DRAFT TERMS OF REFERENCE

REGIONAL ECONOMIC ADVISOR – GEOTHERMAL ENERGY FOR THE EASTERN CARIBBEAN

ORGANISATION OF EASTERN CARIBBEAN STATES COMMISSION – GEOBUILD PROGRAMME

1. BACKGROUND

1.01 The common energy sector challenge in most of the countries of the Caribbean is their general inadequacy of energy security - rooted in their over reliance on imported petroleum-based fuels for powering their economies. In addition to being a key source of high energy costs in these countries over the years, the dependence on imported oil, renders the economies hostage to price volatility and other vagaries of the international oil market. This undermines economic stability and national efforts for long- term planning. It is also a source of balance of payment challenges, and the associated foreign currency demand, causes a drain on the country's foreign exchange reserves. The challenges are more accentuated in the countries of the Organisation of Eastern Caribbean States (OECS) which have the smallest markets, and highest preponderance of inefficient diesel power generation in the Caribbean.

1.02 In view of this situation, the countries of the OECS have prioritised the development of their renewable energy (RE) potential as a key strategy for transitioning their economies away from the over-reliance on imported fossil fuel mainly in the form of diesel-fuel and other petroleum products. They are therefore seeking to develop all their RE resource options, including solar, wind, hydropower, and geothermal energy (GE). In this regard, many have taken important steps in recent years, including, *inter alia*, the approval of national energy policies and the setting of ambitious energy efficiency (EE), RE and carbon emission reduction targets as part of its Nationally Determined Contribution (NDC) commitment, under the Paris Climate Change Accord 2015.

1.03 For six countries of the OECS, which have volcanic origins, it is considered that GE holds the greatest prospect (of the RE options available) for transforming their energy matrices by directly displacing large proportions of the diesel fuel-based generation. Further, in addition to being renewable, GE as a source of energy for electricity production provides many advantages, by providing firm capacity (being not variable as wind and solar) for 24 hours per day and seven-days per week year-round. As a result, the respective governments have signaled this RE option as a priority and have commenced the development of GE projects, beginning with exploration of their GE potential.

1.04 GE as a technology, however, is new to the region, and the projects are complex, capital intensive and exhibit high and unique technical risks especially in the exploratory stage. In addition, the small scale of the projects in the context of isolated island states poses special challenges for attracting credible private investors. These challenges coupled with the lack of technical experience in the countries, and the need for appropriate risk capital represent barriers to the timely advancement of GE projects. Against this background, the Caribbean Development Bank (CDB) has developed a GeoSmart Initiative**,** which seeks to mobilise appropriate resources (in form of grants, contingent grant, and concessional financing) to address many of these challenges and risks at various stages of the GE project cycle.

1.05 Under its GeoSmart Initiative, CDB in collaboration with the Inter-American Development Bank (IDB) and the European Union Caribbean Investment Facility (EU-CIF) have established the Sustainable Energy Facility (SEF) Programme for the Eastern Caribbean, and the Geothermal Risk Mitigation (GRM) Programme respectively. Through the IDB/SEF Programme most of the resources for GE development have been mobilised - coming through the IDB (from IDB own resources, from the Clean

Technology Fund, Global Environmental Facility, Green Climate Fund-GCF, and Government of Italy). Through the EU-CIF/GRM, grant resources have been mobilised for TA for capacity strengthening, studies, and for investment grants for early-stage drilling. These resources target support to the GE development in the countries of Dominica, Grenada, St. Kitts and Nevis, Saint Lucia, and St. Vincent and the Grenadines (herein after referred to as the "targeted countries").

1.06 In general, the approach promoted by CDB and partners (IDB, EU, etc.) under the GeoSmart, is a public private partnership (PPP) approach for developing and delivering projects. Ideally a government would take the lead in the early stage works for de-risking the GE resources supported by various bi-lateral partners and grant funding. Once the resource would have been de-risked to a certain level, the government would then go to the market to identify a suitably qualified and experienced private sector partner, which would enter into a PPP arrangement through a special purpose vehicle – joint venture project company (JVC) to develop the Project. In this context, the private partner would be required to have the relevant GE project development experience, and financial capacity to provide the required equity. Also, the private partner would be required to undertake the majority risk in the joint venture company reflected in the majority stake. The relevant upfront input by government and grant contributions from partners and development bank would be accounted as Government's equity contribution to the Project.

