



POWER THROUGH PARTNERSHIP



2017-2022

Chronicling the collaborations and impact of the Technical Assistance Programme for Sustainable Energy in the Caribbean



Implemented by





**Chronicling the
collaborations
and impact of the
Technical Assistance
Programme for
Sustainable
Energy in the
Caribbean**



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Executive Summary



The Caribbean region is blessed with an abundance of riches in the form of its eclectic blend of people, cultures and natural beauty.



The Caribbean region is blessed with an abundance of riches in the form of its eclectic blend of people, cultures and natural beauty. However, longstanding energy insecurity threatens the region's future, placing the Caribbean Community (CARICOM) at the mercy of high and volatile fuel prices that suppress regional competitiveness and the devastating effects of climate change caused by the use of fossil fuels.

The threat has only grown in the wake of the COVID-19 pandemic, which has further hampered regional growth, created even more volatility in fuel prices and strongly highlighted the critical need for energy diversification within the region.

Brought into effect in 2016 by the CARIFORUM Directorate and the European Union (EU) under the 11th European Development Fund (EDF), the Technical Assistance Programme for Sustainable Energy in the Caribbean (TAPSEC) existed to support the region's journey towards a sustainable future via a low-carbon development pathway.

Implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in collaboration with the CARICOM Secretariat, the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE), and the Ministry of Energy and Mines in the Dominican Republic, TAPSEC's efforts were grounded in the implementation of the CARICOM Energy Policy (CEP), the Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) alongside various national energy policies and strategies across the region. The programme's core mission was executed through

partnerships with a number of national and regional stakeholders, including the CARICOM Secretariat, the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) and the Ministry of Energy and Mines in the Dominican Republic.

TAPSEC's commitment to collaboration endured despite the physical separations created by the COVID-19 pandemic, allowing the programme to achieve many of its stated objectives despite the pandemic's impacts. In fact, those partnerships became more important than ever as the TAPSEC team continued to work closely with their counterparts in partner organisations, adapting to the "new normal" even as they worked to support the regional energy sector's transformation.

As we bring TAPSEC to its conclusion, it is important to reflect on the programme's achievements and the region's progress towards a future in which all CARICOM citizens have access to modern, clean and reliable energy supplies at affordable and stable prices. Through an exploration of the three main pillars of TAPSEC's efforts – Policy, Information and Capacity Building, and Finance – the TAPSEC Legacy Magazine explores the wealth of strategic interventions undertaken during its five-year execution. It stands as a testament to the incredible work that was undertaken by numerous regional and national organisations and a call to other programmes and international organisations to join in to support the Caribbean region as it continues along this transformational journey.

> Remarks

The Journey Toward A Sustainable Climate- Resilient Caribbean

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Caribbean
countries
are
remarkably
positioned
to benefit
from
renewable
energy
sources.

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The energy sector is changing rapidly around the world as greener and cleaner energy sources become increasingly part of global governmental mandates with stronger commitments towards carbon-neutral economies. Caribbean countries are remarkably positioned to benefit from renewable energy sources. Electricity prices in the Caribbean are among the highest in the world, making this region fertile ground for economically viable energy savings measures.

Transitioning from energy systems largely powered by imported fossil fuels not only requires short-, mid- and long-term planning, decision making and leadership commitment, but also the financial and human resources necessary to lead, implement and sustain the energy. On top of this, climate resilience measures must be deeply integrated in the energy transition as the climate vulnerability of the CARIFORUM region is high and the adverse effects of global climate change are already noticeable.

Since October 2017, the Technical Assistance Programme for Sustainable Energy in the Caribbean (TAPSEC) has supported the implementation of regional and national initiatives in the CARIFORUM region, to increase the Caribbean's pace toward sustainable energy implementation. TAPSEC is built on a strong foundation of collaboration with key regional organisations and national players in the energy sectors of the Caribbean Community (CARICOM) and the Dominican Republic (DR). The programme is implemented in collaboration with our partners in three thematic areas: Policy & Regulation, Information & Capacity Building and Finance.

TAPSEC's implementation connects the visions and ambitions of government, private sector, civil society and other non-state actors in growing and sustaining the emerging renewable energy sector across the Caribbean.

With the challenges felt around the world by the COVID-19 pandemic as well as the war in Ukraine, we are reminded of the importance of green energy systems. The current fossil energy price hikes renew the urgent need for sustainable and climate resilient energy systems. It must therefore also be seen as an opportunity for the region to move from ambition to action with great haste.

There were many challenges, but keep reading and you will see how much we have accomplished together with our partners. We from TAPSEC hope, that the outcomes of our work and our support of regional and national efforts are felt long after the project's end. Stay safe, everyone!

Mr Simon Zellner

Mr Simon Zellner

Programme Leader,
TAPSEC | Cli-RES

> Remarks

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The Caribbean is that much closer to creating a future in which its residents have access to modern, affordable and sustainable energy services.

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Implemented by

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has been working in the Caribbean for more than 30 years, engaging in a variety of initiatives aimed at boosting regional resilience to the effects of climate change and reducing regional dependence on fossil fuel imports. From 2017 to 2022, GIZ implemented the Technical Assistance Programme for Sustainable Energy in the Caribbean (TAPSEC), which was tasked with supporting the regional transition toward low-carbon, climate-resilient sustainability through collaboration with key regional organisations.

With quite a large scope, TAPSEC was important to GIZ's regional portfolio, as it touched on both of our main priorities: environmental policy, conservation and sustainable management of natural resources; and renewable energy and energy efficiency. Adopting a holistic approach, the programme was executed on the basis of three primary components: Policy, Capacity Development and Finance.

As the coronavirus pandemic emerged in 2020, the TAPSEC team pivoted to maintain support for the programme's partner organisations remotely. Despite the obvious challenges of that time, TAPSEC achieved its intended indicators and provided technical assistance to organisations working to move the region closer to its sustainability goals.

As a result of TAPSEC's efforts, the Caribbean region is that much closer to creating a future in which its residents have access to modern, affordable and sustainable energy services. The GIZ Caribbean Team is very pleased to have successfully implemented TAPSEC on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) and the European Union and together with so many regional and national institutions from the CARIFORUM region. The GIZ is looking forward to continued collaboration with the Caribbean with the aim of making this a reality.

Verena Blickwede

Verena Blickwede

Country Director - Caribbean
The Deutsche Gesellschaft für
Internationale Zusammenarbeit GmbH (GIZ)



The Government of Germany is dedicated to the intentional and uncompromising shift towards carbon-neutral economies in the Caribbean and throughout the world. In alignment with the international community's objective to limit the global temperature increase to 1.5°C, Germany supports international energy programmes and projects by providing technical and financial assistance to all CARIFORUM Members States.

The Technical Assistance Programme for Sustainable Energy in the Caribbean (TAPSEC) is one such programme helping to facilitate policy advancement, individual and institutional capacity development, and the financing and integration of renewable energy technologies, reinforcing national efforts to meet power demand throughout the Caribbean and in the Dominican Republic. TAPSEC was funded by the German Government as well as the European Union to join forces in a complimentary approach to make technical assistance to the region available.

The TAPSEC Programme has overcome unique and singular circumstances brought about by the global COVID-19 pandemic including but not limited to remote, and ever-changing, work circumstances, global supply chain delays, and the challenges of innovative modernisation and development in times of uncertainty. Despite these challenges, the Programme has achieved and even surpassed its goals in the areas of Policy, Finance, Capacity Development and Climate Resilience.

The efforts made by the TAPSEC team of professionals and partners have brought the Caribbean Community one step further in the region's sustainable energy journey, but the programme's closing does not indicate the end of German Cooperation in the region. We are very pleased and quite proud to have contributed to the success of this programme and the sustainable development of CARICOM's energy sector. The Government of Germany will continue to support CARICOM in its efforts to ensure that every citizen has access to clean, affordable, and reliable energy in the years to come.

