

## Request for CTF Project Preparation Grant (PPG)

### A. TASK MANAGER FOR CTF FUNDING REQUEST

Name: Karan Capoor	Position: Senior Energy Specialist	
Organization/Unit: GEESO		
Address: 1850 I St NW, Washington, D.C. 20006, room 10-187		
Telephone: (202) 473-2344	Fax:	Email: kcapoor@worldbank.org

### B. PROPOSAL SUMMARY

#### 1. Geographic Focus of Proposed Activity:

<b>x</b>	Individual Country ( <i>please specify</i> ): Saint Lucia
	Regional or Multi-Country ( <i>please specify</i> ):
	Global

#### 2. Project Title:

RENEWABLE ENERGY SECTOR DEVELOPMENT PROJECT
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#### 3. List of Deliverables from CTF Project Preparation Grant: (*e.g., analysis, study/report, training, seminar, etc.*)

<ol style="list-style-type: none"><li>1. Support for Implementation Readiness GoSL to prepare a Project Implementation Manual in order to implement the project as soon as feasible.</li><li>2. Enhance the technical capacity of GoSL by procuring an Exploration Management Consultant (EMC) to efficiently supervise and manage the Drilling Program (DP)<ol style="list-style-type: none"><li>2.1 Finalization of tender documents for the procurement of an EMC firm by the Geothermal Implementation Team (GIT) within the Department of Sustainable Development (DSD), Ministry of Education, Innovation, Gender Relations and Sustainable Development;</li><li>2.2 Tender documents for the drilling contractor finalized by the EMC and procurement of the drilling contractor by GIT;</li><li>2.3 Finalization of the Pre-Feasibility report which identifies the drilling locations in a manner consistent with the ESIA and the Limits of Acceptable Change (LAC) study for the Piton Management Area (PMA);</li><li>2.4 Initial work on infrastructure design and tendering to initiate land access and acquisition;</li><li>2.5 Set-up of a technical advisory panel comprising of multi-disciplinary stakeholders to guide the implementation of the drilling program, including any needed changes to the plan during implementation;</li><li>2.6 Finalization the exploration drilling report in close cooperation with the drilling contractor on the quality of the geothermal resource measured against technical indicators;</li><li>2.7 Training: Provide on-the-job mentorship to local staff, including those from the Department of Sustainable Development and the Renewable Energy Unit, to enhance local project management capacity.</li></ol></li></ol>
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### 3. Market & Private Sector Engagement Activities

Although support for implementation readiness and enhancement of technical capacity are likely to consume the bulk of the requested PPG resources, other potential activities and deliverables include market & private sector engagement:

3.1 Road shows and investor outreach materials to help bring the project to the attention of the potential investor community and help secure the interest of potential developers to participate in the subsequent phase, which would mobilize private investment in delineation drilling and in development of the generation facility.

3.2 Benchmark report on similar scale geothermal developments around the world.

3.3 Advisory services provided by technical, financial, legal and other transaction advisory services for subsequent stages, e.g. geothermal development agreement and/or Power Purchase Agreement (PPA).

## **C. PROPOSAL DETAILS**

### **4. Summary of Proposed Activities<sup>1</sup>:**

1. The proposed PPG funded activities will help prepare the project for efficient and sound launch and implementation. It will finance the services of an Exploration and Management Consultant EMC firm to be engaged by the project for a period of 24-30 months to help procure and oversee the drilling program on behalf of the government of Saint Lucia. The implementation of the project is dictated by the time constraints that LUCELEC, the country's sole electricity producer, transmitter and distributor, faces to make necessary investments that will define the country's energy mix over the next 15 to 20 years. This makes it imperative to begin the process of conducting geothermal exploration as soon as possible and to implement the exploration process efficiently to obtain sufficient and timely data and information about the resource for a qualified private developer to make a decision about investing private resources for further development. The terms of reference of the EMC will be prepared under the ongoing TA geothermal program.

