ENERGY SECTOR
POLICY AND STRATEGY

December 2022

CARIBBEAN DEVELOPMENT BANK

ENERGY SECTOR POLICY AND STRATEGY – 2022

DECEMBER 2022

CURRENCY EQUIVALENT

Dollars ($) throughout refer to USD unless otherwise stated.

ABBREVIATIONS

AF	-	Adaptation Fund
AR6	-	Sixth Assessment Report
ASERT	-	Accelerated Sustainable Energy and Resilience Transition
BESS	-	Battery Energy Storage
BMCs	-	Borrowing Member Countries
CARICOM	-	Caribbean Community
CARILEC		Caribbean Electric Utility Services Corporation
CCCCC		Caribbean Community Climate Change Centre (CCCCC)
CCREEE	-	Caribbean Centre for Renewable Energy & Energy Efficiency
CDB	-	Caribbean Development Bank
CDF		CARICOM Development Fund
COP	-	Conference of the Parties
CREEBC	-	Caribbean Regional Energy Efficiency Building Code
C-SERMS	-	Caribbean Sustainable Energy Roadmap and Strategy
DiMSOG	-	Disaster Management Strategy and Operational Guidelines
DRE	-	Distributed Renewable Energy
EE	-	Energy Efficiency
ESCO	-	Energy Services Company
ESG	-	Environmental Social and Governance
ESP	-	Energy Sector Policy
ESPS	-	Energy Sector Policy and Strategy
ESS	-	Energy Sector Strategy
EU-CIF	-	European Union-Caribbean Investment Facility
GCF	-	Green Climate Fund
GDP	-	Gross Domestic Product
GE	-	Geothermal Energy
GW	-	Gigawatt
GWh	-	Gigawatt-hour
IDB	-	Inter-American Development Bank
IDPs	-	International Development Partners
IEA	-	International Energy Agency
IPCC	-	Inter-governmental Panel on Climate Change
IPP	-	Independent Power Producer
IRENA	-	International Renewable Energy Agency
IRRP	-	Integrated Resource and Resilience Plan
LCOE	-	Levelised Cost of Energy
MDB	-	Multilateral Development Bank
MSME	-	Micro, Small and Medium Enterprise
MW	-	Mega watts
NDC	-	Nationally Determined Contributions
NZR	-	Net Zero Roadmap
OCR	-	Ordinary Capital Resources
OECS	-	Organisation of Eastern Caribbean States
OIE	-	Office of Independent Evaluation
OTEC	-	Ocean Thermal Energy Conversion

PV	-	Photovoltaic
RE	-	Renewable Energy
REVS	-	Regional Electric Vehicle Strategy
SDG	-	Sustainable Development Goal
SE4ALL	-	Sustainable Energy for All
SEU	-	Sustainable Energy Unit
SIDS	-	Small Island Developing States
SO	-	Strategic Objective
T&D	-	Transmission and Distribution
TA	-	Technical Assistance

TABLE OF CONTENTS

SECTION I

1. RATIONALE AND CONTEXT

RATIONALE

1.01 Energy is a critical input to virtually all aspects of modern life, and "s*ustainable development is not possible without sustainable energy*[1]". Therefore, Energy Sector Development is essential for the Caribbean Development Bank (CDB) to fulfil its mission of reducing poverty and transforming lives through sustainable, resilient and inclusive development in its Borrowing Member Countries (BMCs). Further, transformation of the energy sector in BMCs to one that is characterised by sustainable energy (SE) options is critical for them to achieve their sustainable development and climate change goals. Against this background, CDB, in 2014, included the objective of *increasing energy security* as a cross-cutting theme in its Strategic Plan, 2015-2019 (SP2015-19) with the promotion of renewable energy (RE) and energy efficiency (EE) as the overarching strategy for improving energy security in BMCs. Accordingly, the Bank in March 2015, developed an Energy Sector Policy and Strategy (ESPS-2015) with a priority focus on RE and EE.

1.02 This has guided its work in the energy sector with a degree of success, but (the ESPS-2015) is due for revision and updating given that the original implementation period was 2015-2019. This revision is particularly important considering that the ESPS-2015 was developed prior to some important global and regional developments. These include: (i) the establishment of the *2030 Agenda for Sustainable Development* (including the Sustainable Development Goals), (ii) the landmark *Paris Agreement*[2] under which BMCs have established *Nationally Determined Contributions (NDCs)* for carbon emission reduction, and (iii) increased focus on climate resilience linked to the observed increased frequency and intensity of extreme weather events, including hurricanes in the Caribbean. Further, the events of the COVID-19 pandemic (which commenced in 2020) and the war in Ukraine from the first half of 2022, have significantly affected countries, among other things presenting new energy sector challenges and opportunities. Also, it has been observed that some of the strategies to address barriers to the adoption of RE and EE options - which were identified in BMCs in 2015, have remained despite efforts to address them, requiring new or revamped strategies.

CONTEXT

1.03 The global developments (as well as issues emanating from same), along with the energy situation in BMCs, provide the context for the revision of the ESPS-2015 and help to identify the energy sector challenges and opportunities.

Global and Regional Developments: Challenges/Opportunities for the Energy Sector of the BMCs and CDB

(a) 2030 Agenda for Sustainable Development

1.04 The 2030 Sustainable Development Agenda along with the 17 Sustainable Development Goals (SDGs) were agreed upon by the United Nations General Assembly in September 2015. SDG-7: *"Ensure access to affordable, reliable, sustainable and modern energy for all"* addresses energy, with a focus on

[1] UN Secretary General Ban Ki Moon, at the launch of the Decade of Sustainable Energy for All (2014-2024), April 10, 2014.

[2] The Paris Agreement | UNFCCC

the promotion of sustainable energy (SE) or RE and EE and energy infrastructure. It is generally recognised, however, that having access to affordable, reliable, sustainable energy is a critical ingredient for achieving virtually all the SDGs, leading to the mantra "*there can be no sustainable development without sustainable energy*."

1.05 The articulation of SDG-7 (and the associated targets) has highlighted the importance of access to affordable sustainable energy options in poverty reduction efforts, as well as the importance of sustainable energy (RE and EE) and electricity infrastructure (which also invoke the need for improved resilience). The implication is that going forward, CDB must increase efforts to ensure that all citizens of BMCs are provided with full access to affordable electricity based on RE and EE, while ensuring that adequate attention is placed on the promotion of reliable and resilient electricity infrastructure.

(b) Paris Agreement and findings of the IPCC 6th Assessment Report, 2050 Net-Zero drive

1.06 The Paris Agreement was adopted in December 2015 at the 21st meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) where it was agreed to substantially reduce global greenhouse gas (GHG) emissions, to limit the global temperature increase in this century to 2^0C above pre-industrial levels – while pursuing efforts to limit the increase even further to 1.5^0C. Implementation of the Agreement is also essential for the achievement of the SDGs. Every 5 years, each country is expected to submit an updated National Climate Action Plan in the form of the NDCs, to communicate the actions they will take to reduce their GHG emissions and enhance resilience in line with the goals of the Paris Agreement. In addition, the Inter-governmental Panel on Climate Change (IPCC[3]) finalised its **Sixth Assessment Report (AR6)** from its three working groups[4] in 2021 and 2022. AR6 concluded that: "g*lobal carbon emissions have continued to rise – albeit at a slowing rate – and it will be "impossible" to stay below 1.5^{0}C with "no or limited overshoot" without stronger climate action* ***this decade***". Also, "*emissions cuts could be achieved, through "substantial" reductions in fossil fuel use, EE, electrification, the rapid uptake of renewables – and the use of alternative energy carriers, such as hydrogen"*.

1.07 Since the Paris Agreement, and over the last few years culminating at the COP26 (held in November 2021), the international community has rallied around a Net-Zero (NZ) carbon emission by 2050[5] objective as a global de-carbonisation strategy. It is now widely accepted that achieving the Net-Zero-2050 target requires nothing short of a total transformation of the energy systems that underpin economies globally. This, given that "the energy sector is responsible for almost three quarters of the emissions". Both the International Energy Agency (IEA) and the International Renewable Energy Agency (IRENA) point to the fact that the already emerging shifts in the energy sector will usher in a ***new energy economy***[6] based on RE and green products for power generation, transportation, and heavy industrial

---

[3] The IPCC provides regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation. Sixth Assessment Report — IPCC

[4] **Working Group I** deals with the Physical Science Basis of Climate Change, **Working Group II** with Climate Change Impacts, Adaptation and Vulnerability and **Working Group III** with Mitigation of Climate Change. Sixth Assessment Report — IPCC

[5] Net-Zero deep de-carbonisation does not necessarily mean every country must reach full GHG neutrality. It does require, however, that each region and sector emissions trajectory be guided by the goal of carbon neutrality. Some regions and sectors may not go to zero, but this would imply that other regions and sectors go to net-negative to compensate for them. From a scenario design perspective, this means going beyond optimisation under a carbon constraint and instead, focusing on the assessment of maximum feasible action in each sector and the identification of key country-driven transformations to achieve these emission reductions or sink enhancement. The core strategies of Net-Zero deep de-carbonisation are well known: reduce non-welfare enhancing demand, improve energy and material efficiency, de-carbonise energy carriers and material inputs and switch end-uses to them, and direct GHG reductions through land use and technical negative emissions processes. However, the challenge is to define country-driven strategies implementing these broad transformations, in a way consistent with national circumstances.

[6] World Energy Outlook 2021 – Analysis - IEA

processes. The declaration by the UN that 2021-2030 is the **Decade of Action** (being the last opportunity to meet SDGs and limit global warming to 1.5°C), coupled with the findings from the IPCC AR6[7], underpin the urgency for actions reflected at COP26.

1.08 The term '***the energy transition'*** is now widely used to recognise de-carbonisation of the energy sector and the radical shift towards RE which must be adopted by *all* countries to achieve the Net-Zero carbon emissions target in 2050 (NZE-2050). This includes Small Island Developing States (SIDS) like the CDB BMCs, even though, the main rationale for them to switch to RE and pursue EE is to address their lack of energy security (linked to over-dependence on imported fossil fuels), given their miniscule carbon emissions.

1.09 Net-Zero Roadmaps (NZRs): To guide policymakers and identify gaps in technology requirements, guide innovation, and ultimately provide greater clarity around the options to achieve NZE-2050, many international organisations including IEA and IRENA, have developed roadmaps charting pathways to achieve the targeted carbon emissions reduction. These provide insights into likely opportunities and challenges in the global energy transition for countries, including CDB's BMCs.

1.10 These NZRs include that: (i) EE will play a critical role, (ii) RE[8] will be the backbone of the transition (led by solar photovoltaic (PV) and wind capacity, with a significant role for bio-energy, (iii) there will be massive electrification of end-uses (including cooking, and industrial heating), (iv) energy systems will be increasingly complex, (v) a rapid phase out of fossil fuels will be necessary (requiring a speedy regulatory response), (vi) there will be an unprecedented scale-up of disruptive technologies in transport (led by electric vehicles), and (vii) green hydrogen will become a main energy commodity (strongly impacting the growth in solar and wind). Going forward CDB will need to consider the projections and conclusions of internationally recognised NZRs to reflect opportunities for CDB's support to BMCs. These are discussed later.

(c) Increased focus on Climate Resilience

1.11 The negative effects of frequent and intense hurricanes, which have been particularly pronounced since 2017, have heightened awareness and strengthened resolve among BMCs to enhance resilience against climate change impacts. For the energy sector, it will be particularly important to harden electricity infrastructure against extreme weather events. Efforts to enhance resilience should also emphasise investments in RE given their ability to facilitate greater modularity, flexibility and distribution. Furthermore, BMCs will have to grapple with other climate change impacts in the energy sector, including increasing average annual temperatures (which will affect energy demand), more frequent and intense extreme precipitation events (which will increase flooding risk) and declining annual average precipitation (which will affect hydro-electric power generation in BMCs that currently utilise such resources). CDB's support to BMCs will have to account for these considerations and respond to these needs. The Bank will therefore have to increase its focus on enhancing the resilience of the electricity system and energy systems (in general).

(d) COVID-19 pandemic and wide-scale impacts

1.12 Among other things, the COVID-19 pandemic, which started in March 2020, reduced the capacity of the Governments of CDB's BMCs to invest in RE and EE. This was mainly due to reduced fiscal space and increased debt burdens arising from the need to strengthen health care systems, including vaccine

[7] Described as 'code red for humanity' by the UN Secretary General

[8] Geothermal energy is highly site specific and not yet scalable; hence considered to have limited contribution to the large global target but is critical for countries that possess GE resources.

supply and administration, enhance the online teaching capabilities of the education sector and financially support individuals and businesses.

1.13 The impact of the pandemic on BMC economies is likely to be protracted especially for the services-based economies[9], requiring that innovative approaches be developed and pursued to facilitate RE and EE investments in the public sector, such as through energy performance contracting using public-private partnership approaches. In addition, the pandemic has caused supply chain disruptions resulting in increased costs for international marine transportation. This, coupled with the observed supply-shortage of critical minerals required to produce various RE technologies, has resulted in increasing technology prices and delayed and lowered production output since the last quarter of 2021. These issues represent potential future risks, linked to market disruptions, and point to the need for BMCs to expedite the pace of their own transition.

(e) Impact of the Russia – Ukraine war

1.14 Arising from the threat of invasion of Ukraine by Russia since December 2021 and an actual invasion in February 2022, there has been a disruption in the oil and gas supply/demand balance resulting from international sanctions on Russia (global oil supply-demand balance was already tight due to under-investments). The sanctions have affected fuel supply, as well as the supply of grains and fertiliser from the country. Global price spikes in commodities are having negative effects on the fiscal positions of BMCs due to direct price impacts and the need for them to provide additional resources for social interventions.

1.15 It may be argued however, that one of the most profound impacts of the war has been the negative effect on the energy security situation in Europe, linked to the disruption in the supply of hydrocarbon-based energy (crude oil and natural gas) from Russia to Europe. The response to this has threatened to slow the transitioning away from fossil fuels. For example, natural gas supplies from Russia to Europe which stood at 41% in 2019[10] was reduced to only 7.5%[11] during the first week of October 2022, triggering shortages, massive importation of liquified natural gas from global markets and record price spikes up to 300% at its peak. In response, several EU countries announced the emergency restarting of coal-fired plants and removal of production caps, and globally this has triggered delays in plans for the retirement of coal plants. One possible lesson from the deterioration of the EU's energy supply security situation, is that keen attention should be paid to maintaining energy security even as countries seek to transition to RE.

1.16 For the Caribbean countries that depend heavily on imported fuel, the disruptions should provide new impetus to accelerate their transition to RE. It should also serve as a lesson for the Region to re-evaluate the role of the indigenous hydrocarbon production (from Guyana, Trinidad, and Suriname) in contributing to the Region's energy security, even as they remain steadfast in their efforts for transitioning to RE.

[9] The impact may be less protracted for commodities-based economies than for those that are tourism-based. In some cases, commodities-based economies also benefit from higher commodity prices due to the Russia-Ukraine war.
[10] EUROSTATS
[11] New York Times

THE ENERGY SITUATION IN BMCs

Current Economic Development Context in BMCs

1.17 Although CDB BMCs have achieved key development milestones in the post-independence era, including relatively high human development and middle-to-high-income status, they continue to face significant socio-economic and climate change challenges. These include low and variable economic growth; weak fiscal management and unsustainably high debt levels; high unemployment; high incidences of non-communicable diseases; vulnerability to the effects of geo-physical and climate change related hazards; environmental degradation; crime and increasing threats to citizen security; and persistent and extreme poverty and food insecurity – most with distinctive gender imbalances. Many of these challenges reflect chronic structural weaknesses. However, these challenges were compounded by the impacts of the COVID-19 pandemic, including the scarring that will result from business closures, loss of learning opportunities and lower investment.

1.18 In mid-2022 there were indications of strong signs of rebound in activity, particularly relating to the rapid return of international visitor arrivals in many tourism-dependent BMCs. However, the Region was still struggling to recover to 2019 levels in terms of visitor arrivals and national income. The Bank projects that even as the BMCs emerge from the pandemic in 2022, they face multiple headwinds to growth and development due to their existing debt overhang and the residual supply chain disruptions that are being compounded by the Russia-Ukraine conflict.

1.19 The war in Ukraine accentuated the strong rise in commodity prices that had started with the easing of the COVID-19 lockdowns and the related pick-up of economic activity pushed some commodity prices to record levels. In 2022 commodity prices are expected to increase on average 21% from record levels reached in 2021, with energy prices forecast to increase by 55% and agricultural prices by 15%[12]. While partly beneficial for hydrocarbon-based energy producers in the Region, the upward spiral in commodity prices threatens to destabilise regional growth prospects and pass on greater welfare loss to poor and vulnerable persons, in the form of rising costs of food, transport, and energy. With families struggling to meet basic food and energy needs, some governments in the Region started to subsidise electricity and fuel, while others increased already existing subsidies. When the impact of the war is layered on top of the negative impacts of the COVID-19 pandemic, a critical fiscal situation emerges which limits the ability of the Governments of BMCs to invest in RE and EE options. The economic and social vulnerabilities of most BMCs, which are over-reliant on imported fossil fuels, highlight the need for shifting to greater use of indigenous RE sources.

The State of the Energy Sector in BMCs

1.20 After seeking to address the situation for more than a decade and a half, the overarching energy sector challenge for most CDB BMCs remains a *lack of energy security* rooted in their over-dependence on imported fossil fuels. This, despite all BMCs developing energy policies and pursuing reforms of their Legal and Regulatory Frameworks (to varying degrees) since 2015. (*See Appendix I for a summary of the progress by BMCs in RE penetration and Policy and Regulatory Framework*).

1.21 In 2019, BMCs imported more than 85% of their commercial energy supplies at an approximate cost of USD8.2 billion representing about 8% of their combined GDP and about 150% of their combined

[12] United Nations Economic Commission for Latin America and the Caribbean, Economic Survey of Latin America and the Caribbean 2022: trends and challenges of investing for a sustainable and inclusive recovery (cepal.org), accessed on September 1, 2022.

food import bill. Electricity prices across most BMCs remain among the highest in the world averaging about 3 times the average prices in the USA. (See Appendix 1 section 3) This is due to a combination of several structural factors[13] including: small market size, the preponderance of the use of diesel generation technology (representing the most inefficient technology and the most expensive fossil fuel option for power generation), and the prevalence of vertically integrated monopolistic structures of the electric utilities.