Ms Ute König

Ms Ute König

Ambassador of the Federal Republic of
Germany to Trinidad and Tobago

> Remarks

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Despite these challenges, the Programme has achieved and even surpassed its goals in the areas of Policy, Finance, Capacity Development and Climate Resilience.

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Co-Funded by the
European Union

> Remarks

Energy. If the word seems to be able to move mountains, energy itself is capable of much more than that. Shorten distances, change destinies, advance societies or put an end to them - these are but a few possible outcomes of the use we make of this powerful tool. Our lives and lifestyles depend on it a little more every day, just as every day we get closer to harnessing and producing it in ways that allow us to preserve our planet and ecosystems.

The Caribbean and the European Union have a common vision when it comes to energy, its constructive and progress-driven use, its sustainable production through renewable sources and its affordability and accessibility for the final beneficiaries. This is a key element of our partnership and one of the focal areas within our Partnership for a Caribbean Green Deal, together with climate adaptation, disaster risk management, circular economy and biodiversity conservation.

The Technical Assistance Programme for Sustainable Energy in the Caribbean (TAPSEC) has managed to set up, during the last five years, a strong foundation for the cooperation between our two regions in the energy sector. It has become a reference for experts and decision makers when it comes to capacity building, information sharing, policy development and access to finance for both renewable energy and energy efficiency actions in the Caribbean. Moreover, working closely with key partners like CARICOM and CREEE, in a time where most of the countries in the region are engaging in on the path of carbon neutrality, the programme has achieved its ultimate goals: bring a solid contribution to the global climate action, bring the Caribbean citizens a step closer to access cleaner and cheaper energy and to take our regions a step further as partners, on the challenging path of green transition.

I would like to thank GIZ and our regional and national partners, who contributed to the success of this programme and prepared us, not only for the future of our cooperation, but also – simply – for the future.

Ms Malgorzata Wasilewska

Ms Malgorzata Wasilewska

European Union Ambassador Delegation of the
European Union to Barbados, the Eastern Caribbean States,
the OECS and CARICOM/CARIFORUM

“
Energy.
If the word
seems to be
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Individually we go fast, collaboratively we reach further. Over the past four years the CARICOM Secretariat has served as the political counterpart and main strategic partner for the 11th European Development Fund (EDF) Technical Assistance Programme for Sustainable Energy in the Caribbean (TAPSEC). Our partnership has been undeniably fruitful. It has facilitated the implementation of several elements of the CARICOM Energy Policy and the Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS). We have strengthened regional capacity for sustainable energy development by improving policy frameworks, enhancing information systems and deploying innovative financing mechanisms.

Among the many noteworthy outcomes two examples illustrate the breadth of the impact TAPSEC has had in the region. Through TAPSEC we have been able to accomplish one of our strategic priorities: Integrated Resource and Resilience Planning, empowering Member States to reorient their electricity sectors for climate action, disaster resilience and energy security. Additionally, the CARICOM Regional Energy Apprenticeship Programme (REAP) engaged a cohort of twelve young professionals, providing them with meaningful hands-on experience in sustainable energy through internships across our regional institutions.

On behalf of our Member States CARICOM Secretariat, we express our gratitude to the German Federal Ministry of Economic Cooperation and Development (BMZ) and the EU for their co-funding of TAPSEC. As we look ahead, it is important that we reflect on the work done, the impact made, and celebrate the milestones achieved. Our collaboration has brought the region closer to our goal of the fundamental transformation of the energy sector, affording CARICOM citizens access to modern, clean and reliable energy supplies.

Mr Joseph Cox

Mr Joseph Cox

Assistant Secretary-General Economic Integration,
Innovation & Development (EIID)
CARICOM Secretariat

> Remarks

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We have strengthened regional capacity for sustainable energy development by improving policy frameworks, enhancing information systems and deploying innovative financing mechanisms.

”



> Remarks

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The work of TAPSEC in its different areas has been of vital importance and contributed to the development of the energy sector in the DR.

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The Ministry of Energy and Mines, as the main counterpart together with CARICOM in the Technical Assistance Program for Sustainable Energy in the Caribbean (TAPSEC), had the firm conviction and commitment to support efforts to meet the objectives of TAPSEC, sharing our national experiences with the Caribbean countries; developing concrete actions with a balanced vision of Sustainable Development, to create a future society that seeks the satisfaction of human needs, that preserves the environment with a generational dimension and that includes the notion of growth.

Starting with the First Planning Workshop held in Santo Domingo in 2018, which resulted in the Annual Operational Plan, initiatives were undertaken in the different areas of TAPSEC (Policy, Finance, Capacity Development and Climate Resilience). Among these initiatives carried out, in collaboration with TAPSEC in the form of financial support, the hiring of consultants for technical assistance in the field of policy development, capacity building in Renewable Energies and Energy Efficiency, in addition to the installation of equipment in the Ciudad Juan Bosch's Renewable Energy Theme Park.

The work of TAPSEC in its different areas has been of vital importance and contributed to the development of the energy sector in the Dominican Republic, which has been used and well valued by the authorities of the Ministry of Energy and Mines as the governing body of the national energy system.

In this sense, we thank the European Union and the Federal Ministry for Economic Cooperation and Development (BMZ) for the co-financing of TAPSEC, and the GIZ for the support during the implementation of this program, which has impacted the regional transition of positively, through the management of universal access to electricity for all the inhabitants of the region, mitigate environmental deterioration through the use of energy-efficient and renewable technology, to reduce the conditions of poverty and vulnerability to climate change.

Charly De la Rosa

Charly De la Rosa

Former Director of Renewable Energy
Deputy Minister of Energy Efficiency and Savings,
Ministry of Energy and Mines (MEM), Dominican Republic



TAPSEC Support by Country and Regional Institution

Country	Policy & Regulation	Information & Capacity Building	Finance
Antigua & Barbuda	●	●	
Bahamas	●	●	
Barbados	●	●	●
Belize	●	●	●
Dominica	●	●	●
Dominican Republic	●	●	●
Grenada	●	●	
Guyana	●	●	●
Haiti	●	●	
Jamaica	●	●	●
St. Kitts & Nevis	●	●	●
St. Lucia	●	●	●
St. Vincent & the Grenadines	●	●	
Suriname	●	●	●
Trinidad & Tobago	●	●	
Regional Institutions			
CARICOM	●	●	
CCREEE	●	●	●
CDB		●	●
CROSQ	●	●	
UWI		●	
CARILEC	●	●	
CDF		●	●
CXC		●	



Meet Team TAPSEC | Cli-RES



Simon Zellner
Programme
Leader



Corinna Toelzer
Deputy Programme
Leader



Bernd Garbers
Advisor for the Climate Resilience
and Sustainable Energy Supply in
the Caribbean (Cli-RES) Project



Julia Kraus
Finance
Manager



Sparkle Prentice
Senior Policy, Regulations,
and Resilience Advisor



Dr. Niebert Blair
Capacity Building
Advisor



Teocah Dove
Communications &
Visibility Advisor



Grace Williams
Communications and
Visibility Officer



**Evelyn Sandoval
Perez**
Project Manager



**Sophie Vargas
Cadenas**
Junior Business &
Portfolio Development
Advisor





IMPACT AT A GLANCE



27 Trainees/student interns have been offered employment in the region's RE/EE sector (44% of whom are women).

85 

RE/EE practitioners trained and supported (38% were women).

11 

Private sector RE/EE projects received support in preparing bankable project documents or accessing bank loans.

01 

Publicly-accessible data repository (featuring Renewable Energy/Energy Efficiency information and model feasibility assessments) established.

510 

Requests for RE/EE technology information services received and served by CCREEE.



2443

Person-days of technical training executed (67% of participants were women).