2. The procurement process of a qualified EMC and its subsequent services will be financed by the CTF preparation funding for technical, managerial and financial project design; institutional development; finalization of a feasibility study; consultation; and training. The EMC will a) prepare the tender documents for the drilling contractor so that the procurement process and evaluation can be conducted and the selected contractor can be appointed immediately upon effectiveness of the proposed project; b) review the findings from the Pre-Feasibility study under preparation and finalization of the Pre-Feasibility report; c) convene a technical advisory panel comprising of multidisciplinary stakeholders to

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<sup>1</sup> CTF preparation funding may be used for:

- (a) Analytic work to inform a country's policies and programs
- (b) Design of policy reforms and preparation of legislation and regulations
- (c) Consultation workshops
- (d) Training
- (e) Institutional development
- (f) Feasibility Studies
- (g) Environmental and social impact assessments
- (h) Technical, managerial and financial project design

guide the implementation of the drilling program, including any changes to the plan during implementation; and d) work with the drilling contractor to finalize the exploration drilling report, on the basis of which a qualified private developer will be invited to invest in the geothermal development process, starting with any delineation drilling. EMC staff will include those familiar with application and supervision of World Bank fiduciary guidelines (including social and environmental safeguards, financial management and procurement). In addition, the EMC will provide on-the-job mentorship to local staff, including those from the Renewable Energy Unit, to enhance local project management capacity. Access to land required to conduct the EDP, including any costs of land acquisition required for implementation of the EDP, will be financed directly by the GoSL.

3. GoSL intends to handover further development of the geothermal project to a qualified private sector project developer after completion of the EDP. Given the relatively small scale of the opportunity in Saint Lucia, and as evidenced by experiences in neighboring islands, it may be difficult to attract experienced project developers to the island. St. Lucia has limited experience with renewables and even less experience in attracting IPPs to the sector. Attracting an experienced geothermal developer will require the development of a well-balanced set of concession and PPA agreements to off-take the power in a sustainable and cost-effective manner. In addition to various enabling pieces of legislation, the government is preparing various model project agreements including a PPA for the off-take of the geothermal power output and a concession agreement for the subsequent engagement with a suitable private developer. The government will also conduct a market sounding so that it can find ways to develop broader interest in the geothermal opportunity in St Lucia in its effort to attract high quality partners to help deliver value-for-money to energy customers. Together with the use of grant and concessional financing for exploration drilling, these measures will make it more likely to attract an experienced private sector project developer as a partner to invest in the subsequent phases of drilling delineation, injection and production wells as well as building the steam gathering and other infrastructure needed for power generation.

#### **5. Rationale for CTF grant funding, including consistency with CTF Investment Plan:**

The proposed preparation grant activities support the development of renewable, indigenous energy resources in Saint Lucia under the Dedicated Private Sector Program (DPSP) to finance programs or operations that can deliver scale in terms of development results and impact, private sector leverage and investment from CTF financing.

On October 28, 2013, the CTF Trust Fund Committee approved an allocation of USD 115 million dollars for Phase I of a Utility-Scale Renewable Energy Program with the objective of mitigating drilling risks in geothermal project development. These funds were earmarked for projects in CTF pilot countries, and specific allocations were made for projects in Chile, Colombia, Mexico and Turkey.

During its June 2014 meeting, CTF Trust Fund Committee approved an additional envelope of U120 million to scale up of the Utility Scale Renewable Energy Program, through extending support to further countries, including in the Caribbean region. As a beneficiary country, Saint Lucia will be able to leverage CTF resources to start the development of its geothermal resources.

The energy sector, particularly electricity, is a key contributor to economic activity and growth. While electricity is supplied reliably in Saint Lucia, with an electrification rate of approximately 98 percent, the sector is highly dependent on diesel-based generation for electricity generation, resulting in high electricity tariffs and substantial price volatility due to the exposure to world market oil prices. The volatile and high cost of electricity – in recent years in excess of USD 0.33/kWh and more than twice

the Latin American average - is a major impediment that erodes the country's competitiveness. Saint Lucia's future competitiveness and growth potential is thus highly dependent on its ability to ensure low and stable energy costs and to reduce its over-dependence on fossil fuel imports and related exposure to global oil price fluctuations. Recent completion of surface exploration points to promising geothermal reserves have made the full exploration of this indigenous base-load potential a high priority for the government, the power utility and other stakeholders.