1.22 The over-reliance on imported *price-volatile fossil fuels*, and the associated *high cost of electricity* lie at the root *of energy price instability* and many *macro-economic and social challenges.* As examples: the high fuel import bill is a source of stress on the foreign exchange reserves of most BMCs, while the high cost of electricity is a key cause for a lack of economic competitiveness. The high energy cost (electricity, transportation and cooking fuel) undermines their overall economic growth potential, and in particular their poverty reduction efforts. The latter, because inflationary impacts from oil price spikes and the associated energy cost also disproportionately affect the poorer segments of the populations' women. This is so because the poor spend a higher share of their disposable income on energy, and given the high proportion of poor female-headed households. The high degree of significance of Micro, Small and Medium Enterprise (MSMEs) in the Region's economic development also makes the BMCs more vulnerable to high energy prices as MSMEs are less financially resilient than bigger firms, have lower pricing power during inflationary periods and generally have less capacity to deal with volatility in the prices of their input factors. Further, the high energy costs result in a significant share of governments' budgets being allocated to meet energy bills (transportation fuels and electricity bills), thereby diverting resources from important social sectors like education, and the health care sector– thus undermining the governments' ability to effectively respond to crises like the COVID-19 pandemic.

1.23 The diesel generation fleets in many BMCs are aged and inefficient despite some replacements over the last six years[14]. Also, operational efficiencies are low due to the need to maintain high spinning reserves to achieve minimum reliability criteria, and high and rising system losses (as high as 32%[15]) in some countries, driven by a rising incidence of electricity theft. Similarly, the transmission and distribution infrastructures in many BMCs are aged and need upgrading and modernising to meet smart and flexible functionalities to facilitate quantum increase in RE penetration. In addition, the electricity grids across BMCs are quite vulnerable to natural hazards and there is an urgent need to radically increase resilience on many fronts.

1.24 Although improved, sector governance is still very much below expectations, with a few utilities still being operated as government departments, and the Regulatory Frameworks in many countries being not fit-for-purpose to drive the transformation required and to unlock the needed private investment. Only two BMCs (Jamaica and Barbados) are considered to have developed and implemented coherent policies, and legislative and Regulatory Frameworks (with relevant instruments) to a level which is close to being suited for their markets and which could facilitate the incentivisation of private investments necessary to achieve 2030 targets. It has also been observed that there are many instances where additional RE capacities are not pursued in a transparent and competitive manner, which often leads to BMCs not achieving best value for money, protracted negotiations and/or stalled projects (because the investors are unable to close financing). While there have been some improvements in the capacities in government to manage and administer the sector since 2015, these need to be significantly ramped-up to facilitate a scaled and rapid transition. See Appendix I for a summary of the status of Sector Policies and Regulations across BMCs.

[13] Typical of Small Island Developing States – hence they exhibit similar electricity price profiles.

[14] CARILEC: http://www.carilec.org

[15] CARILEC: http://www.carilec.org

1.25 In addition to CDB's thrust in the promotion of SE development through the ESPS-2015, there are some other notable developments especially at the regional level which have served to improve capacity and enabling Frameworks and have laid the basis for increased RE/EE/Electricity Infrastructure (EI) investments. These include: (i) the establishment of the *Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE)* by the Caribbean Community (CARICOM) heads of Government in 2016 (operationalised in 2018) to, among other things, strengthen human and institutional capacity for RE and EE, support to project preparation, and knowledge management, (ii) establishment of a *CARICOM Regional Energy Efficiency Building Code (CREEBC)*, (iii) adoption by countries of the Integrated Resource and Resilience Planning Methodology as a common approach for electricity sector planning, which also takes account of resilience issues (about half of CDB's BMCs have already elaborated *Integrated Resource and Resilience Plans (IRRPs)* or are in the process of elaborating the same), and (iv) BMC Governments, the electric utilities and other key Energy Sector Stakeholders have now all accepted and articulated commitments and support for the critical role of RE/EE in the energy matrix going forward.

1.26 Notwithstanding this, and that BMCs have vast RE potential in the form of solar, wind, geothermal, hydropower, bioenergy[16], and marine RE resources, that could deliver electricity at unit prices below fossil fuel options, and with very attractive returns for RE/EE investments[17], the progress however, towards transitioning their energy sectors, has been extremely slow. This is seen from the rate of RE penetration at the regional level. Starting from a base of 8% in 2012, CARICOM regional targets for RE capacity for electricity were established by Energy Ministers in 2013 as 20% by 2017, 28% by 2022, and 47% by 2027 (or extrapolated to 55% by 2030)[18]. At the end of 2020, the RE penetration was approximately 12% (or ~700 MW), well below the 2017 target, and based on the current trajectory, the 2022 and 2027 targets will be missed by very far margins. *To achieve the target RE capacity in 2030 the penetration level (% and capacity) must increase four-and-a-half fold, and the rate of RE capacity installation per year must increase about fourteen-fold, requiring more than US$1.25 billion per year over the next 8 years.*[19]

1.27 This represents a **massive scale** of RE investment to be made at an unprecedented **rapid pace** by BMCs up to 2030. In this context the energy transition situation can now only be described as **urgent,** requiring immediate action to crowd-in enormous private sector investments while being sensitive to social inclusion.

STRATEGIC FRAMEWORK FOR CDB ENERGY SECTOR POLICY AND STRATEGY

1.28 From a global perspective the ESPS is revised and updated (ESPS-2022) within the Frameworks of the 2030 Sustainable Development Agenda (with SDGs, particularly SDG7), and the Paris Agreement. The *CARICOM Energy Policy and Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS)* provide the Regional Level Framework which also guides National Energy Policy Frameworks. At the level of the Bank, the Strategic Plan Update 2022-2024 (SPU22-24) provides an overarching Framework, within which the ESPS is developed, therefore the ESPS-2022 is aligned with key Policies[20] of the Bank and by extension the Bank's Country Engagement strategies.

---

[16] Mainly confined to mainland BMCs.

[17] Against the backdrop of the prevailing high electricity prices and declining prices of RE technologies.

[18] CARICOM Secretariat: www.caricom.org

[19] Based on preliminary estimate by CDB.

[20] These include: the Climate Resilience Strategy 2019-2024, the Disaster Management Strategy and Operational Guidelines-2021 (DiMSOG), the Gender Equality Policy and Operational Strategy-2019 (GEPOS) and the Private Sector Development Policy and Strategy 2017. This latter Policy and Strategy delineate the Bank's engagement with the private sector which is considered a critical part of the focus going forward. The Private Sector Development Policy and Strategy was under review during the development of the ESPS-2022. Notwithstanding, the energy-related private sector issues and potential private sector policies/strategies were discussed and broadly taken into consideration.

1.29 The SPU22-24 provides a holistic view of sustainable development challenges with a broadened view of resilience, encompassing social, production, environmental, financial and institutional dimensions[21]. In this context, the Bank has also articulated that without addressing resilience, it is not possible for the BMCs to achieve their SDGs, and that addressing resilience requires innovation. Energy sector objectives and developments are relevant to at least four of the resilience dimensions and hence to the ability of the BMCs to achieve their SDGs. A robust, sustainable and resilient energy sector is therefore necessary for BMCs to achieve their SDGs.

1.30 Notwithstanding that the overarching energy sector issue is a lack of energy security and that the contributions of BMCs to the global stock of GHG are very small, it is recognised that the energy sector transition is vital to helping BMCs fulfil their NDCs. Scaling up funding for investments to build the energy sector's resilience is also important, given the high vulnerability to climate-related hazards. Therefore, the ESPS is considered as a tool to strategically position the Bank to leverage opportunities for climate adaptation and mitigation. Hence, the ESPS aligns with the environmental resilience pillar of the SPU-22-24.

CDB's PERFORMANCE IN SUSTAINABLE ENERGY 2015-2019

Summary of CDB's Funding Operations and Activities in the Energy Sector

1.31 Over the implementation period of ESPS-2015, CDB (then as a new actor in the SE space) made a notable contribution to the funding of SE Projects (including electricity infrastructure) with approval of over USD187.8 million in Loans and USD43.2 million in Grants to support 54 SE interventions, in the form of Technical Assistance (TA) and Investment Projects (see Appendix II). The total value of the energy Projects approved, represented 14.1% of the Bank's total approval for the period. Most of the investment funding was approved for EE and electricity transmission and distribution (T&D) systems[22]. Energy savings of 23.5 GWh were achieved from EE interventions when compared with the target of 20 GWh. This was mainly from streetlighting retrofits, benefitting over 2 million BMC residents. Approximately 268 km of transmission and distribution lines were installed or upgraded, exceeding the target of 130 km benefitting 43,000 persons. The Bank, however, only achieved 15% of the target of 8.5MW for installed RE capacity. The Bank supported 15 capacity building interventions across BMCs benefitting approximately 800 persons, of which approximately 18% were females. The performance in relation to the RE target was due mainly to the fact that the pipeline was heavily skewed to private sector operations which did not materialise. Typically, such Projects are implemented as Independent Power Producers (IPPs) using 'Project Financing' or Non-recourse Financing through a special purpose vehicle, and may be considered to a have higher risk profile. It was deemed not feasible for the Bank[23] to fund these types of Projects. In the area of collaboration, the Bank established itself as a leading Partner for SE in the Region (see Appendix III for a summary list of CDB Partners in SE). A key challenge for CDB (especially in the latter part of the review period) has been the high level of competition from other financial institutions active in the Region including traditional and new players, to the extent that some RE Projects in CDB's Project Pipeline found alternate sources of funding.

Lessons for CDB from its Energy Sector Interventions 2015-2019 to inform ESPS-2022

1.32 Some important lessons derived from the Bank's Energy Sector Interventions 2015-2019 and engagements have been identified through a self-review by CDB's Sustainable Energy Unit (SEU) and

[21] Also includes cross-cutting themes of innovation, regional cooperation and integration, gender equality, and good governance.
[22] T&D infrastructure as part of SE infrastructure. Strictly speaking, SE is used to refer to RE (generation) and EE. However, T&D infrastructure may be considered a critical part of a sustainable grid/system.
[23] In part due to the evolved Risk Management Framework of the Bank over the period, in response to the external environment.

through an independent evaluation by CDB's Office of Independent Evaluation (OIE) of ESPS-2015 undertaken in 2021.

1.33 Selected lessons for CDB as observed from the SEU's analysis, include that:

(a) *The Bank's funding instruments and appetite for supporting private sector SE Projects (especially in the form of IPPs), are too limited.* This issue is considered to be the single most inhibiting factor to CDB's funding of RE/EE Investment Projects which were presented over the period. Going forward, success in the funding of private sector IPP Projects will be linked to the outcome of the Bank's repositioning of its Private Sector Strategy.

(b) *Despite various interventions over the years, weaknesses in the enabling Frameworks of BMCs remain the single most important barrier to wide-scale private sector RE investments.* Therefore, there remains a need for supporting BMCs in reforming their electricity supply legislations and establishing robust regulations and incentives. Such reforms will include revision of primary and secondary Legislations in some BMCs to remove exclusivity over generation by the incumbent utilities, and the establishment of clear rules for participation of private RE generators, including pricing mechanisms, and inter-connection. The Bank considers that this area of strengthening Regulatory Framework is one that is suitably placed to provide strong leadership to change the status quo. This, given its work across BMCs providing insights into the extent of the challenges in country, and lessons about strategies and instruments which show potential for success.

(c) *The need for increased resilience of electricity systems is a critical dimension of the energy sector transition and there are strong expectations that CDB will expand its role in this area.* While CDB has played a key role in facilitating dialogues around increasing resilience in the electricity sector and has funded some resilient infrastructure, the greatest need is for provision of concessional resources for Investment Projects.

(d) *There is significant supply-side competition in the SE development financing space in most BMCs*[24]. Therefore, CDB must leverage its comparative advantage as well as to mobilise concessional financing to increase its impact as a financier across BMCs.

(e) *Leveraging partnerships is increasingly more important as a tool* to achieving more impactful results in view of the need for increased scale and pace. Also, there are opportunities for closer coordination with other Multilateral Development Banks (MDBs) and Development Partners. This remains a relevant means of overcoming capacity constraints within the Bank, serving also as a strategy for spreading risks and crowding-in of resources.

(f) *Increased attention needs to be placed on gender inclusiveness and equitable access to RE/EE resources.* The energy sector remains one of the least gender-diverse sectors globally and in the Caribbean region. Although disaggregated data is limited, the indications are that the situation has not changed much over the last decade. Also, there is a risk that citizens in the lower income categories in BMCs may be left behind, in terms of their ability to access funding for, or being able to integrate RE/EE options in their facilities. These persons are also most vulnerable to spikes in energy prices given that a disproportionately large share of their income is spent on energy. Therefore, going

[24] The matter of a limited absorptive capacity of some BMCs has been deemed to be a factor, impacting flow of CDB financing.

forward, it is necessary to pursue inclusive, equitable and innovative approaches to create or expand opportunities for the participation of women and vulnerable segments of the market.

Summary Findings from the Evaluation of the ESPS by the Office of Independent Evaluation

1.34 The OIE conducted an evaluation of the ESPS-2015 and the Bank's interventions in RE/EE over the period 2015-2019. The report identified that CDB's continued priority focus on energy is relevant, and there is a need for CDB to increase its role in donor coordination, place greater emphasis on strengthening enabling environments (sector governance in general), increase focus on gender equality, and for crowding in private investment. The outputs have been used to inform this revised ESPS. The key findings of the report are summarised in Appendix IV.

OPPORTUNITIES FOR SUPPORTING BMCS IN THEIR ENERGY SECTOR TRANSITION

Opportunities Identified During Stakeholders' Engagements

1.35 In seeking to identify opportunities for CDB to support the energy sector development of BMCs, the Bank conducted a Sector Baseline Assessment across BMCs and engaged key Energy Sector Stakeholders which included Governments of the BMCs (ministries and agencies), electric utilities, private investors, regulatory agencies, energy associations, regional agencies, MDBs and Non-borrowing Members of CDB. As part of this process, surveys and regional consultative Workshops were conducted. Some of the main points of feedback gleaned by the Bank included that: (i) CDB's role of coordination of efforts among Partners remains relevant, and working with CCREEE in this regard is important, (ii) there remains a strong need for TA support for assessments, project preparation, capacity building and strengthening of the enabling Framework for private investment, (iii) there remains a strong need for concessional funding, (iv) there is a need for increased visibility of CDB interventions especially among policy makers, (v) there is need for flexible and fit-for-purpose approaches, and (vi) the areas of distributed generation (DG) solar, BESS, off-shore wind, e-mobility and geothermal energy (GE) remain important. Appendix V shows a sample of feedback from key stakeholders.

Opportunities Linked to the Global Net-Zero Thrust, and Resilience Building in the Energy Sector

1.36 The case for BMCs (based on the risks in international oil markets) to make a rapid transition to RE to improve their energy security, is a sufficiently compelling one. This has been underscored by the impact of the Russia/Ukraine war. However, there are two developments regionally and internationally, which have the potential to further motivate and expedite actions across BMCs (beyond the current pace). These are respectively:

(a) the intensification of the global drive towards de-carbonisation and the achievement of Net-Zero emissions by 2050; and

(b) strong recognition by BMCs of the need to increase resilience across the board (including social, economic, financial, institutional, and environmental, and for the energy sector) to make progress towards the SDGs.

1.37 The global thrust for de-carbonisation towards achievement of carbon neutrality by 2050 is fraught with challenges, however it also presents opportunities for the energy transition in CDB's BMCs[25]. The following areas have been identified in NZRs as providing huge opportunities for the energy transition:

(a) ***Energy Efficiency****:* The IEA Net-Zero Roadmap (NZR)-2050[26] contemplates a major worldwide push to increase EE "resulting in the annual rate of energy intensity improvements averaging 4% to 2030 – about three times the average rate achieved over the last two decades"[27]. There are opportunities to build awareness and support the strengthening of policy and Strategic Frameworks in BMCs to take advantage of the shift. A proactive approach will go a long way in ensuring that their markets do not become dumping grounds for old inefficient technologies from the markets of developed countries. There are also opportunities for CDB to incentivise use of the approved Regional EE Building Code by the BMCs, and the Minimum Energy Performance Standards for Lighting, Air Conditioning and Refrigeration Equipment (under development), as well as a Regional EE Strategy which addresses the wide range of Caribbean appropriate EE options and approaches.

(b) ***Solar and wind are key options in all Net-Zero Roadmaps:*** Global trends show rapid development of solar and wind energy technologies. The global weighted-average *levelised cost of energy (LCOE)* of utility-scale solar PV fell by 88% between 2010 and 2021[28] . In addition, efficiency of the technologies has improved, resulting in increased yields. The Global Weighted-Average Cost of electricity from onshore wind Projects fell by 56%. For offshore wind, the global weighted-average LCOE of newly commissioned Projects declined from 50% to US$0.084/kWh over the period 2010 to 2018[29], well below the current average Tariff across BMCs of US$0.25/kWh. There is now a major push globally for Offshore Wind Projects given the quantum impacts to be derived from these installations.

In general, solar and wind represent the two RE technologies available in all CDB BMCs and have the potential to make the largest contributions in their energy transition. In some BMCs, these options represent the easiest sources of RE to develop. While solar PV[30] is being pursued in all BMCs, the onshore wind option has met significant challenges, particularly with public acceptance, in many countries except Jamaica (which has the largest installation) and St Kitts and Nevis. However, offshore wind may provide a solution to the challenges given and the large exclusive Economic Zones of the countries. A recent Inter-American Development Bank (IDB) and CDB Study[31] of offshore energy potential, reported an estimated offshore wind energy potential exceeding 200GW in

---

[25] Also, the de-carbonisation/Net-Zero momentum (which will increase closer to 2030) provides an opportunity for SIDS like CDB's BMCs to lead by example on responding to the climate issue, which is an existential one for them, by transitioning their energy sector to RE/EE. In so doing they would further bolster their moral authority in the International Community. In addition, there are potential opportunities for economic diversification through the production of new green industries and jobs, and the achievement of improved energy security. This could also support economic and social recovery from the pandemic over the long-term.