16 

CARIFORUM countries received support to develop a conducive legislative environment for RE/EE.

06 

CARIFORUM countries implemented (or are in the process of implementing) Energy Efficient quality infrastructure framework.

44 

Young professionals/students participated in internships (59% of whom were women)



15

CARIFORM countries received support toward introducing and/or implementing Energy Efficient quality infrastructure products and services.



11

Regional centres of excellence strengthened & equipped with technologies to provide advanced RE/EE services.



13

Technology solutions for business models and/or financial mechanisms have been developed in order to reduce transaction costs.



09

CARIFORM countries had RE/EE policies and regulations modernised and deployed, leading to increased interconnection, net metering/billing and FIT.



03

Bankable private sector RE/EE projects effectively accessed funding (through the CDB, its affiliates or any other financial institutions).



05

Business-to-business exchanges organised through workshops and fairs.



05

CARIFORM countries have had electricity grid modelling exercises completed and shared.



39

Sensitisation campaigns, public events and school competitions organised/supported.

A hand holding a black pen is shown drawing a white wireframe of a power transmission tower on a blue background. The wireframe is composed of numerous thin white lines that form the structure of the tower and its associated power lines. The background is a solid blue color with a blurred image of a person's face on the left side. The text is centered within a white-bordered square.

**REFORMULATING
THE ENERGY
POLICY AND
REGULATIONS
LANDSCAPE OF
THE CARIBBEAN**



For the past 5 years, the TAPSEC, through the Policy and Regulations Component, worked assiduously together with key regional and national partners to accomplish the shared goal of supporting policy and regulatory frameworks that enable renewable energy development and energy efficiency.



As a young energy professional in the Caribbean, I've eagerly looked forward to the growth and expansion of sustainable energy across the region. Inspired by our region's energy potential and the realisation of the level of progress and advancement our islands could achieve through better use of our natural resources, I transitioned from a purely scientific background in Chemistry to sustainable energy engineering, convinced of my intended contributions to support our region towards economic empowerment, environmental enrichment, and social upliftment as a result of energy diversification.

Over the years, the merging of my technical and scientific background with policy and regulatory experiences provided me with a broadened and deepened appreciation and understanding of the additional possible pathways to achieve our region's goals towards sustainable energy integration and development. Naturally, when the opportunity to serve the region as Component Leader of the Policy and Regulations component of the TAPSEC Programme presented itself, I leapt at the opportunity - bright-eyed and bushy-tailed, ready to support!

For the past 5 years, the TAPSEC, through the Policy and Regulations Component, worked assiduously together with key regional and national partners to accomplish the shared goal of supporting policy and regulatory frameworks that enable renewable energy development and energy efficiency. Through our collaborations and leadership, we supported the development and strengthening of the region's policy framework by developing flagship regional strategies such as the CARICOM Regional Energy Efficiency Strategy and Action Plan (REES & REEAP) and the CARICOM Regional EV Strategy (REVS), thereby supporting the CARICOM Energy Policy by providing regional guidance for energy efficiency and transport electrification. We succeeded in developing a technical assistance facility, the CARICOM Energy Policy and Regulations Help

(continued on page 18.)



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While some may consider this purely as a financing mechanism, I believe it is also a powerful Policy tool to develop the ESCO market through a sustainable financing and delivery framework that will not only serve to backfill policy and regulatory gaps but be a pull strategy for accessible distributed energy resource development in countries. These are simply highlights of some of the policy and regulatory interventions TAPSEC was able to achieve.

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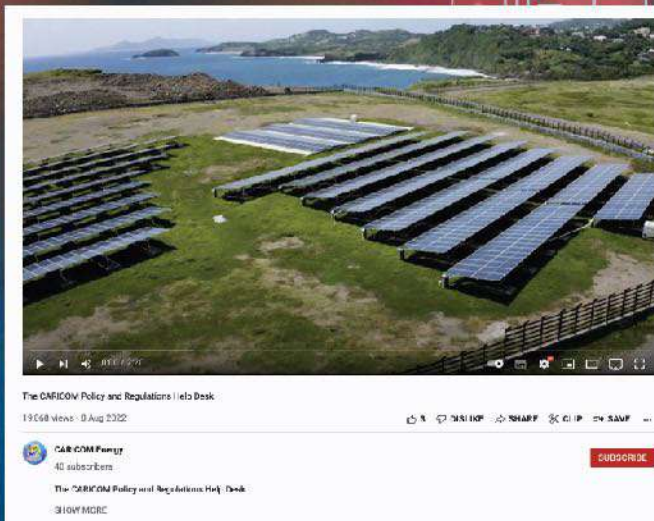
Desk, specifically geared and tailored to meet the policy and regulatory needs of CARICOM countries, and through this innovative facility, 6 CARICOM countries were supported to modernise policies and regulations, undertake tariff studies and even build a better operational and institutional framework to carry out their duties. Through the Integrated Utility Service (IUS) model Pilot Programme, we brought together key players in the ESCO market to remove some of the stumbling blocks of behind-the-meter energy efficiency, and demand side management solutions.

While some may consider this purely as a financing mechanism, I believe it is also a powerful Policy tool to develop the ESCO market through a sustainable financing and delivery framework that will not only serve to backfill policy and regulatory gaps but be a pull strategy for accessible distributed energy resource development in countries. These are simply highlights of some of the policy and regulatory interventions TAPSEC was able to achieve.

I believe that the Policy and Regulations component of TAPSEC has accomplished its objective to further strengthen the region's policy and regulatory landscape, through a collective, regional approach, despite the many challenges and setbacks caused by a global pandemic - an impressive feat. The support and collaboration with key implementing partners, in particular the CARICOM Secretariat through its Energy Programme and the CCREEE, in addition to the MEM, CARILEC, Energy Ministries and national agencies working together to deliver the achievements of the component is invaluable and immeasurable. I am eager to see the countries in CARICOM and the region collectively build upon the impressive progress that we made together over the past 5 years of the programme, so we can reach evermore closer to our national and regional goals, and our individual aspirations for regional advancement.

Sparkle Prentice

CARICOM Energy Policy & Regulations Help Desk: A Regional Tool for Supporting the Sustainable Energy Transition



A successful sustainable energy transition rests on a firm foundation of strong policies and modern regulations. In order to chart the way towards a future in which the Caribbean is no longer at the mercy of volatile energy prices, subject to a one-dimensional energy portfolio fuelled by a singular type of energy source and prepared to withstand the impacts of climate change, the organisations responsible for forging the path forward need a sound framework within which to operate.

Unfortunately, the organisations tasked with supporting the policy achievements and developing the programmes that will facilitate the region's goals often face several challenges, including a battle for financial resources to ensure that their organisations have the technical capacity they need to fulfil their mandates. This battle is hardly ever won, given that Caribbean governments are often engaged in a balancing act to ensure that resources are spread across multiple developmentally-important sectors, such as quality education, good health, clean water, economic growth and combating climate change. The costly nature of the required technical support and the impossible nature of resource allocation for each of these sustainable development goals create

hurdles large enough to thwart the progress of even the most enthusiastic nation.

In recognition of this need, the Technical Assistance Programme for Sustainable Energy (TAPSEC) partnered with the CARICOM Secretariat, through its Energy Programme to create the CARICOM Energy Policy and Regulations Help Desk: a facility designed to directly address the needs of Member States striving to support an enabling environment for sustainable energy. As the first-ever facility to provide technical assistance to CARICOM Member States specifically working to create and maintain sustainable energy policies and regulations, the Help Desk operates on the basis of a robust framework. It calls on an existing pool of technical consultants to serve the needs of nations seeking support in the development, modernisation or implementation of energy policies, legislation, regulations, programmes and initiatives.