To enable further development of Saint Lucia's geothermal resources it is vital to mitigate exploration drilling risk. A successful exploration program will enable the country to de-risk confirmation of a quality geothermal resource. This, in turn, can help attract private investment to further delineate the dimensions of the resource, and, if viable, develop the necessary infrastructure for steam collection and power generation.

The proposed project consists of (i) a publicly-funded exploration drilling program to assess the presence of geothermal resources for power generation and determine its characteristics to de-risk the project for private sector participation in the subsequent phases of the geothermal development; and (ii) the procurement of shared infrastructure services including battery storage capacity to provide additional spinning reserve and improve grid stability after addition of future intermittent renewable energy resources.

The high risk premium associated with compensating private equity for taking on the Exploration Drilling Program remains a significant barrier to development of base-load indigenous geothermal energy in a cost-effective manner. Unlocking targeted grant and concessional resources in this key area will support the mobilization of private sector resources for geothermal development and climate mitigation on a small island state, which is itself very vulnerable to climate change.

Geothermal project risks are the highest in the initial stages, when information regarding available resource is scarce. This risk decreases as exploration and test drilling are undertaken to confirm the presence and the characteristics of the geothermal resource, and the results of delineation drilling provide a more precise estimate of the anticipated energy output. Significant resource risk along with high upfront costs and long lead times from inception to generation are among the challenges that deter private sector investor from financing geothermal projects.

The mobilization of CTF funding for the project will contribute to (i) effective mitigation of the resource risk, (ii) reduction in private investors' risk perception leading to lower risk premiums for capital and eventually, allow for (iii) a levelized cost of geothermal below alternative fossil-fuel base-load technologies. Ultimately, this will enhance Saint Lucia's energy security, and provide for a reduction in greenhouse gases emissions through the displacement of alternative fossil fuel power generation. Developing the geothermal potential will also enable Saint Lucia to meet and possibly exceed its domestic as well as its international targets for renewable energy development under its NDC climate change commitments.

The project is also aligned with the Pilot Program Climate Resilience (PPCR) support and investment strategy in the country, which is articulated around enhancing resilience to climate change through the minimizing environmental degradation and protecting climate sensitive and critical infrastructure. The development of indigenous renewable energy resources will help the country transition to a green economy and contribute to climate resilience. There are no Forest Investment Program (FIP) or Scaling Up Renewable Energy in Low Income Countries Program (SREP) programs in the country.

The following are the expected key results of the proposed project:

- a) Evidence provided to the GoSL for its decision on whether or not to construct a geothermal power plant near the Sulphur Springs area;

- b) If geothermal resource is confirmed, the government will invite a qualified private sector entity for further development; and
- c) Knowledge and capacity to support regulatory, technical, legal, financial, operational and institutional issues supporting renewable energy investment and integration.

The following are the expected intermediate results of the proposed project:

- a) Exploration Management Consultant (EMC) in place;
- b) A technical advisory panel led by EMC and relevant stakeholder representatives established
- c) Contract with drilling company signed for exploration drilling program; and
- d) A minimum of two slim exploratory wells drilled to a depth of around 2,000 meters.

The expected CTF results indicators of the project are:

- a) New installed power generation capacity from renewable energy sources (30 MW) and additional power generation (237,000 MWh per year) ; and
- b) Tons of GHG emissions reduced or avoided (123,463 tCO<sub>2eq</sub>/yr, 3.08 million tCO<sub>2eq</sub> for 25 year cumulative).

