

TC Document

I. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Promote the energy transition in shipping and ports services in the Caribbean
▪ TC Number:	RG-T4478
▪ Team Leader/Members:	Aiello, Roberto Gabriel (INE/ENE) Team Leader; Alleng, Gerard P. (CSD/CCS) Alternate Team Leader; Calatayud, Agustina (INE/TSP) Alternate Team Leader; Pereyra Da Luz, Andres (INE/TSP); Samuels, Rochelle Kaye (CCB/CJA); Persaud, Christopher (INE/TSP); Echevarria Barbero, Carlos Jose (INE/ENE); Cruz Moreno, Paula Melisa (INE/TSP); Figueiredo De Castro M, Ana Beatriz (INE/TSP); Juan Tulande Lopez (INE/ENE); Abad, Julieta (INE/TSP); Gonzalez Claudina (CSD/RND); Guerrero, Pablo (INE/TSP); Masson, Malaika Ebony Anietia (INE/ENE); Rijter Gabriela (INE/ENE); Bonilla Merino Arturo Francisco (LEG/SGO); Malagon Orjuela, Edwin Antonio (INE/ENE); Snyder, Virginia Maria (INE/ENE); Cassar, Lesley N (CCB/CCB); Ferrari Gisela Andrea (CSD/CCS); Pineros Cely Ana Maria (INE/ENE); Luz Caballero (INE/ENE); Bonzi Teixeira, Augusto Cesar (INE/ENE); Urquijo, Lee (ITE/IPS); Anabella Palacios (CSD/CCS); Kamau, Musheer Olatunji (CCB/CCB); Navas Duk, Cristian Lee (INE/TSP); Brown, Tenisha Elizabeth (CSD/RND); Prado, Veronica Rodrigues Do (INE/ENE); Umana, Mario Alberto (INT/TIN); Echeverria, Carlos Bladimir (INE/ENE); Correa Poseiro, Cecilia (INE/ENE); Jimenez Dorronsoro Irati (INE/ENE); Vila Saint Etienne, Sara (LEG/SGO); Ballon Lopez, Sergio Enrique (INE/ENE); Sabra, Mariel Guerrero, Pablo (INE/TSP) Alternate Team Leader; Pereyra Da Luz, Andres (INE/TSP); Samuels, Rochelle Kaye (CCB/CJA); Persaud, Christopher (INE/TSP); Echevarria Barbero, Carlos Jose (INE/ENE); Cruz Moreno, Paula Melisa (INE/TSP); Figueiredo De Castro M, Ana Beatriz (INE/TSP); Juan Tulande Lopez (INE/ENE); Abad, Julieta (INE/TSP); Gonzalez Claudina (CSD/RND); Masson, Malaika Ebony Anietia (INE/ENE); Rijter Gabriela (INE/ENE); Snyder, Virginia Maria (INE/ENE); Cassar, Lesley N (CCB/CCB); Ferrari Gisela Andrea (CSD/CCS); Pineros Cely Ana Maria (INE/ENE); Bonzi Teixeira, Augusto Cesar (INE/ENE); Anabella Palacios (CSD/CCS); Calatayud, Agustina (INE/TSP); Kamau, Musheer Olatunji (CCB/CCB); Navas Duk, Cristian Lee (INE/TSP); Prado, Veronica Rodrigues Do (INE/ENE); Umana, Mario Alberto (INT/TIN); Echeverria, Carlos Bladimir (INE/ENE); Correa Poseiro, Cecilia (INE/ENE); Jimenez Dorronsoro Irati (INE/ENE); Vila Saint Etienne, Sara (LEG/SGO); Ballon Lopez, Sergio Enrique (INE/ENE); Sabra, Mariel
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	N/A
▪ Date of TC Abstract authorization:	6/21/2024
▪ Beneficiary:	Bahamas, Barbados, Belize, Guyana, Jamaica, Suriname, and Trinidad and Tobago through the Caribbean Shipping Association (CSA) and the <i>Comisión Interamericana de Puertos</i> (CIP).
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	OC SDP Window 2 - Infrastructure(W2B)
▪ IDB Funding Requested:	US\$350,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	36 months
▪ Required start date:	1 Nov-24
▪ Types of consultants:	Firms and individual consultants

▪ Prepared by Unit:	INE/ENE-Energy
▪ Unit of Disbursement Responsibility:	CCB/CJA-Country Office Jamaica
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Institutional Strategy:	Gender equality; Economic integration, Climate Change, Sustainable Regional Growth