[26] https://www.iea.org/events/net-zero-by-2050-a-roadmap-for-the-global-energy-system

[27] https://www.iea.org/reports/world-energy-outlook-2021

[28] Renewable Power Generation Costs in 2021 (irena.org)

[29] Renewable Power Generation Costs in 2021 (irena.org)

[30] The issue of forced labour in the solar PV supply chain has emerged as an area of concern globally, over the last two years and CDB and BMCs will need to stay abreast of the developments and adopt certifications (when developed) while in the interim seeking to mitigate any risks inadvertently funding products emanating from forced labour.

[31] https://publications.iadb.org/publications/english/document/Ocean-Energy-in-the-Caribbean-Technology-Review-Potential-Resource-and-Project-Locational-Guidance.pdf

CDB's BMCs. There is sufficient technical offshore wind potential in the Caribbean to meet the energy needs of its BMCs. Also, offshore wind can provide the potential for excess energy which can power production of green commodities such as hydrogen and ammonia for export, thereby facilitating the diversification of BMC economies. Solar is the most accessible RE technology for BMCs, however, the issue of the large footprint required, especially for utility scale Projects is a hurdle that must be actively managed. It is considered that there will be an increased role for distributed energy systems in the form of rooftop installations providing financial benefits to MSMEs and domestic consumers. This growing industry will need to be supported by effective Regulatory Frameworks and appropriate financing models – some of which are being considered by CDB.

(c) ***Battery Energy Storage Systems (BESS) are projected to play a crucial role in NZR-2050***[32] to mitigate the impacts of variability associated with solar and wind installations. BESS and other energy storage options (such as redox flow batteries, flywheels and pumped hydro storage) can improve stability and provide other benefits such as reducing losses and deferring investments in small electricity grids. Storage is also a key dimension of improving resilience of systems for micro/mini-the use of BESS on the back of improvement in technology and declining prices, however the uptake of BESS in BMCs has been slow. There are opportunities for CDB to support utilities, by encouraging early investments over the next 2-3 years, allowing these small electricity systems in the Caribbean to be ahead of the predicted global rush for such systems by 2030 and beyond[33].

(d) ***Electric Mobility (E-Mobility) is key in the IEA NZR-2050***[34] which requires 60% of global car sales to be from Electric Vehicles (EVs) by 2030, with no new passenger cars running on internal combustion engines (ICEs) sold globally from 2035 onwards. Globally, EV stock has tripled since 2017 to surpass 11 million in 2020. Many leading vehicle manufacturers have already made public statements in relation to the aforementioned change in trajectory. At the regional level, CARICOM has developed a Regional Electric Vehicle Strategy (REVS), with the purpose of guiding Member States in developing their own electric mobility transition strategies. Across BMCs, the transition requires changing infrastructure, policy and regulations to incentivise the transition, starting with the public sector and public transportation. Barbados has made significant strides in its National Electric Vehicle Strategy, with a strong public sector initiative (procurement of public buses and other fleets) being pursued, as well as significant private sector uptake based on fiscal incentives, leading to Barbados having the largest EV stock in the Caribbean. Jamaica has also advanced a Strategic Framework for E-mobility and has provided fiscal incentives in the 2022 budget. Other countries have also started to provide some fiscal incentives.

Transition to electric mobility has the potential to provide a new load and source of revenue for utilities and support grid stability, however, it also requires new financing instruments and capacity building to ensure transition of the ICE workforce. In addition, the transitioning of public sector fleets represents an early potential for CDB's support, by providing technical assistance and financing for the electric vehicles and charging infrastructure. It is recognised however, that the electrification of transport where the energy source for electricity generation is not based on RE, will not advance the objective

[32] Net Zero by 2050: A Roadmap for the Global Energy Sector - Event - IEA
[33] A strategy to promote and fund battery storage will need to also address safe disposal of retired battery systems.
[34] World Energy Outlook 2021 – Analysis - IEA

of the transition. Therefore, at a minimum, both the electrification of transportation and the replacement of fossil fuel generation need to be pursued in locked steps.

(e) ***Green Hydrogen*** is hydrogen produced from RE sources and will be a key pillar of the global de-carbonisation strategy reflected in all NZR-2050[25], where its demand will grow six-fold from 2022 levels to meet 10% of total final energy consumption. Green Hydrogen is projected to play a significant role in hard-to-electrify heavy fossil fuel users such as, *shipping, aviation, heavy industry, and trucking*. Today, more than 25 Governments have publicly announced they are working to develop strategies, and hydrogen and ammonia are expected to start to emerge as fuel inputs to electricity generation by around 2030, as part of the new and emerging energy economy. Where countries have the potential to generate excess energy this can be used for green commodities production e.g., hydrogen and ammonia. Geothermal energy (GE) in the Eastern Caribbean countries and offshore wind in most BMCs, are two key potential RE resources targeted to play a huge role in green commodities production thereby diversifying their economies.

(f) ***Geothermal Energy Development:*** GE[35] as an RE option is highly site-specific when conventional approaches are utilised and has a relatively small contribution to the current global energy mix (0.3%) as well as for 2050[36]. The scalability of the resource is constrained[37], being confined mainly to areas which are volcanic in origins. Where the resource exists, however, it can be transformative in the local context owing to its often-large size relative to the local electricity demand. Further, GE has significant advantages over variable RE options such as solar and wind, including that it is a base-load option, providing power for 24-hours every day, rendering it capable of directly displacing diesel generation. Eastern Caribbean countries with volcanic origins have huge potential resources which, if developed, could transform their economies.

In the context of the global de-carbonisation thrust, the GE potential has taken on new and critical importance because of its potential to provide excess energy (beyond the local demand), to support green commodities production and open new economic opportunities for countries with GE resources potential. Also, the use of GE heat for a range of productive and recreational services including, domestic heating, refrigeration, industrial processes, aquaculture, public baths and pools, provides benefits outside of power generation. The cost for GE technologies is expected to continue to drop through 2050[38] (IRENA, 2017). Therefore, the de-carbonisation thrust provides new impetus of CDB's BMCs with GE potential to not only continue to pursue development for domestic markets, but to also target excess energy production, allowing them to tap the global green commodities trade[39] and in the process diversify and transform their economies. Going forward, there is a significant opportunity for CDB to expand its ***GeoSmart Initiative***, to facilitate and expedite its BMCs achieving their full potential in this area.

---

[35] RE energy based on heat generated within the earth

[36] World Energy Transitions Outlook: 1.5°C Pathway (irena.org)

[37] There are however emerging loop technologies being tested which could change this situation as early as, within the next 5 years.

[38] IRENA: https://www.irena.org/publications/2021/Jun/World-Energy-Transitions-Outlook

[39] Including supplying projected demand in the region.

(g) ***Electrification, Smart Grids, Micro/Mini-grids and Resilience:*** According to SE4ALL, "the **new energy economy** will be more electrified, efficient, interconnected and clean". It is predicted that electricity will account for almost 50% of total energy consumption in 2050. It will play a key role across all sectors, from transport and buildings to industry, and will be essential for producing low-emissions fuels such as green hydrogen. It is also estimated that by 2050, almost 90% of electricity generation will come from renewable sources, with wind and solar PV together accounting for nearly 70%. As electricity takes up a progressively larger share of household energy bills, governments will have to ensure that electricity markets are **resilient** by incentivising investments in **flexibility, efficiency,** and **demand-side response**. This will also require ***digital technologies*** or **smart-grid applications** that can support demand-side response and securely manage multi-directional flows of data and energy. Also, there will be potential vulnerabilities from the increasing importance of electricity including **cybersecurity risks**. **Micro/mini-grids** are a key strategy to enhancing flexibility and resilience in existing systems and will be critical for extending access to remote areas, and unserved communities, as exists in few BMCs (like Belize, Guyana, Suriname and Haiti –being a special case).

(h) ***Inclusive and Just Transition, and Energy Access:*** In the context of the priority of promoting '*an equitable and just transition'* reflected in the Paris Agreement, it is necessary that careful attention be paid by BMCs and CDB, to any negative impacts of the energy transition and de-carbonisation in general, on lower income households and vulnerable groups. In this regard, it requires that steps be taken to ensure that these groups have adequate access to modern, affordable, clean, reliable and sustainable energy, and have access to economic opportunities afforded by the new energy economy. For example, RE development with distributed and modular forms of generation, will facilitate the democratisation of the grid, with opportunities for utility customers (both households and MSMEs) to become producers, while benefitting from additional income streams. An inclusive approach will require policies that allow low-income households, MSMEs, women, and other vulnerable groups to equally participate with other groups, through support for livelihood opportunities and because the energy transition will provide demand for new jobs and skills.

More broadly, in the context of sustainable development and efforts to eradicate poverty, the transition must be pursued in a manner which ensures that no citizen is left behind in accessing affordable, reliable and modern energy by 2030. The level of electricity access is less than 100% in a few BMCs like Jamaica, Belize, Guyana, Suriname, and Haiti, with the situation being most severe in Haiti, where lack of access is approximately 55% (about 5.5 million people). It is considered that concessional resources will play an important role in achieving these objectives.

(i) ***Potentially Disruptive Transition:*** While there are several pathways to Net-Zero, and that no single path will be adopted internationally, it is expected that with the passage of time, the demand for stronger and more urgent actions will increase – with the first milestone being 2030. Given also, the huge potentially dislocating impact of the transformation of the global energy sector (described as an inter-generational transition), implementing strategies to reflect the principle of the Paris Agreement, of *"equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances"* will not be easy. This, as the impact of the transition on fossil fuel producing countries will be significant, with respect to loss of income and treating such issues as stranded assets. Further, market disruptions have been projected -

arising from the mismatch between fossil fuel supply and demand.[40] These have been observed since 2021 and were exacerbated by geopolitical events in 2022.

Notwithstanding their developing country status and the relevance of the principle of *"different national circumstances"* being applied to their transition, net oil-producing BMCs may also be affected by some of the special challenges of large oil-producing economies. Similarly, net oil-importing BMCs will not be spared the negative impact of oil price volatility stemming from any disruptions[41] in the market linked to the transition. In fact, in view of these predicted challenges ahead, it could be considered a risk mitigation strategy for BMCs to move as quickly as possible to break their dependence, thereby insulating themselves from potential energy shocks and risks of dumped technologies in transportation.

(j) ***Renewable Energy and Resilience****:* IRENA[42] noted that, "*Distributed renewable energy (DRE) solutions (such as roof-top installations) can help to create a resilient energy system, and therefore support climate adaptation for the most vulnerable communities*"[43]. This can be particularly important to remote rural, and coastal communities, which are most affected by climate change, and often face the biggest challenges in adapting to and recovering from its impacts. Also, it is recognised that "*many climate adaptation strategies require considerable energy use*"[44], so that the role of reliable, affordable, and modern renewable energy services in climate adaptation will become increasingly important. DRE solutions can improve resilience to climate impact in areas such as, provision of water, food, disaster recovery and health services. Consequently, RE provides an opportunity for synergistic mitigation-adaptation measures (co-benefits) which can be incorporated in the countries' NDCs and long-term development strategies under the Paris Agreement. The additional energy needs met by DRE supply, will serve to avoid additional emissions of carbon from fossil fuel generation. It is considered that there is an opportunity for CDB and BMCs to develop synergistic Mitigation-adaptation Projects to utilise Adaptation Climate Finance for RE investments. It is recognised that climate adaptation measures do not always guarantee earnings that can pay off the investments made, hence public finance is essential as a catalyst. Against this background concessional resources are being made available to support adaptation such as through the Green Climate Fund (GCF), Global Environment Facility, the Adaptation Fund and bi-lateral financing.

(k) ***Marine RE and Innovation:*** The pace and scale of the energy transition to meet the NZE2050 target are large and will necessitate that countries fully explore their RE potential. SIDS like Caribbean countries have unique opportunities based on the quality of resources they possess by virtue of geography. In this regard, the marine space represents a special resource for Caribbean countries (and other SIDS), given their large marine areas relative to the land masses and the varying marine topographies. In addition to offshore wind, this area lends itself to a significant range of RE technology applications based on waves, currents, tides, and thermal energy of deep cold water**.** Many of these are near the commercial stage and could benefit from support to establish 'lighthouse projects' in the

---

[40] Net Zero by 2050: A Roadmap for the Global Energy Sector - Event - IEA

[41] It has been argued that shortages in Asia and Europe beginning in the 3rd quarter 2021, as well as fossil fuel price volatility observed in the international markets are initial signs of the disruptions which will be characteristic of the energy transition. The disruptions in gas supplies from Russia to Europe have set off an energy security crisis – with some countries reverting to coal fired generation.

[42] World Energy Transitions Outlook: 1.5°C Pathway (irena.org)

[43] Ibid.

[44] IRENA 2021 - Renewables as a Climate Change Adaptation Strategy.

context of SIDS, where the resources are site specific but superior to other places, globally. It seems that there is an opportunity for CDB to selectively support near-commercial technology, especially relevant to the marine environment, which can be impactful in specific country contexts, especially with some innovation in applications.

Opportunities Linked to the Developments in Hydrocarbon Producing BMCs

1.38 Since 2015, Guyana has made large petroleum discoveries, positioning the country to become one of the leading oil producers in the hemisphere - with production outputs now far exceeding those of Trinidad and Tobago (the longstanding oil and gas producer in the Region) and Suriname. The revenues from oil have already allowed the country to achieve record high growth levels. Guyana, Trinidad and Tobago and Suriname (being the three major petroleum producing BMCs) have signalled their intention to pursue a strategic approach to enhance energy security in the Region, based on their fossil fuel resources. In view of the lessons which could be derived from the EU energy security situation linked to the war, it is considered that there is a case for the Caribbean petroleum producers to utilize oil and gas resources to play a role in enhancing energy security for the Region, while also channelling some of the benefits from the fossil fuel sector to support the Region's energy transition.

1.39 Against this background, considering that oil and gas will continue to play an important role for Caribbean countries over the next decade, and given the need for increased cooperation around large scale RE Projects in the marine space, it is considered that CDB can play an important role in supporting regional cooperation in leveraging the benefits of oil and gas sector in expediting the transition.

CONCLUSIONS IN RELATION TO OPPORTUNITIES FOR CDB SUPPORT TO BMCS

1.40 There is an apparent **lack of urgency** (based on the observed slow rate of RE penetration) across BMCs in relation to their pursuit of the mutually reinforcing twin-objectives of ***shifting to sustainable energy options*** and ***increasing resilience***. The slow pace leaves them more exposed to risks of climate shocks, oil market disruptions and missing out on potential opportunities associated with the NZE thrust.

1.41 CDB will therefore focus its support for the energy transition on ***catalysing actions*** to overcome known obstacles, ***scale-up SE investments*** and ***increase resilience.*** The magnitude of these challenges remains large, however, requiring technical assistance and financing resources beyond the scope of CDB alone. This presents an opportunity for CDB to intensify ***strategic partnerships*** and ***regional cooperation*** as a key feature of the ESPS-2022, for resource mobilisation and capacity strengthening.

SECTION II

2. ENERGY SECTOR POLICY

2.01 The Objectives, Scope, Key Guiding Principles, Policy Pillars and Policy Actions constitute CDB's Energy Sector Policy (ESP).

OVERALL OBJECTIVE

2.02 The overall Objective of ESPS-2022 is to support all BMCs *to catalyse* the achievement of their Sustainable Development Agenda, particularly Goal 7, which seeks to: ensure access to affordable, reliable, sustainable and modern energy.

Specific Objectives

2.03 The specific Objectives are:

(a) To assist BMCs to *rapidly* transition their energy sectors to utilise viable sustainable energy options in a manner which ensures inclusive, just and equitable access to adequate, affordable, reliable, sustainable and modern energy services, to all segments of the society, and to improve security and sustainability of the energy sector.

(b) To establish the energy sector as a *catalyst* in BMCs for supporting sustainable development, by facilitating social and production resilience, economic diversification and climate resilience.

(c) To further strengthen CDB's position as a key regional energy sector development financier, providing attractive concessionary resources to the Region, and as an intermediary for financial and technical assistance resources for its BMCs.

SCOPE OF ENERGY SECTOR POLICY

2.04 The ESPS-2022 covers all the Bank's interventions related to various energy resources, production, conversion, consumption, and all aspects related to Sub-sectors such as electricity, transportation, industry, and cooking. It encompasses matters related to investments and technical assistance for the energy supply and demand-side (e.g., energy use for buildings, water systems, agriculture, and manufacturing/processing, etc). It also extends to issues related to sector governance and management, human resources, trade, and cooperation in energy. In keeping with the Bank's Strategic Framework, however, the Bank will be selective in its focus. In this regard, the electricity Sub-sector will be the main target for CDB's strategic interventions in the energy transition.

2.05 Electricity is the most critical and versatile energy carrier underpinning virtually all aspects of modern life, providing services such as lighting, heating, cooling and refrigeration, communication, and motive power in areas of: education, health, security, entertainment, utilities (communication and water), agriculture, processing, and manufacturing, etc. Also, going forward (based on global trends) the electricity sector will expand to power a large segment of transportation through e-mobility. Electricity as an energy carrier contributes to 30-50% of the energy end-use in most BMCs, with the transportation Sub-sector accounting for the largest share (40-60%) of the balance comprised of liquid and gaseous fuels as energy carriers for transport, cooking and industry use.

2.06 Given that the overarching Framework of the Sustainable Development Agenda, and the NZE-2050 thrust will both remain dominant themes for the next decade, it is considered a feasible approach that the **period of effectiveness for ESPS-2022** be extended to a period of **eight years[45] 2023 to 2030**. It is contemplated that a light review of the targets may be appropriate at the end of 2024 (when the Bank's Strategic Plan will be reviewed) to cater to any potential new development which may justify a tweaking of Strategies.

