

TC Document

I. Basic Information for TC

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| ▪ Country/Region: | BARBADOS |
| ▪ TC Name: | Support for the Design of Carbon Neutral Strategies in the Context of Energy Transition in Barbados |
| ▪ TC Number: | BA-T1082 |
| ▪ Team Leader/Members: | Echeverria, Carlos Bladimir (INE/ENE) Team Leader; Prado, Veronica Rodrigues Do (INE/ENE) Alternate Team Leader; Acevedo Calle, Daniela (LEG/SGO); Angulo Rodriguez, Emilio Jose (INE/ENE); Archer-Headley, Janette (CCB/CBA); Baltodano Carrasquilla, Fabiola (INE/ENE); Carvalho Metanias Hallack, Michelle (INE/ENE); Doherty Bigara Rodriguez, Jennifer (CSD/CCS); Franklin, Rochelle (CCB/CBA); Madrigal Martinez, Marcelino (INE/ENE); Marquez Barroeta, Fidel (INE/ENE); Pelaez Restrepo, Johanna (VPC/FMP); Riobo Patino, Jairo Alexander (INE/TSP); Rodriguez Pineda, Mario Vinicio (VPC/FMP); Snyder, Virginia Maria (INE/ENE); Suber, Stephanie Anne (INE/ENE) |
| ▪ Taxonomy: | Client Support |
| ▪ Operation Supported by the TC: | N/A |
| ▪ Date of TC Abstract authorization: | 15 Mar 2021 |
| ▪ Beneficiary: | Energy sector of Barbados |
| ▪ Executing Agency and contact name: | Inter-American Development Bank |
| ▪ Donors providing funding: | NDC Pipeline Accelerator Multidonor Trust Fund(ACL); OC Strategic Development Program for Infrastructure(INF) |
| ▪ IDB Funding Requested: | NDC Pipeline Accelerator Multidonor Trust Fund (ACL): US\$100,000.00 OC Strategic Development Program for Infrastructure (INF): US\$300,000.00 Total: US\$400,000.00 |
| ▪ Local counterpart funding, if any: | US\$0 |
| ▪ Disbursement period (which includes Execution period): | 24 months |
| ▪ Required start date: | January 2022 |
| ▪ Types of consultants: | Individuals; Firms |
| ▪ Prepared by Unit: | INE/ENE-Energy |
| ▪ Unit of Disbursement Responsibility: | CCB/CBA-Country Office Barbados |
| ▪ TC included in Country Strategy (y/n): | Yes |
| ▪ TC included in CPD (y/n): | No |
| ▪ Alignment to the Update to the Institutional Strategy 2020-2023: | Environmental sustainability; Gender equality; Institutional capacity and rule of law; Productivity and innovation |

II. Objectives and Justification of the TC

- 2.1 Objectives.** The general objective of this TC is to assist the Government of Barbados (GoB) in transitioning its energy sector to achieve its climate goals by financing a wide range of studies and activities linked to energy planning and implementation plan of the Barbados National Energy Policy 2019-2030 (BNEP). The specific objectives are: (i) provide the Ministry of Energy, Small Business and Entrepreneurship (MESBE) with energy planning analytical tools to strengthen decision-making processes and effectively implement the Integrated Resource and Resilience Plan (IRRP) on; (ii) to

support the implementation of the BNEP by designing the required draft policies and regulatory frameworks to enable the deployment of innovative technologies; and (iii) to promote knowledge appropriation and strengthen institutional capacity on energy planning tools by focusing on integrated and optimal deployment strategies, training, and dissemination activities.