**6. Government Approval of Country-Specific Activities: details for the approving authority.**

Name of responsible official: Valerie Leon		
Position: Permanent Secretary (Ag.)		
Ministry/Agency: Department of Sustainable Development, Ministry of Education, Innovation, Gender Relations and Sustainable Development		Country: Saint Lucia
Tel: +1754 468-5840/7246254,	Fax:	Email: valerie.leon@govt.lc

**D. IMPLEMENTATION AND FINANCING PLAN**

**7. Implementation Approach:** (a) the implementing entity (e.g. consultants, government officials, etc); (b) for country-specific activities, key counterpart institutions; (c) measures to involve key stakeholders; and (d) how the output of the activity is proposed to be disseminated, including its target audience.

Saint Lucia has limited capacity to design and manage a complex geothermal exploration drilling program. Given the need for efficient and timely implementation for private sector investment, the project will need dedicated capacity for project management and implementation consistent with World Bank guidelines.

The project will be implemented by the Department of Sustainable Development (DSD), within the Ministry of Education, Innovation, Gender Relations and Sustainable Development (MoESD). The DSD is led by a Permanent Secretary (PS), Sustainable Development, with responsibility for renewable energy policy formulation and implementation.

Saint Lucia will create a Geothermal Implementation Team (GIT) within the DSD, which will be headed by a Project Director. DSD/GIT will be responsible for overall project management, including technical oversight, fiduciary management and implementation support. GoSL technical capacity will be enhanced through the procurement of expert services of a global firm providing technical and exploration oversight or an “Exploration Management Consultant” (EMC). The EMC will remain in place until the end of the Exploration Development Program (EDP).

The fiduciary functions of DSD/GIT will be performed either by consultants hired for specific tasks or by staff seconded from the PCU that currently provides procurement and financial management services

to virtually all World Bank projects in the country. The PCU is comprised of a diverse team of procurement specialists with experience with World Bank guidelines, and conducting procurement under World Bank group funded projects. The DSD/GIT in consultation with the PCU will prepare the Project Procurement Strategy for Development (PPSD), which is a project-level strategy document prepared by the borrower that describes how procurement in Investment Project Financing (IPF) operations supports the development objectives of the project and delivers value for money. PPSD will be reviewed and agreed upon with the Bank before the completion of loan negotiations.

**Accounting and Internal Control.** The accounting of the project will be done by the DSD/GIT. The accounting records for the project will be maintained in the accounting system, QuickBooks v2011, and the Government's Integrated Financial Management Information System (IFMIS) called SmartStream will be updated with the project's transaction for the month on a monthly basis through a journal entry. The current finance procedures' manual has clear processes and procedures that, once applied consistently, are adequate to ensure that the financial information is accurate and that funds are only utilized for project purposes. The finance procedure manual should be updated to reflect the specific context of this project.

**Budgeting:** The annual budget would be prepared by the DSD/GIT in consultation with other implementing agencies. Project annual budgeting would be based on the cost tables, and would be updated according to the latest information during project implementation. The approved annual budget would be included in the budget estimates, entered into the accounting system, and used for periodic comparison with actual results as part of interim reporting. The approved budget would be shared with the World Bank and would be entered in the government the IFMIS as well as QuickBooks to monitor progress of implementation of the budget.

**Reporting.** Internal Financial Reports (IFRs) are required quarterly and should be submitted 45 days after each calendar quarter. Annual external audits are required with each audit covering one fiscal year (ending December 31). The audit reports are due to the World Bank no later than six months after the end of each audit period.

**Funds Flow.** A US dollar designated bank account and a local currency, Eastern Caribbean Dollar (ECD) bank account will be opened upon effectiveness of the project at the Bank of Saint Lucia. Both accounts will be segregated accounts. The US dollar bank account will be used to receive IDA and grant funds from the World Bank, as well as make US dollar payments throughout implementation. Funds will be transferred from the US dollar designated account to the ECD bank account to facilitate local currency payments. Both bank accounts will be used only to facilitate payments for eligible activities that relate to the project. Retroactive financing of eligible activities is allowed as defined and agreed.

**Disbursement method:** Disbursements will be report-based. An advance equivalent to six months forecast will be provided to the designated account (DA) and documentation of the expenditures will be based on subsequent quarterly IFRs. Subsequent IFRs will also provide a forecast for the following six months, on the basis of which the amount of funds to be disbursed will be determined. Further details regarding disbursements are provided in the disbursement letter. Retroactive financing of eligible activities is allowed as defined and agreed.