II. Objectives and Justification of the TC

- 2.1 The objective of this Technical Cooperation (TC) is to support the seven ONE Caribbean countries (Bahamas, Barbados, Belize, Guyana, Jamaica, Suriname, and Trinidad and Tobago) through the Caribbean Shipping Association (CSA) in collaboration with the Inter-American Committee on Ports (CIP by its Spanish acronym) in promoting the energy transition in shipping and port services.
- 2.2 Between 80% and 90% of international trade by volume is enabled through shipping, i.e. bulk and container carriers, as well as oil and chemical tankers. Together, these types of vessels account for 20% of the global fleet, but they are responsible for 85% of the net Greenhouse Gas (GHG) emissions associated with the shipping sector. The 2018 fuel mix for international shipping comprised 79% heavy fuel oil, 16% marine diesel oil, 4% Liquefied Natural Gas (LNG¹), and less than 0.1% methanol.²
- 2.3 Shipping and port services are of key importance to the ONE Caribbean countries for logistics and trade. Direct and indirect value added and economic integration from shipping puts the sector among the most important in terms of trade. There is no detailed energy data available in the public domain, the fuel and energy data provided by countries to the Latin American Energy Organization (OLADE, by its Spanish language acronym) does not include a breakdown per this type of use. The data can be sourced by procuring consultations to each one of the companies and organizations involved. Public access to that data would be an important contribution not only to the members of the industry but also to policy makers, researchers, academia, and the public interested in the subject.
- 2.4 Reducing carbon emissions from the shipping industry would contribute to combating Climate Change (CC). The shipping industry is a complex ecosystem composed of various value chains that require efforts by all stakeholders to achieve this goal. The following are central to steering the sector's decarbonization actions, as they affect other value chains and determine what is collectively achieved: the marine fuel, the shipbuilding, and the shipping operations value chains:
- 2.4.1 **The marine fuel value chain.** Refueling vessels, whether for cargo or passengers, involves the entire process of transportation, processing, delivery of fuel to designated fueling spots, and consumption by the ship operator. These are interdependent components that need to function simultaneously to avoid bottlenecks and shortages of equipment or fuels. Shipping operators do not have sufficient price competitive alternative fuel options to commit to charter agreements that include a premium for next generation dual-fuel engines. Some shipbuilders and engine manufacturers have responded by building ships with such engines,

¹ Green LNG refers to either reducing GHG emissions or offsetting GHG emissions associated with some or all the LNG value chain, from upstream gas production and pipeline transportation, through to liquefaction, ocean transport, regasification, and downstream use of natural gas.

² A pathway to decarbonize the shipping sector by 2050. IRENA, 2021.

which can operate on methanol and fuel oil, or on LNG and fuel oil. Given the lack of alternative and cost-equivalent low-carbon/zero-emissions fuels, ships equipped with dual-fuel engines run primarily on conventional fuel oil. A wide range of low-carbon/zero-emission fuels are under development, such as green LNG, green methanol, green ammonia, and green hydrogen (GH₂), with different timelines for commercial feasibility and market availability.

- 2.4.2 **The shipbuilding value chain.** The key stages of shipbuilding are ship design, procurement of construction materials, ship assembly, post-production maintenance, refitting, and end-of-life recycling. Ships can be designed for minimal GHG emissions, including through but not limited to optimized hydrodynamic hull design, wind support when sailing,³ dual-fuel, and multi-fuel high-efficiency engines, and digital systems to optimize routing and port arrival. Steel can be sourced from low-carbon production suppliers. Circularity principles can be applied to design and construction to maximize reuse when a ship has reached the end of use.
- 2.4.3 **The shipping operations value chain.** These stages are fueling, provisioning, loading, boarding, voyaging, unloading, disembarking, and refueling. Ship operators have multiple levers to reduce CO₂ emissions, including leveraging the size and speed of ships and fleets, demanding hydrodynamic designs and dual-fuel engines or ships (partially) powered by biodiesel and electricity. Carbon reduction measures apply to ships, but seaports are also a crucial part of the operational chain. Ports would need to have infrastructure in place for storing and bunkering of alternative fuels and onshore power supply.⁴
- 2.5 GH₂, produced through the electrolysis of water using renewable energy sources, is poised to become a transformative element in the global shift towards sustainable energy systems. GH₂-based fuels can play a critical role in the successful decarbonization of the shipping industry as the shipping sector will require around 50 million tons of GH₂ per year for the supply of the needed ammonia and methanol.
- 2.6 GH₂ production will require large volumes of renewable energy to meet the production targets. The Intergovernmental Panel on Climate Change (IPCC) states that integrated planning that incorporates physical, natural and social infrastructure is critical for achieving deep emissions reductions.⁵ For the region to take advantage of its clean generation capacity along with its renewable energy resource potential, while at the same time support the deployment of alternative fuels for shipping and leading in logistics, energy planners must prepare for such future renewable power demand and consider these in the power generation expansion plans.
- 2.7 There is global political awareness about the shipping environmental impacts. The International Convention for the Prevention of Pollution from Ships (MARPOL), adopted on November 2, 1973, at the International Maritime Organization (IMO), is the main international convention covering the prevention of pollution of the marine environment by ships from operational or accidental causes. IMO adopted the first set