1.07 Although all countries have adopted slightly different approaches to the development of their GE project, in general the PPP approach is being pursued. Given that GE development is new to the countries and given the known capacity constraint (human and institutional) of governments of the Region, it has been recognised that significant capacity support would need to be provided for the governments for them to effectively play their roles as partners in the PPP arrangement – ensuring that the projects are developed in a sustainable manner and where risks and costs for the country are minimised. For this reason, under the CDB's GeoSmart Initiative through CDB/IDB SEF and the EU-CIF GRM programmes, that a significant portion of resources is targeted for TA support to governments, and various other key stakeholders, directly or through other key regional partners.

1.08 The OECS Commission (OECSC) is one such key regional partner, which has been seeking to support the countries in advancing their energy transition to greater use of RE and in particular GE development, based on mandates from its Council of Ministers with responsibility for energy. In this regard, the OECSC has also recognised the critical role of strengthening capacity in the countries and have developed a programme called GEOBUILD through, which it intends to provide a range of regional level capacity building interventions. *Inter alia*, these include training of various persons in geoscience (and other technical areas) and GE project development, supporting critical studies, providing expert advice to government on environmental and social risks, legal and contractual matters, and other technical areas. Against this background, the OECSC has applied to CDB for technical assistance (TA) funding available under GeoSmart, to provide the relevant capacity strengthening interventions in the countries through a regional approach.

1.09 It is now generally agreed by the targeted countries that they will pursue their GE project development in a manner, which seeks to optimise the resource potential to achieve economies of scale. This necessitates that each country will develop its GE power plant with a capacity that is larger than that required to meet current domestic electricity demand, with the excess power being available for:
(a) supplying potential industrial parks (for production of green hydrogen, or ammonia or fertiliser); or
(b) for exporting to neighbouring countries through submarine cables. With this approach, the GE projects have this potential to impact the wider economy beyond just meeting current electricity demand at lower price.

1.10 It is necessary that the potential economic impact of the scaled projects be assessed and understood as early as possible to support the business case by government/project sponsors. This will require range of analyses to include macro-economic considerations (e.g., employment, government fiscal, implications for national debt, balance of payments, foreign exchange), institutional, and others.

1.11 Based on the foregoing, it is therefore considered that the service of Economic Advisory is necessary, to help the government and project sponsors to establish objectively the economic impact of the Project and to support the proposal to the funding agencies. In this regard, the OECSC intends to engage the services of a suitably qualified Economic Advisory (EA) consultant (referred to as the EA) to fulfill aforementioned objectives.

1.12 As instructed by OECSC, EA will collaborate with the relevant national government agencies and project sponsors to establish good understanding of the context and specific objectives of the proposed project and provide full economic analysis of the Project.

1.13 In general, the ES-Consultant will work remotely, however, periodic travel to the targeted countries and OECSC headquarters in Saint Lucia, and the project sites may be required by relevant EA's experts/representatives to complete the tasks under this Terms of Reference (TOR).

2. OBJECTIVES

2.01 To establish economic impact of GE development and the associated industrial project including net benefit to the islands of the Eastern Caribbean.

3. SCOPE OF WORK

3.01 The EA will gather relevant information about GE developments in Member States of the OECS, and the proposed project concepts for utilisation of GE power and excess power, and conduct full economic analyses, and benefit-cost analyses for the various GE Projects in targeted countries pursuing GE developments.

3.02 It will be necessary for the Consultant to make a quantitative and qualitative assessment of the Projects regarding the impact of projects' results on the development of the respective economies of Member States, specifically on GDP, jobs, services, and investments. To this end, the EA will (but not limited to):

(a) Assess direct effects of the Projects on the economy of the various countries and territories (changing the supply and demand of public services, employment, balance of payments, economic situation, contribution of GE investments to GDP growth etc.), as well as the indirect impact of the projects' results (development of new sectors in the respective economies).