Since its launch in 2020, the CARICOM Energy Policy and Regulations Help Desk has provided support to a number of countries across the region, helping to create the enabling environment that will take the Caribbean that much closer to its sustainable energy future.

Help Desk Country Highlights

> Antigua & Barbuda

The Help Desk assisted the Ministry of Public Utilities, Civil Aviation, Transportation & Energy with updating its National Energy Policy to include its vision for the energy sector's sustainable transition that focuses on a phased transition to Renewable Energy sources, efficient use of energy resources, advancing towards clean transportation and building the energy system's reliability and improving the sector's resilience against seasonal hurricanes.

> St. Lucia

Through the Help Desk, the National Utilities Regulatory Commission was able to conduct a tariff study for establishing rates for renewable energy in St. Lucia for distributed and utility-scale generation. The study also included several capacity-building exercises in renewable energy procurement and pricing methodologies. The study and training will guide the Commission in setting renewable energy rates going forward.

> Commonwealth of Dominica

With support from the Help Desk, the Ministry of Blue and Green Economy, Agriculture and National Food Security finalised its revision of the 2019 National Energy Policy, which includes national development objectives, greenhouse gas emission reduction targets and the nation's goal of achieving 100% renewable energy by 2030. Cabinet adopted the National Energy Policy in early 2021. Dominica's Independent Regulatory Commission also received assistance with updating the energy sector's legal and regulatory framework in order to attract energy sector investors and ensure industry best practices.

> Guyana

With assistance facilitated through the Help Desk, the Office of the Prime Minister received support to establish a framework for a net billing programme to support distributed generation and designed to encourage Guyana's residents to invest in renewable energy.

> St. Kitts & Nevis

The Ministry of Public Infrastructure, Urban Development and Post received assistance with undertaking a tariff study to determine the most suitable tariff regime to promote the use of renewable energy resources.

> Suriname

The Help Desk supported the Energy Authority of Suriname with establishing the institutional and operational framework for effective development and functioning of the agency, ensuring that the developed framework would equip the regulatory agency with the capacity and means to execute its mandate to promote the availability, affordability, sustainability and environmental considerations necessary for the energy supply sector.



Charging Ahead with the Regional Electric Vehicle Strategy (REVS)

Any strategy for creating a clean energy future for the Caribbean must include a plan for shifting regional transport sectors away from fossil fuels. Given that the transportation sector accounts for more than 40% of energy use in most CARICOM Member States and the majority of them also rely heavily on fuel imports, the transition away from Internal Combustion Engine Vehicles (ICEV) and toward Electric Vehicles (EV) would go a long way towards enabling the region to achieve the goals laid out in the CARICOM Energy Policy (CEP) and Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS). However, despite the obvious benefits, with the exception of standouts like Barbados (which leads the region in the number of EVs per capita), regional uptake has been slow, due in part to the absence of a detailed strategy to guide the conversion.

In recognition of this need for a complete strategic approach to this undertaking, the CARICOM Secretariat requested and received TAPSEC support to develop the Regional Electric Vehicle Strategy (REVS). TAPSEC partnered with the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) to develop this strategy, which is informed by the outputs of the CARICOM Secretariat's Regional Electric Vehicle Working Group.

The REVS is designed to increase EV use across the region by providing clear frameworks that all CARICOM Member States can use to engage in "transport

electrification", or making the shift from ICEVs to EVs. This comprehensive document includes guidance on policies, instruments and actions that are tailored to the unique needs of the Caribbean and aimed at a wide range of EV stakeholders. From developing a vision statement to stakeholder engagement, from specific regulations to infrastructural needs, and from a capacity development curriculum to financial incentive programs, the REVS provides thorough guidelines for national ministries, regional institutions, local transport agencies, electric utilities, and others to engage in this transition.

In addition, the REVS contains concrete examples of how the transition can be approached in the form of a case study based on Barbados — the regional transport electrification leader, which is currently working towards becoming a 100% renewable energy and carbon-neutral island by 2030 — and four application examples based on Jamaica, Belize, St. Lucia and Montserrat. The goal is to provide a variety of roadmaps that apply to all CARICOM Member States, including the larger islands, continental nations, OECS islands and smaller islands. With this exhaustive strategic document in hand, CARICOM Member States are now well-equipped to charge full speed ahead into a more modern and sustainable clean energy future.

Find the REVS strategy in the CEKH
<https://www.ccreee.org/cekh/>

Regional Electric Vehicle Strategy (REVS) Country Highlights

> Barbados

As of 2019, Barbados had 690 EVs on the road (accounting for approximately 0.3% of total registered vehicles) and, as of 2018, more than 600 charging ports. With a population of fewer than 300,000 people, this makes it a regional leader in transport electrification. Early deployment of charging infrastructure, early and sustained utility involvement and strong awareness-raising campaigns were key factors in Barbados' success to this point.

> Jamaica

As the second-most populated CARICOM Member State, Jamaica has the region's largest and fastest-growing car market. As of 2022, there are 150 EVs on the road in Jamaica, accounting for less than 1% of the market, and 25 charging points. Jamaica's government is actively pursuing policies and programs to incentivise EV uptake with the aim of reaching 10% EV use in 2030.

> Belize

Renewable energy (biomass, hydropower and solar) accounts for approximately 40% of Belize's energy supply, with its transportation sector consuming the most energy. There are just five EVs on the road. The continental nation is working towards reaching a 75% renewable energy mix and reducing conventional transportation fuel use by 20% by 2030.

> St. Lucia

St. Lucia has fewer than 50 electric vehicles on the road, accounting for fewer than 1% of total registered vehicles and five charging points. It relies mainly on imported diesel for electricity and its refined petroleum imports as a share of GDP are among the highest in CARICOM. St. Lucia's transport sector accounts for more than 60% of the country's total energy consumption. As part of its transport electrification initiative, the St. Lucian government has already identified 131 vehicles in its fleet that can be replaced with EVs and its 2010 National Energy Policy aims to address vehicle emissions.

> Montserrat

With assistance facilitated through the Help Desk and a population of fewer than 5,000, Montserrat is the smallest of the REVS application examples. It remains at an early stage of vehicle electrification with approximately five EVs in use and two public charging stations available. Montserrat's government is currently planning for EVs and already offers some incentives and pilot programmes.



Supporting CARICOM's Sustainable Future Through Energy Efficient Building Codes



To achieve sustainability, we must find ways to exist and develop now without using all of the natural resources we will need in the future. While the Caribbean is blessed with an abundance of renewable natural resources, care must be taken to ensure that all energy resources are used efficiently as they are integrated into the regional energy sector. This is particularly critical in a space that is heavily dependent on non-renewable energy sources.