³ Harnessing power from wind is a new option available for shipping lines and specially chartered vessels which contracts run for three years and significant cost savings from fuel materialize at 36 months. Rotors and sails are becoming an option to support decarbonization efforts of cargo vessels.

⁴ UNCTAD Transport and Trade Facilitation Newsletter N°94 - Second Quarter 2022.

⁵ IPCC, 2023: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, 184 pp., doi: 10.59327/IPCC/AR6-9789291691647.

of international mandatory measures to improve ships' energy efficiency in July 15th, 2011. Since then, IMO has taken additional action including further regulatory measures: the adoption of the Initial IMO GHG Strategy in 2018, and, in 2023, the revised Strategy on Reduction of GHG Emissions from Ships. The adoption of the 2023 GHG Strategy by 175 member states of the IMO in July 2023 represents a major leap forward in ambition. To achieve the targets set out in the Strategy, the average ship's GHG intensity will need to be reduced by 86% by 2040.⁶ This would require a large-scale and rapid growth in the use of zero-emission fuels,⁷ such as GH₂-derived fuels with a GHG intensity reduction of 90-100% relative to existing fossil-based fuels on a full lifecycle (well-to-wake) basis. Countries must also implement, in coordination with the shipping industry, comprehensive net-zero emission programs over the next decade that considers the implementation of energy efficiency measures in fleets, and green ports. Also, corridor initiatives defining trading routes between major port hubs where zero-emission solutions are supported must be implemented. Green ports and corridors create the enabling conditions for decarbonization, for they would allow policymakers to create an ecosystem with targeted regulatory measures, financial incentives, and safety regulations.

- 2.8 Collaborative and sustainable tourism initiatives led by the cruise industry, destinations, ports, community organizations, and stakeholders are helping to achieve mutual objectives to preserve the integrity, cultural heritage, and beauty of the world's most treasured destinations. Cruise lines are following a path to decarbonization with advancements in technology, infrastructure, and operations with multiple pilot projects and collaborative initiatives underway (new engines and propulsion technologies are actively being planned and tested for use on cruise ships). In addition, every ship currently being built and through 2028, except for expedition ships, by a member of the Cruise Lines International Association (CLIA) is scheduled to be fitted with shoreside power capabilities. Currently, 30% of cruise ships, representing 40% of capacity, are plug-in ready, and 30% will be retrofitted. Additionally, 29 cruise ports worldwide have at least one berth with onshore power; 20 additional ports funded or planned (by 2025). Less than 2% of the world's cruise ports have onshore power; by 2025, 3% will have shoreside power.⁸
- 2.9 **Institutional aspects.** This TC will be implemented in collaboration and coordination with the CSA and the CIP.
- 2.10 **Caribbean Shipping Association (CSA).** The CSA was established in 1971, emerging from the necessity of a central voice for the region's shipping industry. The mechanization of ports across the region hastened the need for representation and the formation of the association that would become crucial to the development and exchange of ideas and practices integral to the growth of Caribbean shipping. With HQs in Kingston, Jamaica, the CSA's membership has grown immensely and now boasts over 100 individual members and 12 national shipping organizations⁹ which represent interests in the private and public sectors across the entire Caribbean.

⁶ Implications of the Revised IMO GHG Strategy for national, regional and corporate action. UMAS (Sept 2023).

⁷ Definition of Zero emission energy sources, [Getting to Zero Coalition](#).

⁸ [State of the Cruise Industry](#).