KEY GUIDING PRINCIPLES

2.07 Recognising the context of its operations and constraints in terms of capacity and the limits of its funding resources, and recognising the specific circumstances of the BMCs, the Bank's energy sector interventions will be guided by the following Key Principles, *viz*: (a) Selectivity and Focus, (b) Alignment, and (c) Building Strategic Partnerships, for Efficiency and Increased Impact.

(a) Selectivity and Focus: Given the wide range of energy development issues to be addressed in BMCs, the limited capacity of CDB, and the involvement of other financial institutions and International Development Partners (IDPs), the Bank will be selective in its interventions, focusing on areas where it has a comparative advantage and can achieve the greatest development impact in the widest set of BMCs;

(b) Alignment: CDB's support for the energy sector will be aligned to the Strategic Priorities of its BMCs and will be undertaken within the context of the Bank's Core Competencies, Strategic Priorities, other CDB Strategies, Policies and Charter; and

(c) Building Strategic Partnerships: CDB will work to establish strategic partnerships with other financial institutions, regional agencies and IDPs active in the regional energy sector, to facilitate increased impact of CDB's energy sector interventions in BMCs. Also, given the general capacity constraints relative to the scope of the input required for the timely energy sector transformation, working strategically with other Partners can extend the reach of CDB's capacity. This approach is also consistent with the joint MDB Statement[46] at COP 26 in 2021.

KEY POLICY PILLARS

2.08 All of the Bank's Energy Policy actions and interventions within the context of the Bank's Charter and overall Strategic Framework, will rest on the *Key **Policy Pillars (PPs)***: Based on the scope of its resources and capacity, and considering its comparative advantage, the Bank will further exercise the principle of selectivity as deemed necessary.

2.09 The PPs of the ESP are:

(a) *PP-1*: **Promoting sustainable and resilient modern energy infrastructure and services for all:** – This pillar aligns with the Bank's Strategic Plan Guiding Principle (GP) No. 4: Delivering integrated and comprehensive development solutions and primarily supports Strategic Objectives (SOs) of: (i) Building environmental resilience and (ii) Building production resilience.

[45] Instead of two years (to end od 2024) which would align with the end date of the SPU-22-24.
[46] 'https://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=EZSHARE-1729984378-40.

(b) *PP-2*: **Promoting gender equality, social inclusion, and environmentally sound energy intervention: -** This pillar aligns with the Bank's Strategic Plan GP No. 3: Deepening country focus and stakeholder engagement, and primarily supports Strategic Objectives (SOs) for: (i) Promoting gender equality and building good governance; and (ii) Building environmental resilience.

(c) *PP-3*: **Improving the institutional and governance environment to enable private sector participation in the sustainable energy transition: -** This pillar aligns with the Bank's Strategic Plan GP No. 1: Pursuing value for money through additionality, Impact and digital transformation, and primarily supports Strategic Objectives (SOs) of: (i) Building good governance; (ii) Building production resilience; and (iii) Building institutional resilience.

(d) *PP-4*: **Promoting regional cooperation, integration, and partnerships for increased SE development: -** *This* pillar aligns with the Bank's Strategic Plan GP No. 2: Selectivity and focus while ensuring alignment, and primarily supports Strategic Objectives (SOs) for (i) Regional cooperation and integration; and (ii) Building institutional resilience.

ENERGY POLICY ACTIONS

2.10 The *Energy Policy Actions* represent elaborations under the PPs to articulate specifically the areas, activities, and approaches that CDB will/will not fund, promote or collaborate on in its BMCs and among Partners towards achieving the Goals and Objectives of the Energy Policy.

PP-1: Promoting sustainable and resilient energy infrastructure and services for all

Introduction

2.11 This PP captures CDB's efforts to increase energy security based on a low-carbon, resilient and inclusive path, i.e., utilising RE and EE options in conjunction with smart-resilient electricity infrastructure (EI) in a manner which ensures that generation, transmission, distribution and end-use systems are as climate resilient as possible and available to all. Through various actions under this PP-1, CDB will seek to:

(a) expedite EE improvement across the electricity value chain;

(b) accelerate RE for power generation and end-use services;

(c) promote RE to support economic diversification as a resilience response;

(d) increase electricity access, reducing energy poverty and ensuring just transition;

(e) promote increased climate resilience and reliability of electricity systems;

(f) promote modern and smart electricity infrastructure and transition of transportation; and

(g) promote instruments and initiatives to incentivise sustainable energy and energy storage.

(1) PP- 1(a) Expediting EE improvement across electricity value chain[47]

2.12 The scope for EE is significant across the energy value chain and the elimination of waste and losses can reduce energy cost to end-users and curtail demand, thereby reducing the size of RE Projects and hence their capital costs. CDB considers EE to be fundamental to *all* energy interventions, therefore explicitly stated or not, an assessment of EE opportunities will be the first step. In this regard, *CDB will:*

(a) ***prioritise*** *and support improvement in EE in the electricity sector,* ***both*** *on the supply-side and the demand-side:*

(i) *support and fund electricity supply-side EE in generation, and transmission and distribution networks, including loss reduction*. CDB will support the funding of battery energy storage Projects to enhance efficiency of existing fossil-based generation assets, while encouraging their eventual de-carbonisation; and

(ii) *support and fund electricity demand-side EE* in public sector/institutional buildings (as priority), residential & commercial buildings, manufacturing and processing, agriculture, water, and services Sub-sectors[48].

(b) *support establishing Legal and Regulatory Frameworks, policies, and programmes that support EE; and develop innovative financing (such as the energy service company [ESCO] type model[49]) and incentive mechanisms for key Stakeholders such as consumers, utilities, energy service companies, etc.* CDB will support strategies and interventions which couple EE with distributed RE and energy storage; and

(c) *apply the CARICOM Regional EE Building Code (CREEBC) for all relevant Projects (which fall in the Scope of CREEBC)* such as institutional, commercial, and residential buildings. Further, the Bank will systematically apply other relevant Minimum Energy Performance Standards (MEPS) reflective of industry best practices in other sectors as these are agreed or adopted at the regional level. Where regional standards are not available, CDB will apply other EE relevant acceptable standards in appraising Projects.

(2) PP-1(b) Accelerating renewable energy for power generation and end-use services

2.13 *CDB will* ***prioritise*** *and fund RE in the electricity sector on both the supply-side and the demand-side for RE technologies considered to be at a mature[50] stage of development*. Priority will be given to solar energy (solar thermal, and solar PV technologies), wind power (onshore and offshore), geothermal energy and hydropower (run of the river), while selectively supporting bio-energy options, and sea-water air-conditioning (SWAC). In this regard, *CDB will:*

(a) *support the development of the RE Projects at utility scale and DRE pursued as private, public, and public-private-partnership interventions.* The Bank will further elaborate

[47] Energy efficiency includes conservation which focuses mainly on changing behaviour.

[48] Including such measures as the adoption of minimum power plant efficiency performance criteria, building codes and standards, appliance standards, labelling, education, awareness and capacity building programmes, EE assessments and energy audits, retrofits of lighting, air-conditioning, motor drives, and direct heating systems.

[49] The model allows companies to carry out turn-key energy services (audits, design, procurement and installation/construction) for EE and RE solutions without the clients having to invest their own capital into the Projects. The investment is repaid from the energy cost savings generated from the Projects.

[50] Mature technology refers to those with established markets in several countries, i.e., commercially available.

specific guidelines for funding of RE Projects of various scales and technologies in the private sector;

(b) *promote RE Projects in the context of the distributed energy resource (DER) service* industry (linked to EE, RE, and storage) and wider "green and blue" industries;

(c) *support waste-to-energy (WtE) investments for electricity, on a case-by-case basis.* Projects considered must be developed in the context of a National Waste Management Framework and sustainability of feedstock established;

(d) *exercise selectivity in funding mature bio-energy options, including studies to assess the costs and benefits of sustainable bio-fuels development.* Projects which will be funded must meet benchmark sustainability criteria[51] demonstrating sustainability along the value chain;

(e) *consider the funding of hydroelectric power plants (including for energy storage)* based on large impoundment or large dams on a case-by-case basis where the Projects will meet key environmentally and socially sustainable criteria, and CDB's Environmental and Social Review Procedures;

(f) ***not fund*** *fossil fuel projects and interventions including carbon capture and storage. Exceptions will be considered* on case-by-case basis, for the following situations:

(i) emergency situations (natural disasters or other emergencies or crises), or where RE options are not feasible for providing power within a reasonable timeframe;

(ii) hybrid (renewables/fossil fuels) mini-grids, a renewable-only grid which has been proven not to offer sufficient reliability or cost feasibility in the context of the proposed application. The lowest life cycle hybrid option has been used; and

(iii) funding the planning and implementation of the decommissioning of fossil fuel energy assets.

(3) PP-1(c) Promotion of RE to support economic diversification as a resilience response

2.14 There are opportunities for BMCs to leverage their comparative advantage with respect to their abundant high quality RE endowment (solar, wind and geothermal), to take advantage of economic opportunities that are being created in the process of addressing the climate change challenge. In the process, they can diversify their economies. *Against this background, CDB will*:

(a) *promote and fund the Investment Projects* based on selected RE options which can provide dedicated energy supply to support production of low-carbon/green commodities which can be traded on the Global De-carbonisation Markets[52];

[51] These will be developed or adopted based on international best practices.

[52] The development of RE resources of BMCs, to supply energy beyond that which is necessary to meet existing domestic electricity demand and normal demand growth, can facilitate the creation of new low-carbon industries, which could provide green commodities to fill trading (at regional and global levels) opportunities to be created by the 2050 De-carbonisation/Net-Zero Emission Strategies. Based on identified potential and the characteristics of geothermal energy (for power production and direct-use) and offshore wind power which has a higher power density (and smaller footprint compared to solar) these two RE resources are targeted to support production of low-carbon commodities such as Green Hydrogen, ammonia, etc. in coming years. The foundations must be laid immediately for these opportunities to be realised.

(b) *promote and fund the investment of Geothermal Energy Projects for direct use,* ensuring that local communities directly benefit from the resources;

(c) *promote the development of the ESCO model* to provide turnkey DREs and off-balance sheet financing particularly for MSMEs and the public sector; and

(d) *promote RE and storage options as part of the development of a Blue Economy.* These include offshore wind, other marine RE such as OTEC, and site-specific feasible Marine RE options.

(4) PP-1(d) Increasing electricity access, reducing energy poverty, and promoting just transition

2.15 Promoting energy access for all necessitates that due consideration be given to unserved/underserved communities and poorer segments of populations and there is availability of energy options to provide minimum energy services. *In this regard, CDB will*:

(a) *fund viable programmes to increase access to sustainable energy* including e.g., RE for power generation and productive uses, and the introduction of cleaner cooking fuels. CDB will focus on remote communities that are not connected to the electricity grid, especially in BMCs such as Belize, Guyana, Haiti and Suriname. The situation of very low electricity access (55%) in Haiti, however, is considered a special case for CDB's support;

(b) *continue to provide Grant support for the incorporation of RE solutions for energy access to Social Infrastructure Projects in poor segments of the population.* The Bank's Basic Needs Trust Fund (BNTF) Programme will continue to be used as one of the main vehicles for facilitating the channeling of resources, to address energy poverty[53] in poor and remote communities. However, other strategies such as those linked to micro/mini-grid interventions will be employed as deemed relevant across all BMCs; and

(c) *support the principle of 'just transition'* and will assist BMCs to develop strategies and plans to ensure that the energy transition in BMCs is fair and equitable.

(5) PP-1(e) Promoting increased climate resilience and reliability of electricity systems

2.16 Climate resilience of RE systems and EI in general is critical to establish sustainability of the generation, transmission and distribution systems. Recognising also, that some RE options are more vulnerable than some fossil fuel infrastructure, the Bank will accord a very high priority in this area. In this regard, *CDB will:*

(a) *support BMCs in building higher resilience in RE and energy storage Projects.* The Bank will collaborate with Partners in the development and adoption of relevant guidelines and standards which will be applied to energy generation and infrastructure Investment Projects;

[53] lack of access to modern energy services

(b) *consider climate vulnerability and other environmental impacts in its support for RE planning and deployment.* Climate Vulnerability Assessments (CVAs) will be conducted for all significant RE Investment Projects funded by CDB;

(c) *support and fund TA and Investment Projects* aimed at increasing resilience in the electricity transmission and distribution systems (new and existing ones) in BMCs*;*

(d) *fund Projects for improving the climate resilience of electricity T&D systems.* Improving the resilience of the Transmission and Distribution (T&D) system to climate shocks will be a key investment requirement to address the climate risks and to facilitate scaling of RE and electrification of transport;

(e) *support the deployment of various kinds of energy storage to enhance the stability of electricity systems for greater RE penetration.* All viable and mature storage energy technologies may be considered; and

(f) *support BMCs and regional cooperations around strategy development in the context of post disaster recovery, reconstruction and rehabilitation.* As far as possible, a proactive approach for electricity systems Disaster Risk Management will be adopted in keeping with the Bank's DiMSOG.

(6) PP-1(f) Promoting modern and smart electricity infrastructure and transition of transportation

2.17 In line with the Bank's strategic thrust for encouraging innovation and the digital transformation initiatives in BMCs to achieve improvement in efficiency and greater impact, CDB promotes a modernised approach to electricity infrastructure, utilising smart digital technologies as the backbone for planning, operating and optimising systems. These can facilitate more efficient transmission, fast restoration and self-repair/healing of electricity systems after disturbance, reduced operations and management costs for utilities and consumers, reduced peak demand, increased integration of RE, customer generation and improved overall security of systems. In this regard, *CDB will:*

(a) *support the upgrade of electricity systems, using smart digital technologies to enhance capacity, and efficiency and effectiveness of operations;*

(b) *support the upgrade of Electricity Network Management Systems and T&D systems* (new capacity for lines, transformers, sub-stations) to address losses; load growth; improve resilience (to natural disasters and climate impacts in general) and support for distributed generation; including the upgrade of Supervisory Control and Data Acquisition (SCADA) systems, and smart grids to provide optimal use of assets;

(c) *provide funds for the development of relevant strategies to promote e-mobility, including electricity infrastructure which facilitate the uptake and acceleration of the transition to e-mobility.* CDB will continue to support the advancement of the regional e-mobility strategy referred to as the Regional Electric Vehicle Strategy (REVS)[54], as a means of expediting the transition to e-mobility across BMCs in a structured and systematic manner.[55]Among

[54] The development of REVS is being led by the CARICOM Secretariat.

[55] Priority focus will be on promoting the use of EVs in the public sector, procurement of fleets, installation of charging infrastructure and supporting systems for management and integration of the same.

other things, CDB may cover support for policy, regulations, charging infrastructure, and procurement of e-vehicle fleets in the public sector;

(d) *support Projects targeting fuel substitution in the transportation sector, using bio-fuel-blends* as substitutes for gasoline and diesel, and other options such as hydrogen fuel cell hybrids and electric vehicles;

(e) *support green fuel options for marine transportation; and*

(f) *provide funding for cross-border inter-connection of electricity grids where it is economical, and can facilitate new potential energy carriers such as Green Hydrogen. These will necessitate effective regional cooperation on energy, including a shared Regulatory Framework.*

(7) PP-1(g) Promoting Instruments and Initiatives to incentivise SE and BESS

2.18 *CDB will:*

(a) *explore and utilise various funding instruments (in addition to its usual suite of instruments) such as through ESCOs and the integrated utilities services model*. Also, the Bank will explore the development of innovative initiatives/mechanisms/programmes which encourage the participation of women in the energy service of MSMEs or target the funding of TA and Investment Projects for MSMEs led by women;

(b) *continue to lend Ordinary Capital Resources (OCR) to all electricity utilities (public and private) on the same terms offered to the public sector*. This rate will be extended to utility scale Projects pursued by utilities as IPPs;

(c) *seek to facilitate procurement of electrical equipment where feasible*, in the context of the Caribbean Electric Utilities' Strategy to improve post-disaster response through the harmonisation of equipment specifications among electric utilities, following adverse natural/anthropogenic events;

(d) *will standardise carbon shadow pricing in its Project appraisals as a means of quantifying the benefits of RE/EE, Storage Infrastructure and Mitigation Projects.* CDB will establish carbon pricing levels in line with the recommendation of the World Bank's High-Level Commission on Carbon Prices (HLCCP) recommendations, to reflect the mid to upper range;

(e) *mobilise climate finance for providing relevant funding instruments for government and the private sector*. The Bank will explore and pursue new opportunities such as Green Bonds and other SDG Bonds which can incentivise investments in SE and storage; and

(f) *seek to mobilise suitable resources to support on a limited case-by-case basis, "lighthouse projects" based on emerging technologies which are near maturity and considered to hold potential in a SIDS context*[56]. It is considered that the opportunities are greatest in the marine environment.

[56] For example, Ocean Thermal Energy Technology (OTEC) which provides multiple streams of benefits is considered to have special advantages and niche opportunities in the context of SIDS, may be supported on a case-by-case basis.