(b) Assess risks and their impact on the Projects' success, including macroeconomic and political (exchange rate, inflation, rising prices for key materials or components that will make it impossible to achieve the projects' objectives for the planned amounts or in the planned time frame).

(c) Recommend [based on (a) and (b)] the most acceptable economic models and risk management solutions for successful implementation of the Projects and minimisation of possible risks.

4. KEY TASKS FOR ECONOMIC ADVISOR

4.01 The EA will:

(a) Identify the key stakeholders including government agencies and project sponsors and collaborate to establish good understanding of the context and specific objectives of the proposed projects in Member States.

(b) Identify key stakeholders in government and potential role in clarifying relevant aspects and the key potential concerns in Member States.

(c) Review proposed commercial/project structures, risk allocation and provide relevant options for risk mitigation in Member States.

(d) Develop a good understanding of the projects' concepts and identify the range of potential costs and benefits in Member States which may be accrued to same, including:

(i) Macro-economic benefits – employment, foreign exchange reserves, export earnings, balance of payments.
(ii) Displacements/reduction in fuel consumption.
(iii) Decline in countries' carbon footprint (GHG Emissions, etc.).
(iv) Reduced operating and maintenance costs for power generation companies.
(ii) Other benefits.

(e) Conduct economic risk analyses – identify key economic risks and likelihood of same becoming issues.

(f) Define methodologies, including financial and economic models, for analysing and assessing the economic and financial internal rates of returns of the GE projects (economic rate of returns [ERRs], net present values and financial rate of returns).

(g) The methodologies shall involve the following:

(i) Define basic financial models to assess the financial returns of the various key activities within the project components of Member States; such financial models to include reasonable assumptions relating to the commercial (project sponsors) arrangements.

(ii) Define priority criteria for assessing the economic impact of the various key activities within the project components of Member States, including assessing social impact factors that contribute to the transformation of a modest internal rate of return into a high ERR.

(iii) Rank the contribution of each criterion by its specific weight.

(h) Calculate the quantitative value of the established criteria to measure the degree of impact on the Projects in achieving the economic goals in each country's development.

(i) Develop relevant and appropriate presentations on the outputs and make presentations to the various stakeholders in Member States.

(j) The EA will develop relevant training modules around the financial and economic tools used in the Projects for the training of relevant representatives in Government ministries and agencies (responsible for finance, planning and economic development, etc.), to allow them to be able to utilize the same in future.

5. REQUIREMENTS/DELIVERABLES

5.01 The EA will provide the following deliverables.

Deliverables	When
1. Brief Inception report	Two (2) weeks after assignment
2. Draft Report covering full economic analyses of the projects in Member States and their impact on the respective countries and their economies	Six (6) weeks after the commencement of the assignment.
3. Final Report	Two (2) weeks after receipt of comments
4. Comments and analyses as requested by OECSC and countries as part of general back-stopping support for Member States.	As requested over the period
5. Presentations for countries	As requested / scheduled
6. Training sessions to government officials	As requested / scheduled

6. DURATION

6.01 The Consultancy is to be implemented over a period of 18 months.

7. QUALIFICATIONS

Academic Qualification

7.01 The EA will be an individual consultant possessing at least a Master's Degree, or the equivalent, in Economics, Finance, Business Administration, or a related field of study.

Experience

7.02 She or he must possess at least 15 years of relevant work experience with governments or development partners on Public Financial Management (PFM) reform design and implementation. The following experiences are also desired:

(a) At least 5 years' experience in analytical and research studies in the sector, as well as experience in the development of economic assessment for national and investment projects.

(b) At least 5 years' experience in developing financial and cost recovery models for energy projects and public administration, financing and analysing social impacts in projects.

(c) At least 5 years' experience in the development and implementation of risk management/matrix frameworks.

(d) At least 5 years relevant experience working with development partners, and in the Caribbean.

7.03 In addition, the EA must have:

(a) Good computer skills (Windows, MS Office, Internet Explorer, etc.).

(b) Excellent knowledge of the English language.