**Expenditure Eligibility.** If ineligible expenditures are found to have been made from the designated and/or local ECD accounts, the borrower will be obligated to refund the same. If the designated accounts remain inactive for more than 6 months, the World Bank may reduce the amount advanced. The World Bank will have the right, as reflected in the terms of the Financing and/or Grant Agreement, to suspend disbursement of the funds if significant conditions, including reporting requirements, are not complied with. Additional details regarding disbursement will be provided in the disbursement

letters. Retroactive financing of eligible activities is allowed as defined and agreed.

**Stakeholder engagement.** A multidisciplinary technical advisory panel with representatives from the PMA, LUCELEC, and potential private partner(s) is being created, and its recommendations and advice will be taken into consideration for implementation by the GIT. To attract a private sector developer for the geothermal power plant, the government will conduct a market sounding so that it can find ways to develop broader interest in the geothermal opportunity in St Lucia in its effort to attract high quality partners to help deliver value-for-money to energy customers. The GIT will invite one or more private sector developers to observe the EDP as a member of the technical advisory panel. Together with the use of grant and concessional financing for exploration drilling, these measures will make it more likely to attract an experienced private sector project developer as a partner to invest in the subsequent phases of drilling delineation, injection and production wells as well as building the steam gathering and other infrastructure needed for power generation.

The construction of a geothermal power plant requires land acquisition for the power plant, wells, network of interconnecting pipework, a transformer station, and electricity transmission lines to connect to the grid, access roads, and other infrastructure. The need for land acquisition for the purposes of the current exploration drilling project are relatively modest as the footprint of the activities are limited to access roads and relatively small drill pads (10x10 to 20x20 m) Land acquisition would occur gradually. Private developers might approach landowners through a 'willing-buyer-willing-seller' approach. Resettlement Policy Framework (RPF) will detail the process for the preparation of the Resettlement Action Plans (RAP) required for the final locations and designs of the subprojects. The RPF document will be consulted and disclosed. The project will seek broad community support through timely consultations and set up redress mechanisms to resolve concerns during the project cycle. Consultations results and grievance mechanisms will consider community needs and concerns.

In addition to consultation with communities potentially affected by any involuntary resettlement, the project will devise a proactive communication strategy to discuss the opportunities presented by the geothermal exploration drilling project and address any community concerns, e.g. concerns regarding potential impacts within the PMA.

The project will include a gender perspective by integrating activities that promote job creation and training to provide equal opportunity to persons from both genders. This may include partnerships with technical schools and universities to promote internship programs for students. The technical assistance component will include activities specifically addressing the gender perspective, with a view to strengthen the capacity of the implementation agencies to deliver on that agenda.

**8. Implementation Schedule:** *beginning and end dates, as well as major activity milestones.*

	Task	Dates
1	GoSL to prepare a Project Implementation Manual for the project	2 months from approval of the PPG
2.	Enhance the technical capacity of GoSL by procuring an Exploration Management Consultant (EMC) to efficiently supervise and manage the Exploration Drilling Program (EDP)	24 – 30 months
2.1	Finalization of tender documents for the procurement of an EMC firm by the Geothermal Implementation Team (GIT) within the Department of Sustainable Development (DSD), Ministry of Education, Innovation, Gender Relations and Sustainable Development.	4 – 5 months from approval of the PPG funds
2.2	Tender documents for the drilling contractor finalized by the EMC and procurement of the drilling contractor by GIT.	4 months from having EMC in place (task 2.1)
2.3	Finalization of the Pre-Feasibility report which identifies the drilling locations in a manner consistent with the ESIA and the Limits of Acceptable Change (LAC) study for the Piton Management Area (PMA).	4 month from ending of previous task
2.4	Initial work on infrastructure design and tendering to initiate land access and acquisition.	6 months from finalization of Pre-Feasibility report
2.5	Set-up of a technical advisory panel comprising of multi-disciplinary stakeholders to guide the implementation of the drilling program, including any changes to the plan during implementation.	3 months from EMC in place
2.6	Finalization the exploration drilling report in close cooperation with the drilling contractor on the quality of the geothermal resource measured against technical indicators.	2 months starting in month 26 of the EDP
2.7	Training: on-the-job mentorship to local staff, including those from the Renewable Energy Unit, to enhance local project management capacity.	24 – 30 months
3.	Market & Private Sector Engagement Activities	
3.1	Road shows and investor outreach materials to help bring the project to the attention of the potential investor community and help secure the interest of potential developers to participate in the subsequent phase, which would mobilize private investment in delineation drilling and in development of the generation facility.	12 months starting in months 20 of the EDP
3.2	Benchmark report on similar scale geothermal developments around the world.	1 month
3.3	Advisory services provided by technical advisors, financial advisors, legal advisors and other transaction advisory services	12 months starting from finalization of drilling report (task 2.6)

