opportunities for income generation, improved healthcare and education services for children. It is not envisioned this will have a negative impact on cultures of indigenous peoples.</i>			
Cultural Heritage	Yes	NO	TBD
Will the activities restrict access to the cultural heritage sites and properties?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>No, the project will not have impacts on land rights or access that will impact cultural heritage.</i>			
Will there be a need to prepare a chance-find procedure in case of the discovery of cultural heritage assets?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Not applicable as sites will not be developed on virgin land or lands with cultural importance.</i>			
Stakeholder engagement and grievance	Yes	NO	TBD
Will the activities include a continuing stakeholder engagement process and a grievance redress mechanism and integrated into the management/implementation plans?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>A stakeholder engagement process and grievance redress mechanism will be established as part of the management and implementation plans. These processes will be detailed in the full project proposal.</i>			

Part C: Sign Off

Sign-off: Magali Benjamin, Environmental Sustainability Coordinator