PP-2: Promoting gender equality, social inclusion, and environmentally sound energy interventions

2.19 In the energy sector, CDB will pursue interventions in line with its environmental and social safeguard policies and the principles of justice, equity, diversity, and inclusiveness. Gender analysis will inform the planning, design, and implementation of the CDB's energy activities, considering the differential and inter-sectional needs of women, the poor, people with disabilities, indigenous peoples, the elderly, and other marginalised groups. The design for energy access will also incorporate good practices for greater social inclusion, safety, and development. In general, it is intended that relevant provisions of the Bank's *Gender Equality Policy and Operational Strategy*[57] *(GEPOS)* will be applied in a timely and structured manner, while also used as a basis for innovative approaches to address the energy sector, gender and social inclusion gaps. In supporting energy infrastructure investments, CDB will consider the need to maintain biodiversity and healthy ecosystems by respecting environmental safeguards. Against this background, *CDB will:*

(a) *continue to infuse gender equality into its energy sector operations*, using as a guide, the CDB Technical Guidance Note – Integrating Gender Equality into the Energy Sector[58];

(b) *support local community participation and leadership in energy activities and decision-making:* In this regard, the Bank will inform and engage with local populations during the planning and implementation of projects, since their lives may be affected. The potential benefits for and impacts on all disadvantaged and vulnerable groups will be carefully considered during the planning and implementation of these projects;

(c) *ensure that economic opportunities and livelihood options, including training and capacity-building for emerging skills and jobs, are accessible to all community Members among BMCs*, especially the most vulnerable;

(d) using a gender lens, *promote a just and equitable transition and take measures to reduce structural barriers and disparities between men and women in the energy industry;*

(e) *combine innovative partnerships, knowledge, and financing to ensure that no one is left behind;*

(f) *promote increased electricity access for reducing energy poverty, and promote just transition. See PP-1 (d);*

(g) *help BMCs implement disposal standards* for waste materials emanating from EE, RE and electricity-infrastructure-upgrade interventions including those derived from BESS, lighting, transformers, switchgears, etc.; and

(h) *support energy sector institutions, utilities, and companies in the institutions of BMCs in adopting stronger environmental and social policies*. This will include, among other things, encouraging them to increase diversity and improve the gender balance in their

[57] It was considered that in the interest of conciseness, the elements of the GEPOS, and the Environmental and Social Review Procedures which would guide the relevant energy sector interventions in gender, poverty reduction and social inclusion generally, would not be repeated in the ESPS-2022, but would a form key dimension of PP-2.

[58] https://www.caribank.org/publications-and-resources/resource-library/guides-and-toolkits/integrating-gender-equality-energy-sector

workforce by providing equal opportunities for women and to remove barriers to their inclusion and career advancement.

PP-3*:* Improving the institutional and governance environment to enable private sector participation in the sustainable energy transition.

2.20 Based on CDB's experience in the energy sector over the period 2015-2019, it has been determined that weakness in Energy Sector Governance has been a key factor resulting in the slow progress in the penetration of RE across BMCs and has been a hindrance to private sector investment in RE. Reforms of the Legislative and Regulatory Frameworks in many BMCs including, the establishment of appropriate Institutional Frameworks, with adequate capacity to guide transparent procurement of new RE capacities, pursued in line with and in the context of established and clear IRRPs, are key and urgent steps[59]. Within CDB it is considered critical that emphasis and ***priority focus*** be placed on establishing/strengthening **fit-for-purpose** institutional arrangements (and instruments) for advancing SE transition and Public-Private Partnerships (PPPs) in general. The implementation of the ESPS-2022 will therefore benefit from the advances by the Bank in these areas by the Private Sector Division.

(1) PP-3(a). Improving Governance of the Energy Sector

2.21 *CDB will:*

(a) *support policy, legal, regulatory, and institutional reforms to establish a robust energy sector in BMCs.* This is considered an urgent necessity to facilitate the accelerated energy transition through the rapid uptake of RE, with high levels of transparency, inclusiveness and equity. It is necessary however, for CDB to play a significant advocacy and leadership role in order that the objectives can be realised, given the insufficient prioritisation by many BMCs in this area;

(b) *provide TA interventions to support the development of strategies, to de-risk and establish appropriate enabling Frameworks for investment in low-carbon commodities for global trade.* TA support is necessary to establish relevant Regulations, the creation of regional approaches and synergies among BMCs with relevant RE resources. *CDB will support the establishment and strengthening of Independent Regulatory Bodies, including Sub-regional approaches, for ensuring the long-term stability and viability of the sector;*[60]

(c) *fund the continued development of robust National Energy Sector Policies and Masterplans.* These include integrated resource and resilience planning[61/], and Net-Zero Emission Transition Strategies (N-ZETS) which are coherent with regional Development Policies and Plans;

(d) *support initiatives to significantly improve the energy data and statistics situation across BMCs to allow for "measuring better to target better";*

---

[59] Based on observations, without the establishing of this enabling Framework it will not be possible to secure the private investment necessary to radically shift the status quo of very low RE penetration.

[60] It is considered that the establishment of a regional and sub-regional pool of resources supporting National Bodies may be a feasible approach.

[61] Integrated resource and resilience planning is a least-cost planning process that: (i) treats energy supply expansion options and demand-side management options the same, (ii) incorporates and internalises environmental costs and benefits more fully than in conventional least-cost analyses, and addresses resilience as a key component of the planning process.

(e) *promote corporatisation of electric utilities and transparency in procurement and responsible Corporate and Financial Management;*

(f) *promote Environmental, Social and Governance (ESG) practices among electric utilities and Corporate Bodies in BMCs;*

(g) *reflect the principle of compatibility with good social, environmental and climate actions, and all energy sector interventions, in keeping with the Bank's overall Strategic Framework*[62]. This will include consideration for biodiversity and other environmental impacts in its support for RE planning and deployment;

(h) *work with Civil Society Organisations (such as Chambers of Commerce and Professional Bodies) to promote ESG Principles among members and constituencies;*

(i) *support Performance-Based Regulation and the adoption of Tariff structures that promote efficient use of energy, and are cost-reflective, while making adequate provisions for the establishment of a life-line Tariff;*[63]

(j) *support the development of appropriate Policies and Regulatory Mechanisms (such as Feed-in-Tariffs, and net-billing) for the development of RE in the SIDS context;*

(k) *support the application of subsidies, only where these are transparent, targeted, and time-bound (temporary) and serve to address issues of energy, poverty reduction, equity, inclusiveness and just energy transition; and*

(l) *promote the ethical sourcing of energy project equipment and materials (including solar panels) in the context of all Projects funded by the Bank*[64].

(2) PP-3(b). Capacity Strengthening and Knowledge Management

2.22 *CDB will:*

(a) *provide TA support for capacity strengthening, targeting institutions in the public and financial sectors;*

(b) *support knowledge management and dissemination of best practices among BMC;*

(c) *support internal and external coordination to build capacity and awareness, ensuring that opportunities for RE are considered across all sectors;*

(d) *prioritise the inclusion of females in capacity building interventions to address the persistent gender imbalance in the energy sector, and to afford females and marginalised groups the ability to take advantage of the emerging energy opportunities in the*

---

[62] The ESP, while focused on the energy sector, is supported and aligned with existing and related CDB Policies, specifically the Climate Resilience Strategy, Environmental and Social Review Procedures, and the Disaster Management Strategy and Operational Guidelines, which together form an umbrella for environmental and climate actions across the Bank.

[63] Lifeline Tariffs are targeted subsidies based on the consumption level of households and are seen as fair and necessary to provide basic levels of service to the poor.

[64] It is not deemed feasible however, for the Bank to extend monitoring down the supply chain to the extractive level, where problems are mainly to be found.

diversification of the energy sector, especially in the provision of energy services (based on DER);

(e) *further establish partnerships to allow students pursuing SE programmes at the tertiary or TVET level, to be better able to engage in providing useful research to assist with solving relevant sector problems;*

(f) *support awareness building for all key areas of SE (RE, EE, and EI) development, and particularly areas of focus that are identified as part of the Bank's ESPS, and Climate Resilience Strategy; and*

(g) *increase collaboration with regional Partners to address capacity building and knowledge management*[65]. CDB proposes to mutually leverage capacities among institutions for greater efficiency and effectiveness.

(3) PP-3(c) Increasing Private Sector Participation in the Energy Transition

2.23 In March 2021, CDB established a new Private Sector Division as part of its strategic thrust to increase the focus on funding private sector operations. The Bank will fund private sector energy operations directly, and through Public/PPP, and indirectly through lines of credit via intermediaries in BMCs and will focus on mechanisms to channel funding to MSMEs. Against this background, *CDB will*:

(a) *support RE Projects developed using Project Financing (non-recourse financing) as well as Public/Private Partnerships approaches; and*

(b) *provide support to catalyse private investments in SE Projects in the Region through establishment of appropriate Regulatory Frameworks with relevant incentives.*

PP-4: Promoting regional cooperation, integration, and partnerships for increased SE

2.24 All BMCs are either full or associate Members of CARICOM or Members of the OECS, which is advancing regional economic integration among its Members. There are Regional Policies and Strategic Frameworks promoted within CARICOM and the OECS which have a SE focus. These include, the CARICOM Regional Energy Policy, the C-SERMS Framework managed by the CARICOM Secretariat, and the OECS SE Development Strategy, and GEOBUILD Programme (GE development). Critical energy sector objectives and targets are included in these mandates and their realisation would require financing and technical assistance support from CDB, in collaboration with other Development Partners.

2.25 *CDB will support SE energy strategies within CARICOM and the OECS and increase partnerships with other Development Partners and institutions, for greater impact in capacity strengthening to BMCs, as well as knowledge sharing.* These include Bilateral and Multilateral Agencies and Institutions, Academia, Civil Society Organisations, and the private sector.

[65] CDB proposes to mutually leverage capacities among institutions for greater efficiency and effectiveness.

3. THE ENERGY SECTOR STRATEGY (ESS)

INTRODUCTION

3.01 The **Energy Sector Strategy (ESS)** is developed within the Framework of the four Policy Pillars identified, which will also guide the build-up of the Bank's Energy Projects pipeline. Whereas, the Policy identifies ***"what"*** (policy actions) the Bank will and will not pursue in line with the stated principles, for achieving the outcomes, the ESS seeks to indicatively identify *key initiatives*, i.e. ***"how"*** the Bank will achieve the outcomes within the context of the opportunities/challenges identified, lessons learned by CDB during the period of implementation of the ESPS-2015, the impact of the COVID-19 pandemic on the BMCs and the global environment, as well as the impact of global geopolitical issues (e.g. the war in Ukraine).

3.02 The identified initiatives for achieving the outcomes are not exhaustive and it is intended that these will be augmented and refined over time as information on specific opportunities are gathered and analysed, while considering coordination with other initiatives[66], by Development Partners. In general, the Strategies identified in this Section are discussed under the four **PPs** articulated in Section 2 (paragraphs 2.08-2.09). The potential energy sector interventions will target the *public sector* (government), *private sector/IPPs* and *electric utilities* irrespective of the utilities' ownership structure.

3.03 In general, the Strategy seeks to promote **bold and assertive approaches** which are deemed as an imperative response to the situation of the sluggish pace of the energy transition in BMCs, and the need for massive scaling up of investment over the next 8 years to meet the 2030 RE targets. In this regard, the ESS promotes ***urgency of actions***, for vast ***scaling-up of private investment*** in SE, while improving ***resilience*** and ***gender balance*** in the energy sector. An ***Accelerated Sustainable Energy and Resilience Transition (ASERT-2030)*** *Framework* will be adopted. Through this, CDB will seek to strongly urge and support BMCs to take **bold and urgent steps** to make **quantum shifts** in the uptake of SE options (moving away from the business-as-usual incremental 'snail's-pace' approach) to their energy transition, while collaborating with Partners to align their support accordingly.

STRATEGIES

Accelerated Sustainable Energy and Resilience Transition 2030 (ASERT-2030) Framework

3.04 The ASERT-2030 Framework may be described as one which operationalises the ESPS-2022 in a manner which emphasises **urgency and boldness of actions** for scaled RE investments, while promoting strong partnerships for resource mobilisation. In line with the recommendation from the OIE's evaluation, the approach reflects the Bank's embracing of the challenge for it to play an increased leadership and coordination role in the sector, leveraging its unique position as the only MDB focused on the Caribbean (all CARICOM Members and Associate Members). The ASERT-2030 Framework has three elements, to respond to the need for urgency and boldness of actions, viz:

(a) Identification of *transformative initiatives* referred to as ***ASERTives***;

---

[66] Given that Sustainable Energy (SE) development matters lie at the confluence of many thematic areas (climate change, energy access, energy security, electricity transition, sustainable development, and resilience), there are many actors in the area pursuing initiatives from different perspectives. For example, three SE Concessional Funding/Programmes were launched in 2021, *viz* the World Bank/ECCB; Barbados Green Bank, and Caribbean Climate Smart Accelerator blended financing, the details of which were not yet clear and so the potential impact on CDB's contemplated SE Initiatives/Strategies could not be determined.

(b) *Strong and targeted dialogues* with BMCs and Partners referred to as ***ASERTive* Dialogues** (through which country-level specifics of the *ASERTives* are identified, agreed upon and approaches for resourcing pursued); and

(c) Increased collaboration with Partners for resource mobilisation, and coordination (for gaps identification and alignment of interventions).

3.05 The *ASERTive Dialogues* will be pursued in the short-term, and represent an addition to the two main ways for energy sector engagement with BMCs, *viz* (i) through the Bank's Country Engagement Strategy (CES), and (ii) through close and timely collaboration between the assigned energy specialists of CDB's BMCs and the relevant agencies in BMCs (See Appendix VI for an outlined description of the ASERT-2030 Framework).

Strategies under PP-1: Promoting sustainable and resilient energy infrastructure and services for all

CDB's Operations

3.06 *CDB will continue to mainstream SE in Investment Projects as well as to promote SE practices in its own operations, as part of the strategy for enhancing its leadership by example stance in SE development in the Region.* As part of the Bank's strategy of leading by example, CDB has incorporated SE measures in its own operations in the form of a solar PV plant, acquisition of an EV and the installation of various EE measures throughout its facilities. As part of its ESG practices, and to enhance its Paris Alignment, the Bank will build on these to also include efforts to encourage staff to pursue SE practices in their own spaces and homes.

Public Sector Interventions

3.07 *CDB will build on its experience with funding SE Projects in the public sector and will adopt new and innovative approaches which also consider constraints on the fiscal space and debt carrying capacities of the Governments of the BMCs.* The COVID-19 pandemic has exacerbated the fiscal and debt situations for BMC Governments. Therefore, on one hand, governments need to reduce the expenditure on energy, and on the other, they do not have the resources to make the RE/EE capital investments necessary to achieve those reductions over time.

3.08 CDB's experience with the SEEC[67] Programme also reveals that even with highly concessional funding, some participating governments were not willing to undertake a loan for the capital investment in the RE/EE upgrade of buildings. It is considered, however, that these challenges could be overcome, using innovative approaches[68] such as *Energy-Performance-Contracting Instruments* involving *shared-savings* and *guaranteed-savings*, off-balance sheet PPP approaches which allow for the capital investments to be made by the private sector, and repayment made from the energy cost savings.

3.09 Focus will be placed on public sector interventions utilising current instruments, as a first step while the Bank re-positions its Private Sector operations. It is considered that significant facilities of government and State-owned Enterprises such as: *institutional and office buildings, educational, health, security, and water facilities* could be targeted for solar, energy storage and EE interventions. To this end, ***a Public***

[67] Sustainable Energy for the Eastern Caribbean (SEEC) Programme is a Multi-partner Programme executed by CDB since 2015 and aims to promote EE and RE in public sector facilities in six Eastern Caribbean countries of Antigua and Barbuda, Dominica, Grenada, St Kitts and Nevis, St Lucia, and St Vincent and the Grenadines. Under SEEC, Grant contributions from EU-CIF and UK-FCDO are blended with CDB Loan Resources.

[68] Based on experience in the markets of developed countries.

Sector DER ASERTive is proposed. Here, public sector buildings and facilities including schools will be targeted for installation of solar PV, energy storage and EE retrofit, to displace a significant proportion of their electricity cost. Also, as part of the transportation energy transition (through implementation of REVS), procurement of electric buses, other public sector electric vehicle fleets, installation of charging infrastructure, and solar car parks could also be targeted.

3.10 Much of the efforts toward building climate resilience will fall to the public sector. This could be in the area of incorporating DERS in public sector buildings to serve as disaster shelters, or in hospitals and other emergency centres, or to harden segments of the electricity grid. In general, pursuing the opportunities within the public sector and for resilience building, will also require the use of most concessional resources for the Investment Projects and for TA to strengthen capacities across policymakers, government ministries and agencies, to implement and ensure sustainability of the new interventions.

Private Sector Interventions

3.11 *CDB will fund Private Sector Projects to scale-up SE contributions to the energy matrix of BMCs; as well as in areas deemed to provide opportunities in the context of the global de-carbonisation drive and resilience building – contingent upon the Bank securing suitable and adequate funding resources.* To meet the 2030 targets, scaled investments are required for: (i) the current electricity system (generation, T&D) replacement and expansion as well as for modernisation, (ii) resilience building for infrastructure, and (iii) production of new energy carriers using dedicated RE sources.

3.12 The following are Key Intervention Areas which have been identified for Private Sector Development Projects at utility-scale, as well as Projects involving aggregation of DERs in the context of IPPs using Non-recourse Financing approaches: (i) GE Power Project Development for domestic demand; (ii) Utility scale solar and BESS; (iii) Utility scale onshore and offshore wind for domestic demand; (iv) GE direct use; (v) GE for industrial park for green commodities; (vi) Offshore wind for industrial park for green commodities; (vii) micro/mini grids for energy access; (viii) micro/mini grids for resilience building; (ix) Bio-energy; (x) Viable marine RE options; and (xi) Hardening of electricity networks. Targeting investments in these areas will enable the Bank to achieve its target of 25-30% of overall financing used on climate change related interventions. The investments will be pursued with funding to private IPPs and PPPs that will utilise private equity along with debt financing[69].

3.13 A ***GE and Offshore Wind ASERTive*** is proposed for establishing industrial parks for green commodities. In this regard, CDB will build on the CDB/IDB Offshore Wind Assessment (2020), continue the GeoSmart Initiative for promoting GE for domestic markets, and seek to expand funding resources to support the broader GE ASERTive. GE development is being pursued through PPP Projects.

Strategies under PP-2: Promoting gender inclusive, environmentally and socially sound energy interventions

3.14 In the context of the ASERT*ive* Dialogues with BMCs in pursuit of bold and radical ideas to make SE shifts, the Bank will also continue capacity and awareness building (both internally and externally) for ensuring that gender is a foremost consideration when evaluating energy initiatives for financing. To this end, an assessment of gender awareness will be performed to focus interventions in areas that may yield meaningful impacts. Also, outputs from earlier reviews/studies by CDB and various Partners, on the issue of gender imbalance in the energy sector, will be utilised to develop innovative approaches toward improving the situation. These could possibly include the sponsorship of targeted Youth Internship

[69] Dominica and Trinidad and Tobago commenced initiatives in Green Hydrogen in 2021.