⁹ The CSA Constitution is currently being amended to explicitly include the affiliated countries in the association.

- 2.10.1 **Comisión Interamericana de Puertos (CIP).** The Inter-American Committee on Ports (CIP)¹⁰ is a permanent forum comprising the National Port Authorities of the Organization of American States (OAS) 34 Member States and leaders of the maritime-port industry. Its main goal is to promote security, competitiveness, sustainability and inclusion in the port sector in the Americas through its four mandates: (i) policy dialogue; (ii) capacity building; (iii) technical assistance ;and (iv) cooperation with the private sector; and its six priority areas: (i) Logistics, Innovation, and Competitiveness; (ii) Port Protection and Security; (iii) Sustainable Port Management and Environmental Protection, (iv) Public Policy, Legislation and Regulation; (v) Waterways, Inland and Cruise Ports; and (vi) Port-City Relation, Social Responsibility and Gender Equality.
- 2.10.2 **Memorandum of Understanding (MOU) CSA-CIP.** In October 2008, the CSA and the CIP signed a MOU¹¹ where both entities agreed to develop a technical cooperation program aiming to strengthen the exchange of experiences, knowledge and practices, and foster cooperative work for the promotion, development and unification of port development.
- 2.11 **Gender dimensions.** The share of women in the shipping sector remains low. Structural, cultural, and other barriers explain why few women work in the sector. Studies focused on gender include assessments to provide an overview of the status of gender equality in the maritime sector and bring part of the factual basis for the region's forthcoming strategy for equality in the maritime sector.
- 2.12 **Strategic Alignment.** This TC is aligned with the current IDB Group Institutional Strategy: Transforming for Scale and Impact (CA-631) and with the following objectives: (ii) address CC; and (iii) bolster sustainable regional growth with the development of low carbon shipping industry and the promotion of carbon shipping corridor. The Program is also aligned with the operational focus areas of: (i) biodiversity, natural capital and climate action; and/or (ii) gender equality; and/or (iii) institutional capacity, rule of law, and citizen security; and/or (v) productive development and innovation through the private sector; and/or (vi) sustainable, resilient, and inclusive infrastructure; and/or (vii) regional integration. The TC aligns with the ONE Caribbean-Partnering for Caribbean Development Framework (GN-3201-5), as it is directly in line with the climate adaptation and disaster risk management priority area and the cross-cutting area of strengthening institutions. It is also aligned with the Energy Sector Framework (GN-2830-8) by incorporating discussion and assessments on access to energy, sustainability, and energy security. Additionally, the TC is aligned with the Sectoral Frameworks of Transportation (GN-2740-12) when promoting mobility efficient, inclusive, sustainable and quality urban. The TC is also aligned with the Integration and Trade Sector Framework document (GN-2715-11) regarding the lessons learned from the synergy between CC and trade agendas. This TC is aligned with the Gender and Diversity Sector Framework document (GN-2800-13), as it will support a fair transition with the creation of equal opportunities for men and women.
- 2.13 This TC is also aligned with the Ordinary Capital Strategic Development Program for Infrastructure (W2B) (GN-2819-14) by promoting sustainable economic growth in the region by financing low-carbon infrastructure projects that can improve productivity,

¹⁰ [CIP, 2024.](#)

¹¹ [OAS, 2008.](#)

competitiveness, and social inclusion and providing technical assistance to help countries and companies identify, design, and implement infrastructure projects that meet the development needs in the Latin America and the Caribbean region. Finally, the TC is aligned with the One Caribbean: Partnering for Caribbean Development Framework 2024-2027, as it includes activities to strengthen the countries' response to climate adaptation, disaster risk management and resilience.

- 2.14 The proposed activities include the development of datasets and analyses together with capacity building and knowledge sharing to inform dialogues among relevant stakeholders in various levels of engagement, including (i) energy sector data collection; (ii) taking stock of regulatory gaps, what works or what accounts for policy-relevant effects in these areas; (iii) raising awareness on IMO's (International Maritime Organization) GHG reduction strategy and develop recommendations for its implementation; and (iv) reinforcing a realistic view of causality that supports timely action. Special consideration will be given to dimensions such as energy security of supply and efficiency, CC mitigation and resilience, private sector participation, digitalization and innovation, gender equality and social inclusion, and opportunities for tourism development and regional economic integration.