- 2.2 **Justification.** The TC will support the development of a detailed Action Plan for the implementation and update of the IRRP, which is a key planning tool in Barbados' Nationally Determined Contribution (NDC) review and fulfilling its climate ambition. Also, the TC will enhance the technical and institutional capacity of the MESBE on energy planning and modelling and will therefore unlock the deployment of electromobility and innovative technologies such as Battery Energy Storage Systems (BESS), ocean energy technologies, onshore and offshore wind, which is a very innovative and promising area for decarbonization and investment in Barbados. Other innovative technologies such as Vehicle to Grid (V2G) integration, smart grids and distribution system digitalization will be promoted, in order to introduce Barbados to the paradigm shift that is taking place in the power systems at an international level. This is relevant to democratize the electricity grid and provide greater security and resilience, considering Barbados' plans to massively introduce variable Renewable Energy (RE) sources into its generation mix. Finally, one of the key elements of this TC is to enhance energy planning, data collection and modelling. This would directly enhance the efforts currently underway for the consolidation of key sector data relevant for climate change efforts (both mitigation and adaptation strategies), and promote the Build Forward Vision, as it would enhance the country's ability to design and implement sustainable and resilient development pathways.
- 2.3 Barbados is an island of 431 km² and a population of approximately 280,000 inhabitants and ranks high among the Latin American and Caribbean countries in terms of social and economic indicators. In terms of energy, Barbados depends on imported fossil fuels for over 90% of its total energy needs, leading to high macroeconomic vulnerability resulting from fuel price volatility. Between 2016 and 2019, Barbados spent approximately US\$320 million on fuel imports per year, which represents approximately 6.5% of GDP. In 2019, the fuel import bill for Barbados stood at US\$364 million¹. Average annual sales of electricity total 900 GWh; of this total, 44 GWh (5%) are produced from RE sources.
- 2.4 In 2019, the GoB approved the BNEP, which identifies the goals and timelines for a transition to a more sustainable, liberalized, and democratized energy sector, including a long-term vision of 100% RE and carbon neutrality by 2030 and an interim goal of 49% reduction in fossil fuel consumption by 2023, which implies annual savings of between US\$200 million and US\$400 million in fuel imports by 2030.
- 2.5 To achieve these ambitious goals, the GoB has requested technical cooperation support in order to provide continuity to the work previously carried out in the energy sector by focusing on enhanced energy planning, the design of policies and regulatory frameworks that support the deployment of RE and other innovative technologies and, in parallel, identify other key activities that will accelerate the transformation of the energy sector, towards the realization of the BNEP 2030 target. By promoting a more sustainable enabling environment with a clear and robust sector information, private sector and multilateral agencies and donors in general would be more inclined to invest

¹ World Integrated Trade Solutions (WITS).

in new projects and initiatives, and more actions related to climate change mitigation and adaptation would be further enhanced.

- 2.6 **Strategic alignment.** The TC is consistent with the Bank's Updated Institutional Strategy (UIS) 2020-2023 (AB-3190-2) and is aligned with the development challenges of: (i) Institutional Capacity and Rule of Law, through the provision of a comprehensive training and knowledge appropriation program; and (ii) Productivity and Innovation, by promoting innovative technologies like offshore wind, BESS, V2G, meter digitalization, among others. It is also aligned with the cross-cutting areas of: (i) Gender Equality, by including resources to develop a strategy to promote the increase in the participation of women in the energy sector, considering the transformation expected for the power sector; and (ii) Climate Change and Environmental Sustainability, as is it supports the country in key planning and implementation tools required to decarbonize its energy system and support efforts towards carbon neutrality by 2030. The TC is also aligned with the objectives of the Ordinary Capital Strategic Development Program for Infrastructure (GN-2819-9) since it will focus, among other things, on studies to improve the design and monitoring of public policies, like the BNEP and the IRRP, and the transmission of lessons learned to the GoB regarding the energy sector.
- 2.7 The operation is also aligned with the Country Strategy for Barbados 2019-2023 (GN-2953-1), as it relates to the objective of reducing the country's dependence on imported fossil fuels by increasing the contribution of clean energy sources. Moreover, the operation is aligned with the Sustainable Infrastructure for Competitiveness and Inclusive Growth Sector Strategy (GN-2710-5) and it is consistent with the Energy Sector Framework (GN-2830-8) by promoting the development of RE sources, and improvements in energy security. Lastly, The TC is aligned with CCB's strategic vision Build Forward as: (i) technologies V2G, offshore wind and grid digitalization represents an innovation leap for the country and the region; (ii) will promote the implementation of solar and wind energy in the country, helping to mitigate climate change; and (iii) a significant part of the IRRP is designed to increase the resilience of the Barbados energy system. This TC complements the Bank's support to the energy sector in Barbados also provided through regional activities, including the TC RG-T3899 "Zero Carbon Energy Paths in the Caribbean" and the IDB study "Circular Carbon Neutral Economy using Green Hydrogen", aiming to provide an overarching support to the GoB towards the decarbonization of the energy sector.