Programmes for female graduates from Science Technology Engineering and Mathematics (STEM) Programmes to be engaged at the Bank and other relevant institutions and enterprises in the Region or internationally, as a means of encouraging interests and participation by qualified females. Also, within the Framework of the CDB Youth Policy, opportunities will be explored for energy-youth interventions at the level of BMCs and as part of a regional approach.

Strategies under PP-3: - Improving the institutional and governance environment to enable private sector participation in the SE transition

3.15 *CDB will intensify TA support to BMCs to assist with Regulatory Reforms and strengthening of the enabling Frameworks and relevant institutions to incentivise private investments especially for utility scale RE Projects.* Across most BMCs, there is an urgent need for Regulatory Reform and strengthening of the enabling Framework. In keeping with the GP-4, (Delivering integrated and comprehensive development solutions), the Bank will place *strong emphasis* on this area and pursue a *comprehensive and structured approach,* while collaborating with relevant regional and International Development Partners to significantly address the deficit in the Governance and Regulatory Framework. In keeping with the identified strong leadership-role for the Bank in this area, a ***Regional Regulatory Strengthening ASERTive*** is proposed as a priority Strategic Intervention.

Electric Utility Based Interventions

3.16 *CDB will continue to fund RE generation, EE and Electricity Infrastructure Projects of electric utilities while seeking to pursue new opportunities in the context of grid modernisation and resilience.* Since its inception the Bank has funded Electric Utility Infrastructure Projects, however the current context which requires utilities to adapt, to support the transition, has produced new challenges and opportunities which require innovative funding approaches.

3.17 *CDB will continue to lend OCR to utilities and large scale IPP RE Projects, on the same terms offered to the public sector.* This strategy is adopted given the critical importance of the electric utility operations to BMC economies and the lower risk associated with utility lending. In the context of increased frequency of climate events and the Caribbean electric utilities' strategy to improve disaster response, through harmonisation of equipment specifications among electric utilities, the Bank will consider internationally competitive procurement of utility equipment.

3.18 Interventions for both private and public electric utilities include the funding of Utility Scale Investment RE/EE and BESS Projects, funded based on the balance sheets of utilities. These could include utility scale PV/wind and BESS, grid modernisation including smart grid upgrades, public charging infrastructure for EVs, energy efficiency and IUS – for DERs in commercial, institutional, and residential facilities. Given the potential of BESS to support scaling up of RE in all BMCs, a ***BESS ASERTive*** is proposed. It is considered that an appropriate strategy could be that of promoting a critical minimum BESS storage capacity for each utility.

3.19 There are also opportunities for cross-border energy integration with respect to the physical electricity infrastructure (and includes trading in products such as Green Hydrogen as an energy carrier) which will benefit from functional cooperation in the context of political cooperation within CARICOM, OECS and the Association of Caribbean States. CDB will pursue potential opportunities which emerge in this context for the funding of Infrastructure Projects.

***Strategies under PP-4*: - Promoting regional cooperation, integration, and partnerships for increased SE development**

3.20 *CDB will continue to expand its role as a leader for the promotion of SE among its BMCs.* This will require that the Bank has the relevant funding resources, suitable instruments, and adequate numbers of appropriately skilled staff to provide the support in a timely manner. Also, the Bank will be required to continue to leverage its comparative advantage in the energy sector, particularly its close working relationship and intimate knowledge of the Region, and its accessibility to its BMCs.

3.21 *The Bank will establish **strategic partnerships** where there are clear advantages to enhance efficiency and impact.* CDB can also play an increased coordinating role, especially for various multi-country *ASERTives* and promote regional integration approaches, which can yield significant efficiencies in terms of utilisation of funding resources, capacity utilisation and shared learning. For example, the situation in BMCs is diverse, as it relates to the Governance Framework, capacity, and country-specific challenges, and is therefore amenable to multiple Partners working with BMCs to overcome these challenges. Strategic partnerships will be critical for resource mobilisation, extending the Bank's capacity reach and implementation of *ASERTives* in individual BMCs or groups of BMCs. In this regard, CDB and CCREEE have established a Framework Cooperation Agreement for enhanced collaboration and cooperation around capacity building and knowledge sharing. It is contemplated that many of the *ASERTives* under the ASERT-2030 Framework will be implemented in collaboration with CCREEE.

3.22 *CDB will continue to participate in and provide leadership and funding support for regional policy dialogues and investment fora*. As part of its regular Project development activities, the Bank will fund various regional Energy Sector studies (including Sector studies for Sector Diagnosis and Analyses for Project Identification and to inform investment decisions). CDB, through the SEU, participates and collaborates with many regional and international Partners on platforms including the CSERMS Platform – where CDB is Chair for the Finance Working Group, and the Caribbean Energy Development Partners Group.

3.23. *CDB will seek to engage hydrocarbon producing BMCs as part of the regional coordination efforts to enhance regional energy security*. Support could include studies, facilitating dialogues, and pursing other relevant initiatives which can channel some resources/benefits from the Hydrocarbon Producing Sector to support regional RE transition efforts (including resilience). There are also opportunities to leverage the skills and facilitate knowledge transfer between the Hydrocarbon Sector and RE Sector, as part of a 'just transition' strategy, and to enhance participation of BMCs in marine RE options.

Resource Mobilisation

3.24 *CDB will intensify efforts to mobilise resources as an intermediary to other IFIs/global-level funds such as GCF, AF, EU-CIF (or as part of co-financing arrangements) to achieve appropriate and competitively priced product offerings, for lending directly to the private sector and for facilitating innovative approaches.* Additionally, as part of the ASERT-2030 Framework and to support resource mobilisation efforts, CDB will continually monitor existing resources, forecast and track investment requirements for various areas, and identify gaps on a continual basis. This, because it is recognised that the number of resources (financial and technical assistance) required to meet the 2027[70] and 2030 regional RE targets as well as the 2030 SDG and NDC targets, is well beyond the capacity of CDB alone. Therefore, a significant portion of the funding for Projects in BMCs will come from other MDBs/IFIs, Development Financial Institutions (DFI), Equity funds, and Commercial Banks, as well as from other IDPs (bi-lateral

[70] The CARICOM Secretariat estimates that the Region requires around USD20 billion to meet the stated target of 47% RE by 2027. The 88th Special Meeting of Council for Trade and Economic Development (COTED) [Energy], January 22, 2021.

or regional basis). It is also projected that green, SDG, and RE Bonds will increasingly make significant contributions. CDB's funding support to the energy sector has been mainly in the form of Investment Loans and technical assistance/Investment Grants[71] utilising OCR, and Special Funds Resources (SFR).

3.25 *CDB will continue to use these instruments to support energy interventions, while in parallel, continue to explore and develop new and innovative ones.* This will require the mobilisation of suitable/concessional resources, to respond to specific barriers, opportunities, and to address resilience building, such as the example cited for the Public *Sector DER ASERTive* using the PPP shared-saving approach.

3.26 The ASERT-2030 Framework is considered useful for supporting CDB's coordinating efforts among IFI and other Partners providing SE funding in the Caribbean as it facilitates:

(a) identification of key *A*SERTives in the private and public sectors and across the four PPs;

(b) determination of the funding required to scale-up investments to meet the 2030 targets;

(c) determination of CDB resources which are appropriate and available for the interventions;

(d) determination of suitable resources that can be mobilised by CDB to fill some of the key gaps; and

(e) identification of remaining gaps within the identified ASERTives to be filled by Partners.

3.27 In this way the Framework can be used as a tool for communicating the contribution of various Partners, as well as the basis for resource mobilisation through strategic partnerships.

[71] The Bank has also provided through partnership with the IDB contingently recoverable Grants for GE development.

4. RISK ASSESSMENT

4.01 The key risks to the successful implementation of the ESPS-2022 are summarised in the Table below:

Risk Category	Risk Type	Description of Risk	Mitigation Measures
Political/ Developmental	Policy/ Political	BMCs do not adequately prioritise SE matters and do not respond appropriately to ASERT-2030 challenge including not strengthening the enabling Frameworks – necessary for increased private investments.	Develop compelling evidence-based case for urgent and bold actions for their energy transition – reflecting each BMC's context; Work with regional agencies to further the key messages; and leverage CDB's comparative advantage being close to countries to secure strong commitment.
Political/ Developmental	Policy/ Political	Reduction in oil prices and with result that economic and financial attractiveness (pay-back) of SE Projects decrease.	In the context of ASERTive Dialogues develop compelling benefit/cost analyses; tied to IRRPs and ASERTives, and move quickly to secure the commitment of BMC Governments to the large scale and pace. In context of the ASERT Framework (with Partners), develop appropriate metrics and track progress against targets and report publicly – with suitable acknowledgment for good performance.
Strategic	Market	Market disruptions with supply chain issues and supply constraints on critical mineral for EE and RE technologies causing prices to escalate.	Encourage the BMCs to move quickly over the next 2-5 years ahead of the time when it is likely that the major dislocations in the markets are expected to start being manifested.
Financial	Market	Poor credit quality of Project sponsors, or the electric utilities underwriting the PPAs; or general credit risks associated with sponsors and utilities.	CDB has commenced working with global level Partners on various initiatives to promote the availability in the market of various risk-mitigation instruments for credit/liquidity risk. In addition, CDB will further pursue mitigating lending structures and contractual arrangements, cooperation with other MDBs and financiers and co-financing, backing from governments and utility companies.
Financial	Institutional	Slow implementation of a strengthened private sector strategy reflecting new instruments and approaches which can better allow the Bank to fund private sector RE/SE Projects (especially in the form of IPP Projects)	Initially, focus mainly on public sector opportunities; Establish early, private sector RE Project pipeline (as far as feasible); pursue strong internal coordination among key areas within the Bank to ensure timely establishment of key elements of strategy to address RE/SE market.
Financial	Resource	Inadequate availability of concessional resources to meet the demand in BMCs.	Establishing the widest partnership to mobilise resources in the context of the ASERT-2030 Framework. CDB's advocacy in climate financing will serve to address this risk.

5. RESULTS MANAGEMENT FRAMEWORK

5.01 The Results Framework that includes a set of simple and implementable indicators for CDB to monitor the progress of the ESPS implementation is shown below. The Framework identifies broad outcomes to be achieved and the proposed broad contribution of CDB to the realisation of those outcomes. Baselines for indicators have been established in the context of Energy Sector Review and analyses carried out over 2020-2021. Also, it is considered that the Framework is consistent with the Key Principles and aids in effectiveness/effective development cooperation - ownership, alignment, harmonisation, management for results and mutual accountability as well as development impact.

5.02 It is considered a feasible and practical approach that the period of effectiveness for ESPS-2022 be extended to 2030 (i.e., the balance of the strategic period 23-24 plus one additional six years period), with review and update of targets in 2024 in line with the SPU 22-24 period.

ESPS RESULTS MANAGEMENT FRAMEWORK

Goal	**To ensure all BMCs can achieve SDG7: Ensure access to affordable, reliable/secure, sustainable and modern energy; and to enhance the achievement of other relevant SDGs**				
			Target	**Target**	
Outcomes	**Indicators**	**Baseline**	**2024**	**2030**	**Key Assumptions**
Increased inclusive access to/use of affordable, reliable, resilient, and sustainable energy	Proportion of population with access to (clean) electricity – ***without Haiti (%)***[72]**.**	98.3	99	100	Projects are financially viable without subsidies.
	--With Haiti (%)	66.5	67.5	77	Current Programme support by WB, IDB, CDB scaled up to provide additional access to 2 million citizens; No major disaster in Haiti to set back progress.
	RE share of total energy consumption, <u>*using proxy*</u> Installed RE generation capacity as a share of total generation capacity: – ***with Trinidad and Tobago***[73] ***(%)***	12	15	30	Global supply chains are not disrupted by COVID 19 and wars; Global prices of RE components do not become prohibitive.
	--without Trinidad and Tobago (%)	19	25	50	
	Energy intensity measured in terms of primary energy and GDP, <u>*using proxy*</u> Electricity intensity (kWh/$000).	1,297	1,200	1,100	Accurate data available from government and utility sources; Average GDP growth in region is

[72] Haiti has the largest population (~10.9 million) representing 60% of BMCs' total population, and electricity access of ~ 45%. Persons without access to electricity in Haiti is equivalent to 82% of BMCs total population.

[73] Trinidad and Tobago has the largest installed fossil fuel generating capacity accounting for 36% of the total generating capacity in BMCs; and exhibit the lowest rate of transition owing to among other things, the presence of very energy intensive industries.

Goal	**To ensure all BMCs can achieve SDG7: Ensure access to affordable, reliable/secure, sustainable and modern energy; and to enhance the achievement of other relevant SDGs**				
			Target	**Target**	
					better than 1% per annum; Avg capacity factor of RE installed is at least 25%
	Greenhouse gas emissions reduction (MT CO2 equiv per year). Level 2.23 - SDG 13.2.	28.2	100	250	No net increase in fossil fuel generation. Steady electrification of transport; and projected increase in RE capacity achieved.
	No. of BMCs with strengthened resilience of their energy infrastructure. Level 2.26.	0	4	10	BMCs take a decision to invest in building resilience of their energy infrastructure.
Increased EE (supply-side and demand-side)	Energy saved (GWh). Level 2.24.	57.3	80	200	Global supply chains are not disrupted by pandemic and other geopolitical events.
Enhanced governance at the national and local levels	No of BMCs with new/improved and inclusive institutional, policy, and Regulatory Frameworks and Strategies.	0	6	19	BMCs are receptive to receiving support to improve their Governance Framework.
Increased partnerships and concessional financing to support SE Projects in BMCs	Amount of private capital leveraged for SE Projects ($-mn).	0	$250	$2,500	Radically improved policy and Regulatory Framework and capacities in BMCs; Private sector risk is acceptable for co-financing of Projects.
Outputs	**Indicators**	**Baseline**	**2024**	**2030**	**Key Assumptions**
Strengthened T&D systems in BMCs	Length of Transmission and Distribution lines installed or upgraded (km) Level 2 25- SDG 7b.	11.8	50	500	Utilities take a decision to extend/modernise their energy infrastructure.
	No. of new Grid Resilience Projects implemented (including energy storage).	0	6	12	BMCs take a decision to invest in building resilience of their energy infrastructure.
Increased investments and institutional capacity in sustainable energy	RE/EE/Energy Infrastructure (EI) Projects approved - (USD mn/yr)	0	50	350	BMCs give priority to investments in RE/EE.
	No of capacity building/institutional	0	6	20	BMCs participate in capacity building initiatives.

Goal	**To ensure all BMCs can achieve SDG7: Ensure access to affordable, reliable/secure, sustainable and modern energy; and to enhance the achievement of other relevant SDGs**				
			Target	**Target**	
technology in BMCs	strengthening activities to support the energy sector.				
	Capacity RE and or Energy Storage installed (MW) - Level 2.22 - SDG 7b.	2.4	30	250[74]	Global supply chains are not disrupted by pandemic and geopolitical events; Global prices of RE components do not become prohibitive.
	No. of new FA Agreements signed (2022 - 2028).	0	2	8	Lines of financing remain available to CDB.

[74] Mainly from offshore wind and Geothermal Energy Projects.

APPENDIX I

SUMMARY OF THE STATUS/PROGRESS OF RENEWABE ENERGY (RE) PENETRATION AND THE POLICY AND REGULATORY FRAMEWORKS IN THE ENERGY SECTOR OF THE CARIBBEAN DEVELOPMENT BANK's (CDB's) BORROWING MEMBER COUNTRIES (BMCs)

1. **Progress of the installation of RE in BMCs over the period 2015-2019:** The Table below provides a snapshot of the progress across BMCs in relation to the installation of RE capacity for electricity generation. Also shown is the progress in relation to the development of Energy Policy and the establishment of Regulatory Institutions as part of an improved Regulatory Framework.