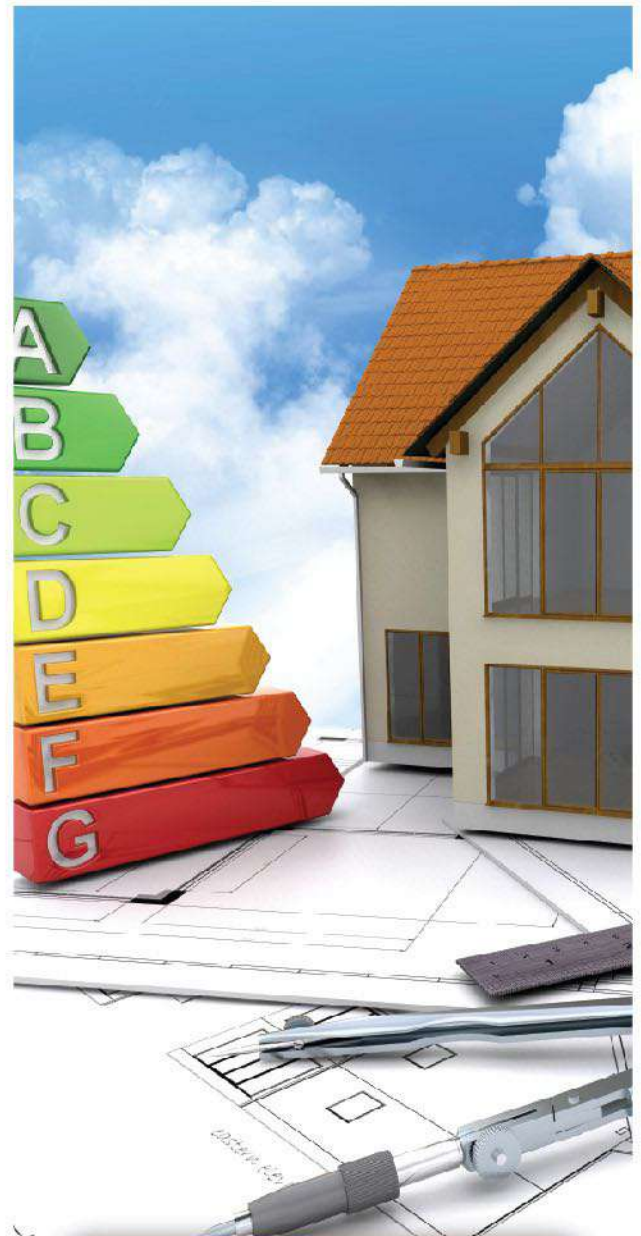
Between the high and volatile costs associated with fossil fuels and their impacts on climate change, it is in the Caribbean's best interest to use those fuels efficiently while incorporating other, more stable and less damaging resources. As part of the drive to boost regional energy efficiency, the CARICOM Regional Organisation for Standards and Quality (CROSQ) developed the CARICOM Regional Energy Efficiency Building Code (CREEBC) in collaboration with the CARICOM Secretariat Energy Unit in 2018. The CREEBC was designed to guide the regional building sector in creating more comfortable, climate resilient and energy efficient residential and commercial buildings. It aims to work alongside existing health and safety requirements to conserve energy over the useful life of buildings while leaving flexibility for innovation. By providing guidance for constructing buildings with more resilient structures and better daytime lighting, ventilation and cooling systems, the CREEBC allows for structures that require less energy and are better able to withstand the impacts of severe weather events. The creation of these kinds of structures also supports regional efforts to meet the 2030 United Nations (UN) Sustainable Development Goals (SDGs), particularly Goals 9 and 11, which relate to resilient infrastructure and sustainable communities, respectively. Approved by the Council of Trade and Economic Development (COTED), the CREEBC is now a regional standard.



Supporting CARICOM's Sustainable Future Through Energy Efficient Building Codes

In 2019, as part of a grant agreement that also included the related CARICOM Regional Energy Efficiency Labelling Scheme (CREELS), CROSQ partnered with TAPSEC to roll out and implement the Code across all 15 CARICOM Member States. The joint effort took a three-pronged approach: raising awareness, educating and training end users, and encouraging implementation of the CREEBC. Through TAPSEC's support, CROSQ was able to launch a digital campaign which inspired public understanding of the importance of constructing energy-efficient buildings. The organisation was also able to produce two companion training documents and host a well-attended three-day training programme for industry practitioners and code compliance officers in all CARICOM Member States. These training sessions were developed specifically to allow the attendees to go on to train others, ensuring that future practitioners and compliance officers can also be brought up to speed on the code as they enter the industry. CROSQ further implemented a limited-time online certification programme designed specifically for code compliance officers, and the CREEBC and its companion documents were translated into French in order to ensure that practitioners in Haiti are able to access and utilise them. To encourage uptake, CROSQ held five well-attended webinars dedicated to the CREEBC, focusing on providing insights into its applications and technical specifications.

Coming out of these extensive efforts, the importance of energy efficiency standards in regional development has never been more clear. With the creation and implementation of the CREEBC, the Caribbean now benefits from building codes tailored specifically to its unique regional needs and which will encourage the use of more energy efficient technologies. Thanks to the CREEBC, the regional construction industry is prepared to do its part in mitigating the impacts of climate change as the region continues to progress towards its sustainable development future.



Learn more about the CREEBC
<https://energy.crosq.org/creebc/>
<https://tapsec.org/creebc-2/>

> Upscaling Energy Efficiency Throughout the Caribbean

Energy efficiency is a key component of the transformation of Caribbean energy sectors. It goes hand in hand with renewable energy and energy conservation as key thematic areas in increasing the sustainability of the energy sector in the Caribbean. However, though it is typically considered the “low hanging fruit” of the sustainable energy transition, several barriers have prevented energy efficiency from being developed on a significant scale across the Caribbean. These barriers include a lack of information and data on energy savings potentials, a lack of awareness of consumers on energy-efficiency measures, a lack of trust in the technical capacity to implement these measures and higher transaction costs for implementing energy-efficiency projects at larger scales and scope. In order to ensure sustainable regional development with minimal energy waste, energy efficiency must play a greater role in the region’s energy transition. The strategic approach for upscaling energy-efficiency throughout the Caribbean must be modelled and defined and the energy efficiency potential of each CARICOM Member State must be strategically mapped.

The Regional Energy Efficiency Strategy and Action Plan (REES and REEAP) was developed to address this issue at the regional and national levels by creating a detailed map of the path toward energy efficiency. It provides a strategic approach at a regional level to upscale CARICOM energy efficiency by guiding all regional organisations in the strategies, actions and steps needed to increase the development and deployment of energy-efficient policies, measures, technologies and systems. An additional 15 National-level Energy Efficiency Strategies (NEES), also known as country energy efficiency potentials, were created to address the specific circumstances of each Member State. Based on a massive data collection exercise and the modelling of several scenarios, the NEES reports included a baseline for each country’s energy use and multiple scenarios projecting their possible energy savings through 2035.

The insights contained in these reports can be built directly into the relevant national energy strategies, serve as the foundation for the development of national action plans and inform the creation of effective energy-efficiency programs and initiatives.



For more information, please visit:
<https://www.ccree.org/cekh/>
<https://tapsec.org/rees-and-reeap/>



Did You Know?

E-mobility Reports for Guyana and Belize

As part of TAPSEC's ongoing efforts to encourage regional electric vehicle uptake, E-Mobility Market Analyses were undertaken for Belize and Guyana. The reports, which highlight market opportunities, fleet examples and the development of public charging network infrastructure, are targeted at Belize Electricity Limited (BEL) Company and Guyana Power and Light Inc. (GPL). They encourage the utilities to take an active role in

transitioning their respective nation's transportation system towards energy sustainability and efficiency by highlighting the revenue opportunities in creating an environment that encourages electric vehicle adoption.

As these reports show, BEL and GPL are critical stakeholders in the effort to reduce reliance on fossil fuels and cut greenhouse gas emissions as part of the regional shift towards sustainability.



Find the reports in the CEKH and at <https://tapsec.org>



A Guide to Regional Fleet Electrification

Developed with CARICOM fleet owners and managers in mind, the CARICOM GIZ E-Mobility Fleet Inception Report provides valuable insights into the technical, financial and operational benefits of Electric Vehicles (EVs). The report forms part of the effort to promote EV use across the region with the aim of reducing regional dependence on fossil fuels and facilitating the transition towards clean energy. The basics of EV technology, potential fleet applications and an overview of the global EV marketplace are all covered in this comprehensive report, which encourages the electrification of vehicles used in a variety of different capacities, from law enforcement and the military to shipping and public transportation.



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The basics of EV technology, potential fleet applications and an overview of the global EV marketplace are all covered in this comprehensive report, which encourages the electrification of vehicles used in a variety of different capacities, from law enforcement and the military to shipping and public transportation.

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Electric Vehicles hold the key to the Caribbean clean energy transformation.

”

“

You get better value for your money.