III. Description of activities/components and budget

- 3.1 **Component 1. Energy Planning for a Carbon Neutral Energy Transition (US\$180,000).** This component will finance: (i) the development of a 5 year action plan, including the cost schedule for its implementation in relation to the most acceptable scenario proposed by the IRRP, including its first annual update; and (ii) complementary planning/technical studies that integrate and optimize carbon neutral scenarios, including V2G, behind the meter (BTM), demand response, EE, smart technologies and systems; (iii) a study to prepare a gender equality diagnosis as basis for the development of a gender equity strategy for the electricity sector with concrete actions, considering the transformation that the sector is expected go through in this decade. The outputs are: updated IRRP and action plan, and key energy sector studies, including a gender equity strategy for the power sector in Barbados.

- 3.2 **Component 2. Energy Transformation: Policy Design and Regulatory Framework for Innovative Technologies/Approaches (US\$180,000).** This component will finance: (i) the design and support for the implementation of the policy and regulatory framework to facilitate new technology solutions such as electromobility (including V2G), BESS, and/or distributed generation; and (ii) the design of energy auctions framework and execution strategy to facilitate and streamline the deployment of RE. The outputs are: a specific proposals on the regulatory framework to promote innovate technologies, and a report describing the institutional, design, and implementation aspects an auction.
- 3.3 **Component 3. Project Management, Knowledge Dissemination and Institutional Capacity Building (US\$40,000).** Dissemination through training activities and media campaigns (audiovisual material, blogs, webinars) to facilitate communication and dissemination of energy products. This component will finance: (i) workshops with key leaders and stakeholders in the energy sector; (ii) advanced energy planning training and carbon neutral deployment strategies.
- 3.4 The non-reimbursable TC has a total budget of US\$ 400,000, of which US \$300,000 comes from the OC Strategic Development Program for Infrastructure (INF), and \$100,000 from the NDC Pipeline Accelerator Multidonor Trust Fund (ACL). This TC is aligned with the ACL fund since it mobilizes and provide resources to cover additional costs associated with planning, identifying, preparing and managing sustainable projects, through the activities included in component 2. These activities meet the ACL eligibility criteria by targeting mobilization of private and/or public capital towards sustainable projects aligned with the country priorities.

Indicative Budget

| Activity/Component | Description | IDB (INF) | ACL | Total Funding |
|--|--|--------------------|--------------------|--------------------|
| Component 1. Energy Planning for a Carbon Neutral Energy Transition | Annual update of the IRRP and complementary planning studies | US\$180,000 | US\$0 | US\$180,000 |
| Component 2. Energy Transformation: Policy Design and Regulatory Framework for Innovative Technologies/Approaches | Regulatory framework to promote innovate technologies and auction design | US\$80,000 | US\$100,000 | US\$180,000 |
| Component 3. Project management, knowledge Dissemination and Institutional Capacity Building | Workshops and advanced energy planning training | US\$40,000 | US\$0 | US\$40,000 |
| TOTAL | | US\$300,000 | US\$100,000 | US\$400,000 |

- 3.5 The beneficiary of this TC is the energy sector of Barbados, in particular the MESBE, which will benefit from the development of planning activities, decision-making tools and analyses, and the revision of sectoral regulatory and competitive auction frameworks.