III. Description of Activities/Components and Budget

- 3.1 **Component I. Strengthening datasets (US\$160,000).** This component will finance analytical work to develop data collection mechanisms and datasets that would enable a continuous gathering of data relevant to types of fuels, energy use and efficiencies in the shipping and ports operations in the seven eligible ONE Caribbean countries that could be fed to open access energy data systems. The output from this component will be the creation of digital datasets for sharing information related to the sector.
- 3.2 **Component II. Clean energy demand and supply assessments (US\$130,000).** This component will finance studies and analytical work, including (i) the prospects of future demand of green fuels (e.g. GH₂ and derivatives) and shore power (cold ironing¹²); (ii) the corresponding prospects of required supply of renewable energy to meet the alluded demand; and policy recommendations for government authorities and stakeholders to coordinate actions collaboratively. The analysis would consider different scenarios and the main production and consumption hubs in the selected regions. The output from this activity will be reports and guidance documents.
- 3.3 **Component III. Communication and knowledge dissemination (US\$60,000).** This component will draw on international best practice to help design and facilitate (i) cross sectoral workshops with relevant stakeholders, including government entities, industry associations, and research centers; (ii) capacity building programs to assist key stakeholders advance in the decarbonization and climate-resilient agenda; (iii) policy and position papers; and (iv) dissemination events (with public and private sectors). It will also finance support for managing the TC implementation.
- 3.4 **Indicative Budget.** The following table provides the total amount of funding need to achieve the expected outputs by main component. The total cost of this TC will be

¹² Cold ironing for seagoing vessels and barges implies that a ship at berth uses shore power for the auxiliary engines instead of bunker fuel. This reduces emissions from the ships by a substantial margin, although the reduction in pollution occurs only when the ship is stationary at berth.

US\$350,000 which will be financed by the IDB Ordinary Capital (OC SDP Window 2-Infrastructure W2B).

Activity/Component	Description	IDB Funding	Total Funding
Component I. Strengthening datasets	Data collection mechanisms and platforms.	US\$160,000	US\$160,000
Component II. Clean energy demand and supply assessments	Assess the renewable energy future demand and supply for shipping in eligible countries.	US\$130,000	US\$130,000
Component III. Project management and knowledge dissemination	Cross sectoral workshops, capacity building, and dissemination activities.	US\$60,000	US\$60,000
Total		US\$350,000	US\$350,000

IV. Executing Agency and Execution Structure

- 4.1 To facilitate the development of this TC, the execution will be carried out by the IDB's Energy Division (INE/ENE) in coordination with the Transport Division (INE/TSP) and the Climate Change Division (CCS) per the beneficiaries' request, given the experience with the design and development of this type of initiative. The TC Unit of Disbursement Responsibility is based in Jamaica Country Office (CCB/CJA-Country Office Jamaica). Specifically, the IDB's team will have technical responsibility and will supervise the execution of this operation. This dynamic will: (i) facilitate proper articulation between the various actors within the technical dialogue framework of this TC; (ii) improve the dialogue in the ONE Caribbean countries; and (iii) avoid fiduciary management risks eliminating the need of a financial audit.
- 4.2 The proposal includes the letter of request for support from CSA and the No Objection letter from the country that hosts CSA (Annex I). However, if any activity takes place in other beneficiary countries part of this TC, the IDB will obtain a non-objection letter from the corresponding entity in the country before starting such activity.
- 4.3 **Procurement Policies.** All activities have been included in the Procurement Plan (see Annex III) and will be contracted in accordance with IDB policies as follows: (i) hiring of individual consultants, as established in the AM-650 standards; (ii) contracting of consulting firms for services of an intellectual nature according to GN-2765-4 and its associated Operational Guidelines (OP-1155-4); and (iii) contracting logistics and other related services, in accordance with policy GN-2303-33.
- 4.4 The execution and disbursement period for this TC is estimated to be 36 months.

V. Major Issues

- 5.1 There is a moderate risk of coordination delays due to multiple stakeholders and donors' active presence in the region. This will be mitigated through continued dialogue with IDB country-based specialists.

VI. Environmental and Social Strategy

- 6.1 This TC will not finance feasibility or pre-feasibility studies of investment projects associated with environmental and social studies; therefore, it falls outside the scope of the Bank's Environmental and Social Policy Framework (ESPF).

Annexes:

[Request from the Client_60305.pdf](#)

[Results Matrix_77250.pdf](#)

[Terms of Reference_44675.pdf](#)

[Procurement Plan_51789.pdf](#)