”




“

The report aims to reduce the Caribbean's dependence on fuel imports and build resilience into our power generation systems.

”



A photograph of three workers in an industrial or data center environment. They are wearing hard hats (two white, one yellow) and high-visibility safety vests. The worker on the left is a woman with a white hard hat and safety glasses. The worker in the middle is a man with a white hard hat, glasses, and a beard. The worker on the right is a man with a yellow hard hat and safety glasses. They are all looking at a document held by the man on the right. The background shows industrial equipment and bright lighting.

**ENABLING THE
CARIBBEAN'S
ENERGY DATA AND
INFORMATION
CULTURE**

> Capacity Building Reflections



Dr. Niebert Blair

Capacity Building
Advisor

“

Over 80
persons
(38%
females)
are now
skilled in
either basic,
intermediate,
or advanced
modeling
in LEAP.

”

The capacity building component of the TAPSEC consisted of activities and projects geared towards the accomplishment of 7 output and 2 outcome indicators along with other initiatives to support the CARICOM Energy policy with ensuring that the regional institutions are propelled closer to realising the much-anticipated energy transition which the region requires.

To this end, a data repository on RE/EE data and information including energy report cards for each CARICOM nation, has been established and is available to the public via the CARICOM Energy Knowledge Hub (CEKH); as of March 2022, 2,960 visitors went to site and accessed more than 8,200 information areas. 8 centres of excellence in RE and EE technology research and implementation were established and strengthened which are now ready to provide quality services, trainings, and webinars. These are: UWI (St. Augustine) – E-mobility, Guyana Energy Agency – Hydro, Wigton Wind Farm – Wind, CROSQ – Quality infrastructure, CCREEE – EE, UWI (Mona) – Solar PV and Micro grid, CIMH to undertake vulnerability assessments of the electricity systems in the region, and a Themepark in the Dominican Republic.

More than 40 sensitisation campaigns were convened, and during the CARICOM energy months a lot of such activities were done. Over 2440 professionals (67 % female) received technical training in areas, such as, utility business models, energy modelling, energy financing, green engineering concepts in 10 CXC subject areas and research concepts for SBAs, energy pricing, energy efficiency building code, and energy statistics. Over 80 persons (38% females) are now skilled in either basic, intermediate, or advanced modeling in LEAP.

48 Students (60% females) attended internships financed under the program, consequently, 30 students can now research and input data to inform the energy report cards of all CARICOM member states, and 17 university students have received offers for work in the RE and EE sectors.

A major aspect of the component allowed for the fostering and catalysing of key partnerships for RE and EE business models, hence, 5 B2B events were completed. Additionally, the Regional Universities Network (RUN) was established, and 5 research projects completed, namely, Energy Statistics and Information Management Courses – UWI Mona, Marine Energy Assessment – UWI Cave Hill, Energy Poverty Framework – UG, CREEBC Course – AdeKUS, and Conversion of MSC in Sustainable Energy and Climate Change for online delivery – UTECH Jamaica.

The accomplishments of the capacity building component are testimony to the collaborative efforts of Caribbeans under the spirit of integration towards trade and regional development. Amidst the challenges of COVID, working from home, and the constraints of the project timeline, we have managed to utilise programmatic resources to advance the region's energy landscape from what it was 5 years ago. I feel happy to lead in this endeavor and wish to thank all my colleagues in the region who unwaveringly supported each and every initiative, resulting in TAPSEC's success.

Dr Niebert Blair



➤ Renewable Energy Academic Excellence at the New Microgrid Training Centre

The success of the Caribbean's shift to sustainability depends on the people currently preparing to lead the way. These budding scientists and engineers are currently pursuing tertiary-level studies in areas such as environmental physics, power engineering, alternative energy and renewable energy technology. In order to chart the path forward, these future pioneers need hands-on experience with the technology that will enable the region to move away from fossil fuels and towards renewable energy resources.

As the first centre of excellence for renewable base microgrid and SMART grid training in the Northern Caribbean, the Microgrid Training Centre provides this opportunity to students, scientists and engineers from across the region and the wider world. It was constructed as a result of a financing agreement signed with the GIZ and implemented by TAPSEC with funding from the German Federal Ministry for Economic Cooperation and Development (BMZ) and the European Union (EU).

Established at the Discovery Bay Marine Laboratory (DBML) of the University of the West Indies (UWI) Mona campus, the Microgrid Training Centre is fully-equipped to function as a teaching, research and testing centre for SMART grid photovoltaic (PV) technology. With the addition of this facility, the

DMBL now is generating twice as much energy – enough to supply 100% of the facility's power needs. The new technology also saves US\$14,300 per year in energy costs and reduces the laboratory's carbon footprint by between 90 to 100 metric tonnes of CO₂ emissions per year.

While the Microgrid Training Centre directly contributes to regional climate change mitigation efforts, it also serves as a clear example of how energy independence can be achieved. With the benefit of practical experience with a functioning renewable energy facility, engineering students will be equipped to incorporate sustainability into their designs as they create the technical solutions that will move the regional energy sector forward. Researchers and scientists will also have access to the data they need to provide the guidance that will inform the policy decisions directing the regional energy transition.

The facility itself exists as a proof of concept, encouraging other organisations across the region to build their resilience by investing in renewable energy technology, and bringing the Caribbean that much closer to a future in which all CARICOM citizens can enjoy modern, clean and reliable energy services.



> The Region's Energy Future in Good Hands

As an important component of TAPSEC's commitment to regional capacity development, the Regional Energy Apprenticeship Programme (REAP) provided young professionals with opportunities to gain valuable technical expertise in various areas of CARICOM's sustainable energy sector. The Programme was conceptualised by the CARICOM Secretariat Energy Unit (CCS) and implemented by TAPSEC in collaboration with the regional institutions at which the internships were provided. It was targeted at recent graduates and university students who were close to completing their studies in the areas of Renewable Energy, Natural or Environmental Sciences, Engineering, Development Studies, Economics and other sustainable energy-related programmes.

The 2020/2021 cohort consisted of ten REAP Associates from across the Caribbean who partnered with mentors at pioneering regional sustainable energy institutions, such as the CCS, the Caribbean Develop-

ment Bank (CDB), the Caribbean Electric Utility Services Corporation (CARILEC), the CARICOM Regional Organisation for Standards and Quality (CROSQ), the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) and the CARICOM Development Fund (CDF). For the duration of their three to 12-month internships, they worked in a number of different fields related to sustainable energy, including energy systems development, energy diplomacy, knowledge management and communications, programme management and policy and regulatory affairs.

Equipped with the invaluable experience of participating in this programme, the REAP participants are prepared to take active roles in the ongoing transformation of the regional sustainable energy sector. With what they have learned, they are ready to help chart the way towards a bright clean energy future for the Caribbean.

Learn More about the REAP:
<https://energy.caricom.org/reap-cohort/>

The Future Of Energy In Their Own Words



Azell Francis
Energy Policy Associate,
CCS (Trinidad and Tobago)



The Regional Energy Apprenticeship Programme offers me the opportunity to gain work experience as an Energy Policy Associate and apply my research skills in a meaningful and impactful way. I hope to improve my understanding of the regional energy sector and serve as an asset in the regional energy transformation towards a stronger, more sustainable, and more resilient Caribbean community. Through this experience, I am excited to play an instrumental role in framing the regional energy policy 2025 - 2040.



Kathryn Siriram
Regional Project Development
Associate, CDF (Trinidad and Tobago)



I am so excited to participate in the REAP as it is my hope to gain a greater exposure to and understanding of various aspects of the regional energy sector through this programme. It has also been a pleasure to meet other interns in the programme and it is hoped that, through our shared experiences, we can all contribute to a positive change in the region.