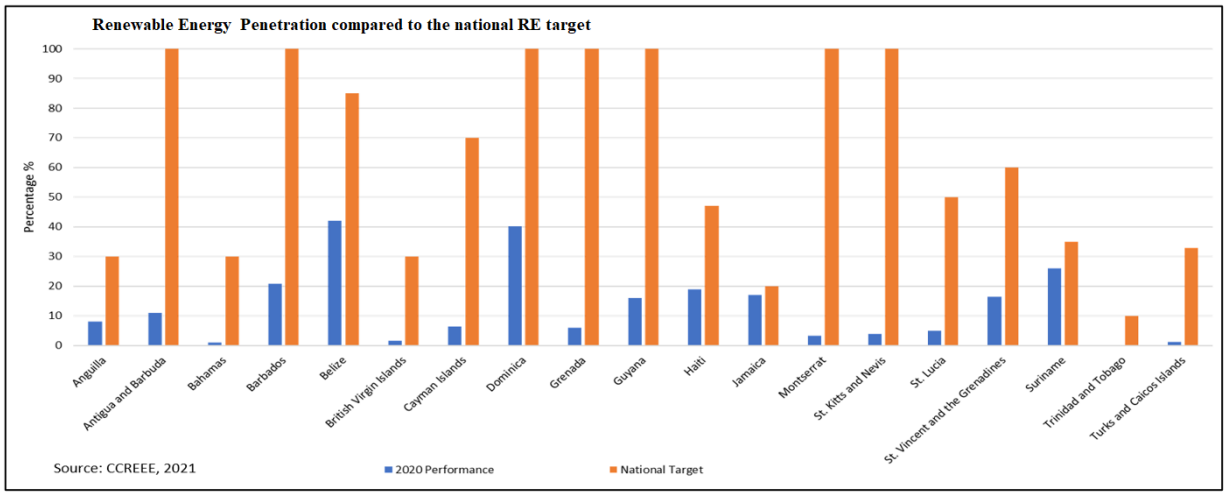
TABLE I: SUMAMRY OF PROGRESS: ENERGY SECTOR TRANSITION IN CDB's BMCS

		RE Share of Gen capacity		Increase	Approved Energy Policy		Independent Regulator	
	Countries	2015	2019		2015	2019	2015	2019
1	Anguilla	0.1%	8.1%	7.9%	N	Y	N	Y
2	Antigua and Barbuda	0.7%	11.1%	10.4%	Y	Y	N	N
3	Bahamas	0.0%	0.2%	0.2%	N	Y	N	Y
4	Barbados	2.3%	9.5%	7.2%	Y	Y	Y	Y
5	Belize	57.8%	63.5%	5.7%	N	Y	Y	Y
6	BVI	0.0%	1.7%	1.7%	N	Y	N	N
7	Cayman	0.0%	6.5%	6.5%	N	Y	N	Y
8	Dominica	27.4%	27.4%	0.0%	Y	Y	Y	Y
9	Grenada	1.4%	5.4%	3.9%	Y	Y	N	Y
10	Guyana	21.8%	30.9%	9.1%	N	Y	N	N
11	Haiti	20.1%	20.1%	0.0%	N	Y	N	Y
12	Jamaica	7.8%	13.8%	6.0%	Y	Y	Y	Y
13	Montserrat	0.0%	13.8%	13.8%	N	Y	N	N
14	St Kitts and Nevis	0.0%	4.8%	4.8%	N	Y	N	N
15	St Lucia	0.2%	4.0%	3.8%	Y	Y	N	Y
16	St Vincent and Grenadines	12.2%	15.3%	3.1%	Y	Y	N	N
17	Suriname	46.1%	47.9%	1.8%	N	Y	N	N
18	Trinidad and Tobago	0.0%	0.0%	0.0%	N	N	Y	Y
19	Turks and Caicos	0.0%	1.2%	1.2%	N	N	N	N
	Total	**8%**	**12.3%**	**4.3%**				

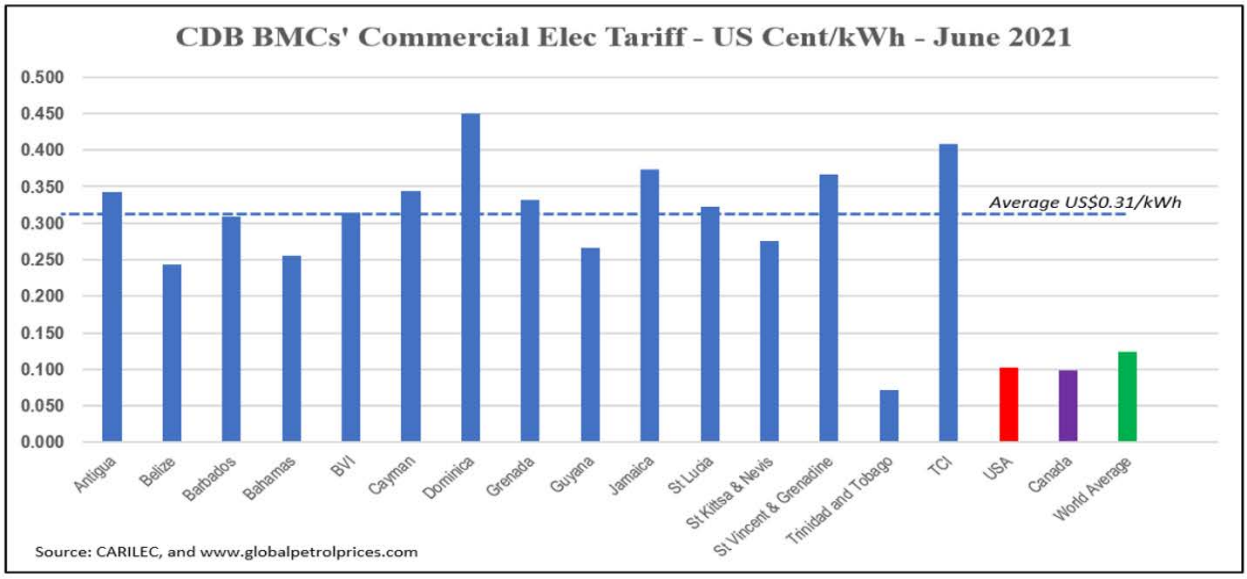
Key: Y=yes; N = No

Source: CCREEE, NREL, RMI-ETI

2. **RE performance against targets:** The chart below shows the performance of BMCs with respect to the level of RE penetration in terms of capacity installed (shown as percentage) compared to the set target for each country (shown in **percent** - of RE capacity installed as a share of the total electricity generating capacity).



3. **Electricity Tariff across BMCs**: The chart below shows the average electricity Tariff across BMCs in June 2021, also providing a comparison with average electricity Tariff in the USA, Canada and globally. With the impact of the Russia-Ukraine war in 2022 this situation would have been significantly exacerbated.



4. **Status of Energy Policy, Legal and Regulatory Frameworks Across BMCs:** The table below depicts the general status of Energy Policy and Regulatory Framework by highlighting which BMCs have established policies and the year of establishing the same. Also shown are the BMCs which have adopted specified RE and energy efficiency (EE) Policy Instruments and Legislations as part of their sustainable energy (SE) promotion, and the year of implementation. Cells shown in *yellow* represent the most recent implementation since 2019, while cells shown as *white* and left blank indicate no action. Where the year is uncertain the cells have also been left blank.

STATUS OF POLICY, LEGAL AND REGULATORY FRAMEWORK – CDB'S BMCS – 2021

Country	Strategy Action Plan	Inter-connection	Net Billing/ Net Metering	Feed in tariff	National Development Plan	National Energy Policy	Renewable Energy Policy	Electricity Act (Amended to include RE/ EE)	RE/EE Act	Transport Act which supports EV/ EE	Tax Acts which supports RE/EE
Anguilla	2012					2009					
Antigua and Barbuda	2013	2011	2017			2011			2015		
Barbados	2020	2017	2010	2019	2013	2019		2019			2019
Belize	2019				2016						
British Virgin Islands	2019	2018	2018	2018	2020		2016	2015			
Cayman Islands	2017	2018	2018	2018		2017					
Dominica	2019	2016	2016	2019	2018	2019		2006	2016 (Geothermal)		
Grenada					2019	2011		2017			
Guyana	2018	2017	2019		2019	2017			2013 (Hydroelectric)		2018
Haiti	2006				2012	2012					
Jamaica	2020	2016	2016		2009	2009	2010	2015			
Montserrat					2018	2016					2019
St Kitts and Nevis	2017	2018			2003	2011	2021	2017			
St Lucia	2017	2017		2017	2008	2010		2017	2011 (Geothermal)		2020
St Vincent and the Grenadines	2021	2019	2019	2019	2013	2009		1973	2015 (Geothermal)		
Suriname	2018	2018	2018	2018	2017			2016			
The Bahamas	2018	2017	2017	2017	2017	2013		2015		2016	
Trinidad and Tobago	2020	2011			2016						
Turks and Caicos Islands	2019	2018	2018		2008						

Source: CCREEE 2021

APPENDIX II

SUMMARY OF CDB'S FUNDING OPERATIONS AND ACTIVITIES IN THE ENERGY SECTOR 2015-2019

Key Results per Results Management Framework

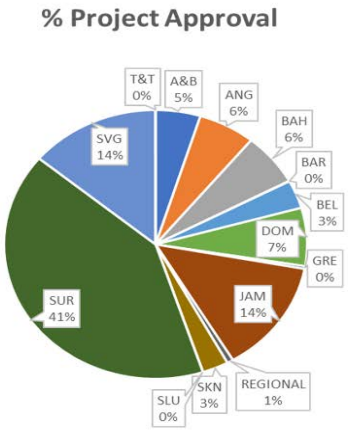
Description	Target	Result 2015-2019
Energy Efficiency: Energy Saved (GWh)	20	23.5
RE Capacity Installed (MW	8.5 MW	1,24

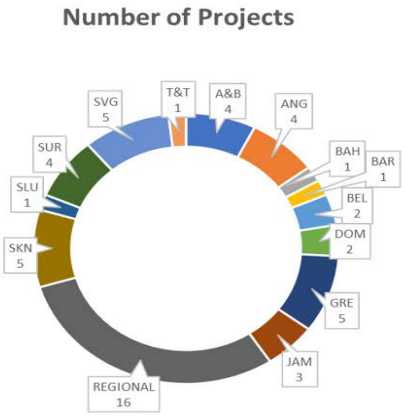
Approvals (2015-2019)

Total number of energy interventions (capital and TA Projects approved)	54
Total number of Investment Projects	36
Total number of TA Projects	40
Total Energy Projects (Loans and Grants)	USD231.08 million
Total Loans	USD187.87 million
Total Grants	USD43.20 million
Energy Projects' share of CDB's total approvals	14.1%

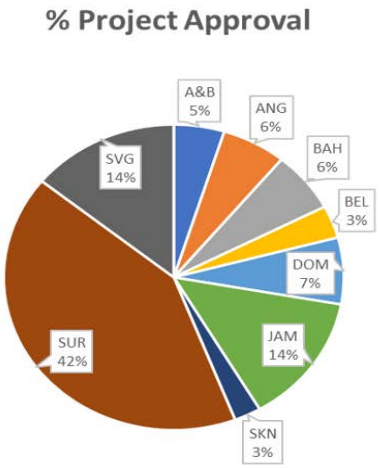
Project Types	Quantity
Project preparation - TA	20
Capacity building - TA	15
EE Street lighting - capital	6
Regulatory Support - TA	3
RE Generation - capital	3
Transmission and Distribution upgrades -capital	3
Line of Credit Facility	1
Rehabilitation - capital	1

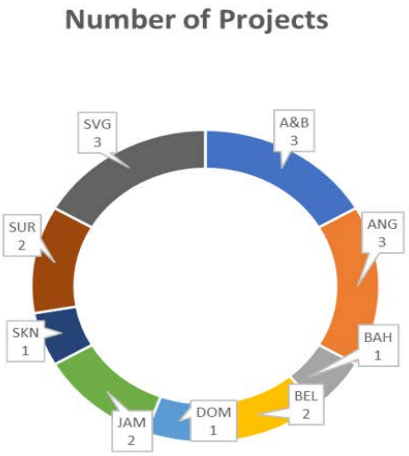
All Energy - Approvals 2015-2019



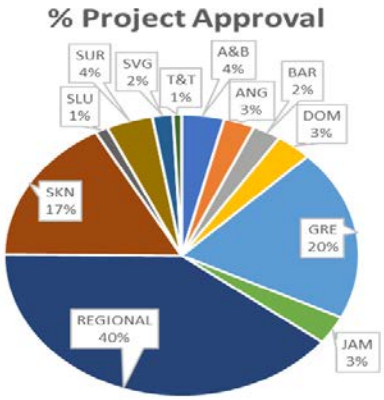


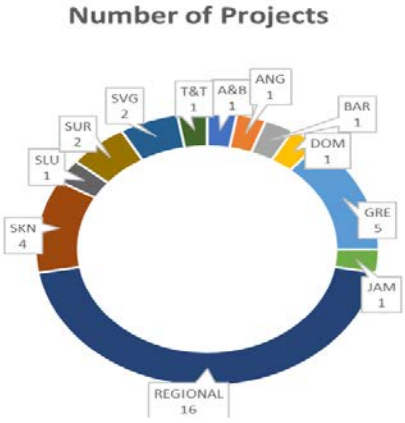
Energy Investment Projects – Approvals 2015-2019





TA Projects – Approvals 2015-209





APPENDIX III

TABLE: CDB'S COLLABORATION WITH DEVELOPMENT PARTNERS ON SUSTAINABLE ENERGY DEVELOPMENT

	Partners	**Level of Collaboration/Cooperation on Sustainable Energy Development**
1	Abu Dhabi Fund	Light and general collaboration – exchange of information about intervention in the Region
2	AFD	Collaboration through EID in the context of TA and infrastructure funding to the Bank;
3	Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE)	Strong Strategic Partnership: Framework Cooperation Agreement signed in September 2021 – capacity and knowledge management
4	Caribbean Climate-Smart Accelerator	Light collaboration – exchange of information
5	Caribbean Community Climate Change Centre (CCCCC)	CDB has cooperation with CCCCC through the Bank's Environmental Sustainability Unit – also SEU collaborates in the context of the CARICOM/COTED Task Force on Resilience in Energy Supplies
6	Caribbean Electric Utility Services Corporation (CARILEC)	Strong collaboration for capacity strengthening; CDB/CARILEC collaborate on Task Force on Energy; CDB provides TA for capacity strengthening
7	CARICOM Development Fund (CDF)	Good cooperation on Risk Mitigation Instrument – Caribbean Risk Abatement Facility – CDB providing funding support for the CRAF
8	CARICOM Secretariat	Strong Strategic Partner: - CDB manages the Finance Pillar of the CSERMS Framework within the context of the implementation of the CARICOM Energy Policy; Technical Assistance Programme for Sustainable Energy in the Caribbean (TAPSEC); also, CDB is represented on the CARICOM/COTED Task Force on Resilience in Energy Supplies
9	European Investment Bank (EIB)	Strong collaboration through CDB's ESU: CDB has a Funding Agreement with EIB for the Climate Action Line of Credit which provides resources
10	European Union /European Commission	Strong Strategic Partnership: Agreements signed in 2015: SEEC Programme; EU-CIF Geothermal Risk Mitigation Programme; CDB is an intermediary for the EU-CIF
11	GIZ	Strong collaboration: Agreements signed in 2016: TAPSEC Programme; Capacity support to CDB; Climate Advisory
12	Global Affairs Canada	Strong Strategic Partnership: Agreement signed 2016: CSES-C Fund – supports TA interventions for (i) Project preparation; (ii) capacity (iii) Regulatory Framework; CDB/GAC collaborate for resources
13	Government of New Zealand (GONZ)	Strong cooperation in the context of GE development – MOU established in 2017 between GONZ and CDB

14	Green Climate Fund	Strong Strategic Partner: Agreements signed 2018; CDB is an intermediary for the Green Climate Fund
15	Inter-American Development Bank	Strong Strategic Partnership: Agreements signed 2015: Sustainable Energy Facility for Eastern Caribbean Programme (SEF) – Agreements (IDB, GEF, CTF, GCF, Government of Italy); Agreement signed 2020 for SEF/GCF; Government of Italy resources for Geothermal Energy Development
16	International RE Agency (IRENA)	Good general collaboration: The Bank is now pursuing a more formal engagement as part of the SIDS Lighthouse Initiative
17	Japan International Cooperation Agency (JICA)	Light: MOU signed in 2014; Collaboration on GE support in the context of CDB GeoSmart Initiative
18	OECS Commission	Strong Strategic Partner: Cooperation as a regional institution; CDB participates as an observer in the Council of Ministers of Energy and Sustainability; CDB is pursuing a GEOBUILD Programme with OECSC
19	Organisation of American States (OAS)	General collaborations - Annual meeting in the context of donor coordination – led by CCS and EU
20	Organisation of Caribbean Utilities Regulator; (OOCUR)	CDB provides TA support; ongoing collaboration on strengthening of Regulatory Frameworks; Also target for much stronger cooperation
21	Rocky Mountain Institute (RMI)	Strong Strategic Partner: Philanthropic based Organisation; active in Project preparation and de-risking; CDB engages general collaboration in the context of support for BMCs; Also, coordinator for Climate Finance Action Network (CFAN): CDB signed-up with CFAN in March 2022
22	UK-FCDO	Strong Strategic Partner: Agreements signed in 2015: SEEC Programme, Geothermal Energy in SVG
23	UNDP-Barbados	Light collaboration in the context of Implementing Partner for CDB in countries
24	USAID/USDOE/State Dept	Light engagement in the context of regional Programme being developed
25	World Bank	Good cooperation and coordination meetings – Geothermal energy and SE generally

APPENDIX IV

SUMMARY OF FINDINGS BY CDB'S OFFICE OF INDEPENDENT EVALUATION FOR THE EVALUATION OF ESPS-2015 AND ENERGY SECTOR INTERVENTIONS 2015-2019

Conclusions

The ESPS was the first Energy Strategy and Policy developed by CDB, leading its REEEU to support Sustainable Energy Projects since 2016 and become a key Development Partner in the Caribbean energy sector and for international financing institutions and Bilateral agencies. Improvement of BMC Regulatory Frameworks and enabling environments remains a challenge that the next ESPS should tackle to increase sustainable investment from both the public and especially the private sector. More coherent Results Frameworks will also enable better monitoring of ESPS and Projects' results.

Conclusion 1 – Relevance and Role of CDB: The ESPS was relevant in 2015 and is still very much so today, given the needs and opportunities in the regional energy sector. Although the level of engagement in the development of the 2015 ESPS among Stakeholders in BMCs was minimal, direct beneficiaries perceived that the ESPS priorities/objectives addressed their main needs. Furthermore, national and regional Stakeholders as well as Development Partners expressed interest in being engaged in the development of the next ESPS and would add value by bringing complementary experience and market knowledge.

Conclusion 2 – Innovation in Engaging Partners and Brokering Blended Finance: While launching CDB into an important regional development space, the Bank also used the ESPS to facilitate the engagement of diverse Development Partners, to broker the financing of joined-up initiatives, and to deploy financial instruments that appropriately blended market rate, concessional, and conditionally repayable financial elements. Stakeholders and Partners recognised this innovative effort.

Conclusion 3 – Donor Coordination: There is room for better regional donor coordination and cooperation to align initiatives and promote efficient information sharing and use of resources and expertise. This would include working more closely with regional organisations that have technical capacities and expertise in the energy sector: the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE), the Caribbean Electric Utility Services Corporation (CARILEC), the CARICOM Regional Organisation for Standards and Quality (CROSQ), and of course the CARICOM Energy Unit. Such a well functioning network would facilitate CDB's focus on effective technical assistance and financing, improve support to regional initiatives and Projects, and optimise use of resources available to assist BMCs.

Conclusion 4 – Regulatory Frameworks and Country Capacity: While the ESPS recognised the importance of improved Regulatory Frameworks and enabling environments and mobilised some technical assistance in support of that objective, this area was underfinanced relative to others and made limited progress over the review period. A renewed ESPS would need to be more focused on increasing the robustness of BMC institutional capacity to regulate their energy sectors, which in turn will ensure more sustainable initiatives and Project implementation from BMCs.