IV. Executing agency and execution structure

- 4.1 The Executing Agency (EA) of the TC will be the IDB, through the Energy Division (INE/ENE), in coordination with IDB Country Office in Barbados and the MESBE. In compliance with the Operational Guidelines for TC Products -Revised version (GN-2629-1), this TC is classified as Client Support. The technical responsibility will be overseen by INE/ENE. The Division of Energy within the MESBE has requested the IDB to be the EA, considering the Bank's experience on the scope of activities and currently limited operational capacity to duly and timely execute the administrative activities as part of this TC.
- 4.2 The IDB team plans to work in close coordination with the MESBE in order to secure and maximize knowledge transfer through continuous interaction, dissemination and institutional strengthening activities (component 3). Thus, the MESBE is expected to take full ownership of all activities and products developed in the TC.
- 4.3 The project team, led by the ENE Specialist from the Barbados Country Office (CCB/CBA) with the support of the Bank's Energy Division (INE/ENE) and the country office, will oversee the execution, monitoring and evaluation of the TC. Additionally, the Bank will hire a project manager (PM) to coordinate all aspects of the execution and facilitate the interaction with the MESBE. This is justified given that designing an action plan to implement and update the IRRP, as well as formulating policy and regulatory recommendations, are complex tasks that require the coordination of various areas within the MESBE and other key government institutions.
- 4.4 Reporting of the TC activities will follow IDB's TCM (Technical Cooperation Monitoring) report methodology. The team will track the indicators included in the Results Matrix, which will be the instrument to monitor and evaluate the objectives. The PM will provide monthly progress reports summarizing results and submit these to the IDB for approval.
- 4.5 The Bank will contract individual consultants, consulting firms, and non-consulting services in accordance with its current procurement policies and procedures: (i) individual consultants will be hired in accordance with the guidelines set out in the AM-650; (ii) the procurement process for consulting firms will follow the Bank Policy for the Selection and Contracting of Consulting Firms for Bank-executed Operational Work (GN-2765-4) and the related Operational Guidelines (OP-1155-4); and (iii) the procurement of non-consultant services will follow the Bank Corporate Procurement Policy (GN-2303-28). The initial procurement plan provides information on the contracts foreseen and their applicable monitoring and contracting methods.

V. Major issues

- 5.1 Risks include the fact that the Division of Energy within the MESBE is short-staffed and, as such, requires additional support. This will be mitigated by the hiring of a PM. Considering that the TC will finance studies that do not require significant field work and travels, the risk associated with COVID-19 is considered low. However, there is execution and coordination risks associated with the pandemic. These risks will be mitigated as follows: (i) anticipating additional time for the achievement of outputs; (ii) maintaining a constant dialogue with the MESBE, which includes frequent monitoring and dissemination activities to ensure a close involvement from the ministry; (iii) hiring a PM dedicated to the TC execution.

VI. Exceptions to Bank policy

- 6.1 No exceptions to the Bank's policies are requested.

VII. Environmental and Social Strategy

- 7.1 According to the IDB's Environment and Safeguards Compliance Policy (OP-703) and due to the nature and objectives of the TC, this TC has been categorized as Category "C", since is aimed at the preparation of pre-feasibility studies and it will not finance infrastructure construction. The studies will include considerations on potential environmental and social challenges and safeguards' application related to the future projects' implementation. Please see [Safeguard Policy Filter](#) and [Safeguard Screening Form](#) as reference.

Required Annexes:

[Request from the Client - BA-T1082](#)

[Results Matrix - BA-T1082](#)

[Terms of Reference - BA-T1082](#)

[Procurement Plan - BA-T1082](#)