Dana Lawrence
Energy Systems Engineer Associate -
Demand Side, CCREEE (Jamaica)



My internship at the Caribbean Centre for Renewable Energy and Energy Efficiency has provided a path for me to gain much knowledge and I have had the opportunity to apply what I learned in school from various courses. I enjoy being a part of the energy solution for the region through various means such as the Integrated Resource and Resilience Plans (IRRP).



Elizabeth Bullock
Energy Solutions Assistant, CARILEC
(St. Vincent & the Grenadines)



At the end of my internship, I expect to have gained more insights and on-hand experience regarding energy policy, solutions, and decisions and to have acquired a wealth of knowledge and training in renewable energy and energy efficiency, electricity and sustainable strategies and methodologies for Latin America and the Caribbean. Additionally, I hope that I would have honed my skills further in preparation to tackle higher levels of responsibilities in the Caribbean's energy sector.



Jordon Hayles
Energy Systems Engineer Associate -
Supply Side, CCREEE (Jamaica)



From this experience, I look forward to working with and receiving training and mentorship from the experts at the CCREEE. I am excited to build my skill set in the various modelling and optimization software and grateful for this opportunity to get exposure to techno-economic analysis and resource optimization and whatever else I can get involved in to increase my exposure and professional development.



Diakia A Straker
Project Associate, CROSQ (Jamaica)



During this internship, I have gained invaluable regional experience. Working alongside and interacting with experts from across the region has been simply invigorating. Being able to build my network, connect with and engage different industry practitioners has helped to build my confidence and hone my communication and project management skills. I am confident that as I develop my career, the experience I have gained through the REAP will definitely influence the contributions I will make to the region's development.



The Future Of Energy In Their Own Words



Khadija Usher
Energy Policy Associate, CCS (Belize)



I am always most excited to engage with new people. For me, this is very important in my field of work. Whilst the apprenticeship provides an opportunity to broaden my professional horizon, field experience really serves to humanise the work that I do. I think especially in policy and planning, it is very easy to become buried in the data, models and general intent in order to establish a high-level outlook of the issue. It is only via engaging with individuals of various backgrounds and sectors that the work remains grounded through a diversity of insight, and that policy can prove to be a satisfactory representation of people's realities.



Kwasi Worrell
Credit Risk Abatement Facility Associate,
CDF (Trinidad and Tobago)



I would like to do whatever I can, within my own sphere of influence, to create a sustainable environment. As such, it is an honour to work with the CARICOM Development Fund (CDF) via the Renewable Energy Apprenticeship Programme. My vision for a resilient Caribbean is one where we must no longer rely on non-renewable energy sources, our populace can practice good energy management and we can believe in the efficacy of renewables.



Sapphire Vital
Project Development Associate, CCREEE
(The Commonwealth of Dominica)



I am particularly looking forward to being a part of evaluating and supporting sustainable energy projects from the private and public sector. I look forward to contributing to sustainable energy advancement in the Caribbean community moving forward.



Sheldon Marshall
Energy Solutions Associate,
CDB (Barbados)



Coming from physics into renewable energy, I have always been interested in the technologies themselves. However, I have since been keen to learn more about the identification of potential renewable energy and energy efficiency projects that can be prepared to fill the gaps within our region. I believe that a group of bright young minds, with a common goal and varied perspectives, is what the region needs to support its drive toward a sustainable energy future.



Dudley Anthony Williams
Energy System Modeller Associate
(Jamaica)



The Regional Energy Apprenticeship Programme provides me with the opportunity to work at two regional institutions, The CCREEE and The CIMH (Caribbean Institute of Meteorology and Hydrology) in Barbados. I hope that my work will aid these companies in advancing the development of the regional energy sector. At The CCREEE, I am looking forward to developing expertise in the LEAP modelling software, statistical forecasting techniques, and data science skills in manipulating and visualizing data. At the end of the internship, I hope that the models I worked on will assist in energy policy development for the selected island states. Working at The CIMH will give me first-hand experience in climatology which will immeasurably aid in the completion of a section of my PhD studies. I am hoping to increase my familiarity with cluster computing and programming, and learn how to develop climate services for the energy sector.



Kashawn Hall
REAP intern working with
Dr Gardner (Barbados)



My expected outcomes of the REAP internship would be to further the understanding of OTEC application as it pertains to the island of Barbados. Through targeted scientific research and application of principles and formulae found within the literature, comparison against existing OTEC benchmarks will be carried out to assess OTEC viability for Barbados. There is no doubt that Barbados has the technical suitability for OTEC, as it falls within the tropics (being the hotspot for year-round temperature difference above 20°C) and has the necessary energy deficiencies, being an Island state dependent on fossil fuel imports. I am also looking forward to being apart of the Marine energy desktop study course being offered. The prospect of being able to carry out a desktop study to gather the necessary information about a specified ocean location would be beneficial for OTEC research.



CARICOM Energy Report Cards Powered by Data Collection Interns

Sound energy sector planning and decision-making rely on comprehensive, up-to-date and accurate data. As CARICOM progresses towards sustainable development, the need for reliable information is only growing more critical.

To address the historical scarcity of such data, the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) launched the CARICOM Energy Report Cards (ERCs) in 2017. Now housed within the TAPSEC-supported CARICOM Energy Knowledge Hub, the ERCs provide a thorough overview of each Member State's energy sector performance.

The creation of the ERCs required a massive data collection exercise involving outreach to the government

ministries, agencies and departments responsible for energy, utilities and statistical offices across the region. Additional research, calculations and inferences also informed the documents, which provide meaningful insight into regional energy sector performance.

To support the compilation of these reports, CCREEE launched its Caribbean Energy Data Collection Internship, which recruited young professionals interested in supporting the regional energy transition. The interns, who came from 20 Caribbean territories, were integral to the completion of the reports and gained valuable experience that is sure to serve them well as they embark on their careers within the regional energy sector.

CARICOM Energy Report Cards Powered by Data Collection Interns

Beana Joseph | St. Lucia, ERC 2020 

This was my first internship and was a fruitful one. Although the pandemic reduced my face-to-face interactions with the energy department, liaising with them and other stakeholders was educational and of course enjoyable. Being an ERC Intern afforded me the opportunity to learn about the energy sector in Saint Lucia: the availability of data, gender inequalities and the distribution of energy in Saint Lucia. CCREEE also placed great efforts on ensuring that we develop our skills and knowledge by continuously engaging and creating seminars that showcased energy improvements such as EVs to name a few. I guarantee that being an intern will be beneficial to any person who is interested in the environment/energy sector.

Davitia James | Dominica, ERC 2021 

I'm grateful for the opportunity to learn about fuel and electricity consumption across Dominica and interact with the energy stakeholders. I also had the chance to test out the CARICOM Energy Knowledge Hub - which I hope will be widely used as a regional source of energy data. My hope for the future of energy in CARICOM is that we are able to be fully and sustainably powered by renewable energy sources. I hope for a collaborative future for our countries - we have similar energy targets and we should not work towards them in isolation. We have the chance to share resources, study successes and learn from setbacks in other countries.

Danord Baptiste | Haiti, ERC 2020 

It was a great opportunity for me to represent my country (Haiti) within CARICOM as an intern in the collection of energy data.

Despite the difficulties encountered in collecting data, this experience was very fruitful for me as a professional, not only did it help to develop my intellectual abilities, but it also cultivated professional qualities such as insight, rigour and versatility.

Ayanna Evelyn | Barbados, ERC 2020 

My ERC Data Collection experience was an eye-opening experience. I saw the interconnectivity of the energy sector. I gained insight into all the players in the sector and the efforts made towards making my country energy independent. Despite completing the internship during the pandemic, I am happy I was able to contribute to CEKH by improving the data and information gaps in the region. My hope for CARICOM in the future is for the region to be more energy independent and resilient. The need for energy independence is critical for the survival of the Small Island States. My vision also entails countries sharing their country-specific information and data more readily, allowing for more development and socio-economic gains.