**9. Financing Plan:** a summary of the financing plan by the major components (the detailed budget should provide further breakdown by these components).

Major Components	CTF Request (USD)	Co-financing		Total Cost (USD)
		US\$	Source (e.g., gov't cash or in-kind contributions; donor funds)	
GoSL to prepare a Project Implementation Manual for the project.	10,000	10,000	GoSL	20,000
<p>Services of an Exploration and Management Consultant EMC firm to be engaged by the project for a period of 24-30 months to help procure and oversee the drilling program on behalf of the government of Saint Lucia.</p> <ul style="list-style-type: none"> <li>- Technical supervision of the drilling contractor</li> <li>- Procurement of the EMC and the drilling contractor</li> <li>- Finalization of the feasibility report</li> <li>- Initial work on infrastructure design and tendering, and on drilling tendering for land acquisition</li> <li>- Finalization of the exploration drilling report</li> <li>- on-the-job mentorship to local staff (including those from the Renewable Energy) Unit to enhance local project management capacity throughout the project</li> </ul>	750,000	1,170,000	DfID	1,920,000
Set-up of and support to a technical advisory panel comprising of multi-disciplinary stakeholders to guide the implementation of the drilling program, including any changes to the plan during implementation	50,000	30,000	GoSL	80,000
Road shows and investors outreach material	73,000	120,000	GoSL	193,000

Benchmark report on similar scale geothermal development around the world	20,000	30,000	GoSL	50,000
Advisory services provided by technical, financial, legal and other transaction advisory services	50,000	250,000	GoSL	300,000
<i>Total Financing/Costs</i>	<b>953,000</b>	1,610,000		2,563,000

## E. SUPPLEMENTARY INFORMATION AND MATERIALS

**10. Additional Information:** *any additional information that may be useful in evaluating the proposal (e.g., related activities which may have been undertaken; planned follow-on activities; etc.).*

The Subcomponent 1.1: Exploration - Management Consultant will costs a total of USD 15.525 million of which USD 8.572 million will be a contingent grant and USD 0.953 million project preparation grant from CTF, USD 5 million DFID grant, and USD 1 million IDA credit.

Development partners share a common understanding of the opportunities and challenges attached to geothermal development in Saint Lucia, and will continue to play an important role going forward. Concessional finance and grants provided by IDA, DFID, CTF, and SIDS DOCK are critical to enabling public sector financing of the geothermal exploration phase without placing undue burden on the government budget. The proposed project provides an ideal platform for current partners to come together and deploy their respective support in complementarity with one another and based on their respective comparative advantages. This platform with a shared understanding of the role geothermal energy can play in transforming St Lucia's energy future, promises to greatly enhance the effectiveness and impact of any one partner working alone.

In addition to the project preparation activities financed by the grant, the project will be financed by IDA credit of USD 5 million, USD 8.572 million contingent recovery grant from the CTF, co-financing of USD 1 million from the GoSL, DFID grant of USD 5 million, and SIDS DOCK grant of USD 1.85 million. CTF contingent recovery grant and PPG grant will be administered through a designated account at the Bank of Saint Lucia.