Conclusion 5 – Results Monitoring and Verification: For the Project sample studied by this evaluation, most planned outputs, and some outcomes, were achieved, albeit with delays. For the Strategy as a whole, the 2015 Results Framework (RF) included four indicators with targets. One energy efficiency (EE) reached the originally stated level of ambition, and three (installed RE capacity, RE as a percentage of generation, newly installed clean energy for power generation and transport) did not. The remaining 11 indicators from the 2015 RF did not have targets and could not be verified. Tracking and reporting on results that summed from Project to SFP and then to ESPS were not possible, given insufficient alignment of RFs between those levels as well as limitations in the Bank's Management Information System. The advent of OP365, can provide greater attention to coding of EE/RE Project components in that system, and the revised ESPS and SFP RFs that include SMART indicators which offer the prospect of improved results reporting going forward.

Conclusion 6 – CDB's Institutional Arrangements and Reporting: The creation of the REEEU provided the profile for CDB as it ramped up its engagement with the regional energy sector. The Unit did, however, have limited human resources relative to the ambitions of the ESPS, with implications for the scale of operation and achievement of ESPS targets in some priority areas, and sometimes delaying reporting to Development Partners. The amount of reporting required across Projects and SFPs is substantial and sometimes duplicative. There is scope to streamline this reporting effort, which could economise on the use of limited staff resources and give a more coherent overall picture of programme activity. Funding Partners would have to be prepared to accept common reporting instead of tailored individual reporting.

Strategic cooperation with regional organisations such as CCREEE, and the use of consultancy could help offset limited REEEU human resources. Finally, there is scope for more rigorous consideration of mainstreaming RE/EE in non-energy sector Projects of the Bank, through for example mandatory screening for RE/EE opportunities at the Planning/Appraisal stage.

Conclusion 7 – Private Sector Engagement: To date, the Bank has met with limited success in engaging private actors in energy sector investment. This has been due in part to the nature of its own lending instruments, and to slow progress in national enabling environments for renewable energy and energy efficiency (RE/EE). Policy-based lending to address energy sector enabling environments and regulatory issues took place on a limited scale over the review period, but offers an opportunity for facilitating reform leading to increase private investment in the future. Currently, Project Risk Analysis is focused on typical external business risks (market related). RE/EE Projects in private borrower settings are more exposed to internal risks such as operation and maintenance, and the ability to maintain current business volumes, and equipment performance. Consequently, risk analysis needs to understand better and focus more on these internal risks, the majority of which are operational or contractual in nature.

Conclusion 8 – Gender Equality: There is a need for greater consideration of gender equality in Project implementation. Gender action plans and the gender marker system proved to be insufficient to ensure gender mainstreaming in investment and technical assistance over the review period, notwithstanding recognised gender gaps in the energy sector. There is interest in gender issues among CDB staff and an opportunity to enhance gender mainstreaming at the Strategy and Project levels going forward.

Recommendations

Recommendation 1: CDB should consult with regional Stakeholders and Development Partners in the design of the next ESPS since they would add value and ensure coherence with other regional or national initiatives. CDB should consider taking on a more explicit leadership role for cooperation in the regional energy sector and outline that intention in the next ESPS. It should also deepen its engagement with select regional energy sector organisations.

Recommendation 2: The next ESPS should bring renewed focus to strengthening the institutional governance of CDB's BMCs, Regulatory Frameworks, and capacities to facilitate increased investment in sustainable EE/RE Projects as well as resilient energy infrastructure in the context of climate change and disaster management.

Recommendation 3: CDB should reconsider how to best manage and report on results for its Energy Sector Programming and set out a clear intended approach in the new ESPS. Output and outcome indicators at Project, SFP, and ESPS levels should be aligned, coherent, and SMART[1] with appropriate baselines and targets. All Projects should be properly coded for their energy sector content in OP365, even where only some Project components are energy related.

Recommendation 4: To facilitate donor coordination and better use of limited REEEU staff capacities, CDB should increase its cooperation with regional organisations, and encourage Development Partners to accept consolidated progress reporting on all SFPs and Projects to save time and better track ESPS outputs and outcomes.

Recommendation 5: The next ESPS should bring greater emphasis to the crowding-in of private-sector energy investments. It should address possibilities for more flexible financing approaches to facilitate engagement of the private sector, as well as the use of policy-based lending to encourage strong enabling and Regulatory environments. The REEEU should collaborate with the PSDU in the design and deployment of Private-Sector Programmes that are aligned with the ESPS, promoting the inclusion of RE/EE components whenever possible. It should also work with the Chief Risk Officer to identify, quantify, and describe RE/EE specific risks as well as the Bank's appetite to take them on.

Recommendation 6: The energy sector presents unique opportunities for the advancement of gender equality in several areas, including greater female participation in STEM disciplines and the labour force; better household energy security and labour saving; and even enhanced personal security through better public lighting. A renewed ESPS should emphasise opportunities and outline expected results for gender equality over the strategy period and provide guidance for greater mainstreaming of gender equality in Energy Sector Projects. This emphasis should extend to TA Projects, which can provide targeted approaches to more gender equal participation in the sector.

[1] Specific, measurable, achievable, relevant, and timebound.

APPENDIX V

SUMMARY OF SELECTED KEY FEEDBACK FROM BMCS AND KEY STAKEHOLDERS

Selected Stakeholders	Some Contributions/feedback (keywords, main issues) – Stakeholders; Workshop held January 31, 2022
BMC Antigua and Barbuda	CDB is one of the easier Agencies to work with; Antigua and Barbuda welcomes that and looks forward to continuing cooperation with CDB; - One of the challenges is securing financing for ***energy audits and energy surveys***; need for creative financing, soft financing or Grant financing to enable the institutions, both government and private sector; - It is hoped that CDB can pay some attention going forward; - Necessary changes need to be made to making the results from the energy audits and the surveys workable and implementable - Enhanced focus will be placed on ***cooperation with CCREEE;*** - Generally, A&B has been satisfied with the assistance and support from CDB; - A lot of work has been done with CDB on energy efficiency, street lighting and various audits.
BMC Belize	- Utility BEL is advised on the testing of an ***IUS model*** – CDB is supporting this; - There is scope for supporting micro/mini-grid development in remote communities.
BMC Dominica	- Welcomes the Pre-feasibility study being done by CDB/IDB on ***offshore wind;*** - This kind of activity needs to be continued to support the investments; - CDB can consider this activity to see how to ***support governments and private sector investors;*** - ***CDB needs to show more flexibility*** and openness about the baseline studies;
BMC Guyana	Guyana is pursuing many of the RE options. CDB could consider how to support Guyana in the various areas; - A key challenge is the availability of raw materials that causes short -term delays; - Another key challenge is ***access to low-cost financing;*** - Technical Assistance from regional entities like CCREEE is essential as well; ***CDB needs to work closely with CCREEE;*** - Guyana is putting mechanisms in place for a circular economy - utilising waste streams to create new industries like, battery recycling; - Very important area for solar and other intermittent sources has been the ***cost of Battery Storage Plants;*** - ***Work on the Regulatory Framework*** to support distributed generation and self-generation is in progress and supported from a number of entities; - S***torage technologies*** (batteries or flywheel) are ***considered key*** for RE development; - In 2022, some EV charging stations will be installed to prepare for increasing numbers of EV; - BESS, EE improvements and solar PV for government buildings are important elements of Guyana's RE/EE development path.
BMC- Jamaica	- Plans to expand on the distribution level of operations ***to allow for a solar system on every rooftop.*** The owner would have the potential for financing and engineering support. This regulation will tie in with Strategic Framework for electric mobility; - Key constraints or challenges relate to energy affordability and to international competitiveness; - Plans to twin regulation with the House Wiring Initiative which is currently underway by the Jamaica Social Investment Fund, to support the Ministry of Local Government and Rural Direct Development; - Plans to minimise the ***loss reduction at the distribution level***, with house wiring to be one of the targeted programs.

Selected Stakeholders	**Some Contributions/feedback (keywords, main issues) – Stakeholders; Workshop held January 31, 2022**
Utility-NEVLEC St. Kitts and Nevis	- NEVLEC is very happy with the presentation by CDB on the issues and options to address them, as well as specific strategies contemplated; - CDB supports ongoing efforts, but more importantly is looking ahead and supports key feasibility studies; - CDB must focus on identifying Projects which can ***enhance economic development*** as well as support ***decarbonisation; e.g. expansion of GE****;* - From other Projects, experience shows that ***financing is a problem*** and CDB appears keen to provide innovative support in this area; - Also, the Bank is seen to be structuring its strategy to support financing in a flexible way, and is also pushing the IPP approach; however, it should be noted that below a certain scale ***IPPs may be costly*** as e.g., contracts and other development costs are similar for 10 MW or a 100 MW Project; - Given the fact that the contribution of Caribbean countries to climate problems is miniscule but that they must be a part of the solution, CDB should ***assist in accessing more Grant financing and concessional financing***.
Utility – VINLEC St. Vincent and the Grenadines (SVG)	- EE has always been regarded as the low-hanging fruit and VINLEC wants to applaud CDB in seeking to encourage governments across the Region and utilities in this regard; - CDB is ***well positioned to collate and collect experiences*** across the Region that will help to highlight and ***promote electro mobility;*** - Energy – specifically EE Projects in St. Vincent and the Grenadines (SVG) should be better positioned and ***more visible, especially among policy makers;*** - SVG feels, however, that more focused interventions need to be pursued; - ***Offshore wind*** should be pursued in the Region as a priority.
BMC -Trinidad and Tobago (TT)	- Government is pursuing an aggressive RE agenda, however Trinidad and Tobago could benefit from ***TA support for assessments;*** - A W***ind Assessment Study*** is also due to commence; CDB's support would be welcomed.
Partner CARILEC	- More attention needs to be given to ***improving Regulations or the Legal Frameworks*** in respective Member States
Partner FCDO	- The energy sector will continue to be an area of focus for FCDO; particularly since the UK has made its own commitments and is seeking to support the Caribbean countries, particularly those who have identified their NDC goals.
Partner OECS	- The OECS questions whether the right political decision-makers are always targeted and stressed the need for ***urgent improvement in communication with decision-makers****;* - Direct support to regulatory authorities is needed, especially in the energy sector but also in other areas such as the environment.
Partner RMI	- Most utilities and countries still struggle to properly prepare a Project with the right business case for submission to CDB or any other financial institution; - A key challenge for CDB as a financial institution is how they can help ***governments and utilities in preparing these documents;*** - RMI stresses the importance of adding ***resilience*** to the ***Integrated Resource Planning*** and welcomes the cooperation of CDB and CCREEE.

OUTLINE DESCRIPTION OF THE ASERT-2030 FRAMEWORK

INTRODUCTION

1. As at the end of 2021, the gap between the regional level of RE penetration (12%) and the 2030 target (55%)[1] was very wide (at 43%). The level of investment necessary for this gap to be filled can be described as **massive.** Further, to meet the target, the investment would need to be made in a very short time, requiring that such investments be delivered at an **express-pace,** multiple times the current pace of investment**.** It is therefore clear that the targets cannot be achieved by the current (or the business-as-usual) approach and will require **bold and assertive actions reflecting urgency in scaling-up of private investment.** Further, given known weaknesses and vulnerabilities, it is necessary that this be done in a manner which also promotes improvement in ***resilience*** and ***gender balance*** in the energy sector. Against this background, the **Accelerated Sustainable Energy and Resilience Transition** – 2030 **(ASERT-2030)** Framework has been conceived by CDB to facilitate the Bank's leadership role in promoting bold decision making in relation to pursuing **transformative initiatives (referred to as ASERTives)** for scaled RE Investments Projects, as well as for transforming the enabling Framework to facilitate immensely increased private investment.

SUMMARY OF ASERT-2030 FRAMEWORK

2. Essentially, the ASERT-2030 Framework is a CDB-led targeted engagement with BMCs and Partners in addressing the question of: *"How the BMCs individually, collectively, as a whole, or as sub-groups, can scale-up and speed-up their energy transition (beyond the current scale and pace), to realise national and regional RE targets?"* That is, how BMCs can stretch current ambitions in terms of implementation. This approach will likely be pursued as a stand-alone intervention but may also be included as part of the Bank's CES process. The engagement with BMCs will be attended by *rapid* Country-Specific Analyses[2] (building on results of IRRPs where these exist) to assist with identifying key barriers/issues, to establish costs/benefits, resources required and will yield a pipeline of transformative Projects/interventions, investment budget, specific funding resource requirements, and Action Plans (for immediate and medium-term actions). CDB, in collaboration with Partners will seek to provide immediate responses where feasible or coordinate strategic responses. In parallel (or ahead of some engagements), CDB and Partners will develop funding[3] and De-risking Programmes/Strategies around specific RE resources and barriers which may be proposed to specific BMCs or group of BMCs. The ASERT-2030 Framework is therefore focused on going *'beyond the business as usual'* progress for the energy sector transition in BMCs.

COMPONENTS

3. The ASERT-2030 Framework has three main dimensions, namely:

   (a) **ASERTive Dialogues** (AD) with BMCs, and with Partners – which are structured engagements with key Stakeholders and decision makers in BMCs, through which ASERTives or stretch-scenarios (beyond business as usual) are identified, proposed and agreed. As a starting point CDB will develop rapid scans of the BMCs energy situation (which will include and consider the outputs of IRRPs) and leverage its experience in the Sector over the last seven years, to identify and develop transformative Programmes which

[1] Extrapolated from the regional 2027 target of 47%.
[2] In all cases, to achieve rapid response, CDB will build on existing assessments and information already available, hence will not start from scratch.
[3] Many of these interventions have already been conceived based on CDB's experience in the sector.

can be proposed to groups of BMCs, while also allowing the BMCs to chart their priorities and to shape ASERTives to fit their specific context. Some indicative ASERTives have already been identified.

(b) **ASERTives Identification and Development** (AID) by CDB, BMCs and in collaboration with Partners. Some of these may be specific to a particular BMC, or group of BMCs and will emanate from the engagement with the BMC/s. However, based on CDB's knowledge, baseline assessments and experience with the testing of various instruments, the Bank will, in parallel, develop and propose some regional level ASERTives.

(c) **Strategic ASERTive Partnerships** (SAP) which will facilitate resource mobilisation and more effective coordination among all Partners active in the Region. To support coordination and sharing of information as well as to enhance resource mobilisation efforts, a mapping of the ASERTives, other initiatives and investment thrusts will be developed and juxtaposed with the resources' requirement, and availability to yield the resource gaps.

4. Therefore, within ASERT-2030, CDB:

(a) identifies or develops key ASERTives reflecting stretch scenarios for BMCs in the private and public sectors and across the four Strategic Pillars of the ESPS-2022;

(b) determines the funding needs to significantly scale up investments to meet the set 2030 targets;

(c) determines the CDB resources which are appropriate and available for the identified areas of interventions; and

(d) determines the extent to which suitable resources can be mobilised by CDB to fill some or most of the gaps.

(e) identifies where remaining gaps within the identified ASERT areas, or other areas, are best filled by other FIs and Partners.

5. Through the ASERT-2030 Framework, CDB's continued collaboration with Regional and International Development Partners will be enhanced by facilitating:

(a) Improved monitoring, and tracking of contribution of Partners;

(b) Increased opportunities for co-financing with Partners where deemed feasible to sponsor and participate more actively in regional energy sector dialogues;

(c) Increased mobilising resources for energy sector development;

(d) Expedited establishment of robust governance arrangements including more timely supporting of countries in elaborating their IRRPs, and in establishing harmonised energy information systems;

(e) Expedited dialogues on strategies and actions for establishing integration of electricity infrastructure across borders; and

(f) Expedited dialogues around the trade arrangement for energy - working with the CDB Regional Cooperation and Integration Unit.

6. As noted earlier, as a mapping tool the Framework can be used for communicating the contribution of various Partners, as well as the basis for resource mobilising through strategic partnerships. See illustrative Framework at **Box below**.

ENHANCING COORDINATION THROUGH THE ASERT-2030 FRAMEWORK

		Indicative Key ASERT Areas of Intervention (ASERT Initiatives)	Targeted BMCs/ Partners by 2030	Capacity	Investment Required	FUNDING REQUIRED		CDB FUNDING		PILLAR 4 OTHER FI & PARTNERS FUNDING				Comments
		Category		MW	USD	Loan	Grant	Available	Suitable/ Adequate	Available	Suitable/ Adequate	Instrument	Funding Gap	
PILLAR 1	Access to Sustainable Energy and Resilient Grid	**1. Public Sector**												
		DERs for Schools												
		DERs in office and institutional buildings												
		Purchase of EV fleet - public sector												
		2. Electric Utilities (public and private)												
		Utility scale Solar/Wind												
		DERs thru IUS Model												
		Grid Modernization: Smart Grid upgrade with BESS												
		T&D Upgrade for resilience												
		EV Charging Infrastructure												
		Street lighting retrofit												
		3. Private Developers (& or PPPs)												
		GE Development - power plant (PPP)												
		Utility scale - Offshore wind (Direct)												
		Utility scale solar/wind (Direct)												
		Green comodity Industrial parks (PPP)												
		GE - direct use (PPP)												
		DFI RE lending to housing market (Indirect)												
	NZE2050 -New Opportunities													
		4. Dedicated RE/New Energy Carrier/Industrial Parks												
		Green Comodity Industrial Parks												
		Utility scale - Offshore wind - for green commodities												
		GE for Green commodities												
		Sub-marine Interconnection												
	Resilience	Hardening of T&D - critical loads												
		Micro/Minigrds - for flexibility												
		DERS (incl BESS) for Resilience												
		Increased Electricity Access Haiti (special case)												
		Increased access in Other BMCs												
PILLARS 2 & 3	Governance & Capacity	**5. Regulatory Reforms and Capacity Strengthening**												
		Capacity Strengthening (Individual & Institutional)												
		Regulatory Reforms /Strengthening												
		Sector Planning - Development & updating of IRRPs												
		Energy and Gender Initiatives												
		Partial Risk Guarantee Instrument												
		TOTAL												