Dishawn Nation | Antigua & Barbuda, ERC 2021 

This internship was the perfect opportunity for young professionals to establish lifelong connections with Energy stakeholders and organizations. As an aspiring Electrical/Renewable Energy engineer, I was elated to have been given the opportunity to contact all the respective utilities, ministries and organisations for energy-related data. As the effects of climate change worsen, we as the CARICOM Member States must expedite the integration of Renewable Energy sources into the mix of energy produced. Solar energy within our islands must be grabbed and harnessed. I hope to see a significant expansion in the workforce of qualified energy technicians and analysts within our countries by providing more opportunities for continuing education in our respective schools and universities. In addition, greater awareness is needed toward the issue of climate change so that more citizens make well-informed guided decisions to transition to renewable energy sources.

Aleysia Gerald | Montserrat, ERC 2021 

Overall, working as a Data Collection Intern for CCREEE was an eye-opening experience. It allowed me to see first-hand what movements were being made toward the Caribbean's energy future. It also allowed me to see areas within the energy sector that needed a significant amount of special attention. I sincerely hope that the Caribbean makes a shift towards dependence on renewable energy sources rather than non-renewable energy sources. This shift would allow us to be a sustainable region and protect our environment before it becomes too late.



From Interns to Employees: emPowering CARICOM's Future Energy Leaders

True regional capacity development requires the creation of pathways that will allow young professionals to enter their chosen fields and gain the experience they need to progress to positions of leadership. To this end, TAPSEC supported a number of internship programmes designed to bridge the gap between education and employment, allowing CARICOM's future energy leaders to begin building firsthand expertise within the sustainable energy sector.

Through initiatives such as the Regional Energy Apprenticeship Programme (REAP) and the Energy Report Card (ERC) internships, 27 interns (44% of whom were women) were offered employment in the regional Renewable Energy/Energy Efficiency (RE/EE) sector. To create these opportunities, TAPSEC collaborated with its regional partners, including the CARICOM Energy

Unit, the Caribbean Development Bank (CDB), the Caribbean Electric Utility Services Corporation (CARILEC), the CARICOM Regional Organisation for Standards and Quality (CROSQ), The Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) and the CARICOM Development Bank (CDB). Interns gained technical expertise in various areas related to sustainable energy — from energy systems development to communications — and several of them were offered long-term positions upon completion of their internships.

With this invaluable experience under their belts, these interns-turned-employees of the regional RE/EE sector are well placed to help move CARICOM closer to its sustainable energy goals.



From Interns to Employees: emPowering CARICOM's Future Energy Leaders

In Their Own Words



AYANNA EVELYN

KNOWLEDGE MANAGEMENT ASSOCIATE
CCREEE

"Follow your passion! For me, my passion in terms of climate change and renewable energy led me into this role. I don't think it relies strictly on your bachelor's degree, or your master's degree, I will say, your interests really and truly do play a part in how you experience something. So if you have a passion for communication, you can link that to the energy sector, you can link teaching to the energy sector, you can link so many things to the energy sector, and you [can] build up on your strengths."



SAPPHIRE VITAL

SUSTAINABLE ENERGY JUNIOR ENGINEER
CCREEE

"The CCREEE is so diverse, that there are a lot of things that I was able to wet my feet in. I learned quite a bit about providing technical assistance to renewable energy and energy efficiency projects. What stood out for me that I didn't expect to learn about was gender. I was able to assist my supervisor in mainstreaming gender within the organisation, as well as in some of the work that the CCREEE is doing helping other organisations and countries ensure they mainstream gender into their energy plan."



GRACE WILLIAMS

COMMUNICATIONS AND VISIBILITY OFFICER
TAPSEC

"Working with TAPSEC has been challenging. In the best ways, it has never stopped challenging me. No day is like the day before. Or there hasn't been a point where I can just like, you know, relax and be like, okay, you know, I've done this 100 times before, whatever it's like more and more opportunities to be stretched more and more opportunities to learn different branches, and I think that is the most or that is the part of the internship that is so different from other internships."



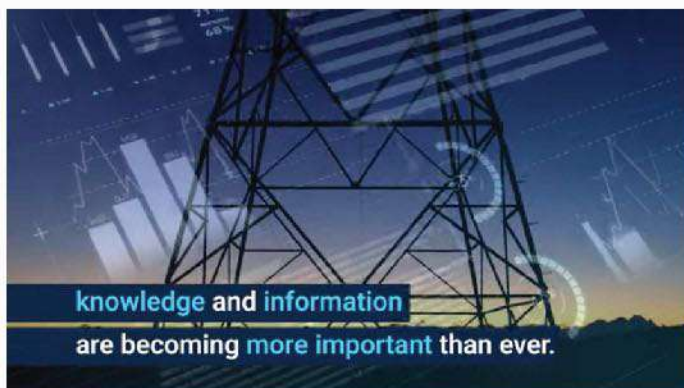
Enhanced Regional Energy Planning and Management Thanks to sieCARICOM

The Caribbean's data collection and processing capabilities have gotten a big boost in the form of the Regional Energy Information System for CARICOM (also known as sieCARICOM). Funded by TAPSEC, this critical tool was custom-built by the Latin American Energy Organization (OLADE) under the guidance of the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE).

Tailored specifically to suit the region's needs, sieCARICOM collects and processes energy sector data and information in order to inform regional energy management and planning. It forms part of the Regional Energy Statistics and Information Management (RESIM) initiative, which is implemented by the CARICOM Energy Unit, the CCREEE and the Regional University Network (RUN). It is housed within the TAPSEC-supported CARICOM Energy Knowledge Hub (CEKH), making it accessible to energy industry decision-makers across the region.

sieCARICOM uses a methodology based on the International Recommendations for Energy Statistics (IRES) in order to ensure that regional statistics align with international best practices. As part of the project's roll-out, regional energy professionals were trained in using the system to develop energy balances and plan effectively for their nations' future energy needs.

With the benefit of this rich energy information resource, the Caribbean's energy sector is well-equipped to drive the transition toward sustainable energy development.



Regional Energy Information System (SieCARICOM)

20,923 views Aug 16, 2022... more

👍 0 🗨️ Dislike 🔄 Share ➡ Save ...

“
sieCARICOM
collects and
processes
energy sector
data and
information
in order to
inform
regional
energy
management
and planning.
”

An aerial photograph of a vast solar farm. The image shows numerous rows of blue solar panels, each mounted on a metal frame and tilted at an angle. The panels are arranged in a grid pattern, with narrow paths between them. The background shows a green field under a clear sky. The text "EVERY-THING ENERGY IS WITHIN REACH" is overlaid in the center in a bold, white, sans-serif font.

**EVERY-
THING
ENERGY
IS WITHIN
REACH**

> Everything Energy is Within Reach Thanks to the CEKH

“

The CEKH places “everything energy” within reach of the organisations and individuals responsible for shaping CARICOM’s low-carbon, climate-compatible future.

”

In order to engage in the careful planning and sound decision-making that will guide regional energy sector development towards sustainability, CARICOM must have access to high-quality data. Given the inherent disparities in the Caribbean region, this kind of data has been historically difficult to compile, leaving leaders without the necessary insights to inform their deliberations and researchers without the range of information necessary to support their recommendations.

To address this issue and provide the region with the information needed to achieve clean energy success, TAPSEC partnered with the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) to create the



Find more information on the CEKH
<https://www.ccreee.org/cekh/>

CARICOM Energy Knowledge Hub (CEKH). This groundbreaking information and knowledge management framework provides precise, up-to-date energy-related data to governments, utilities, universities and the general public. Structured into five components, it houses verified data from a number of private and public sources to inform energy policy-making, business and investment planning, academic research and general public information.

The CEKH places “everything energy” within reach of the organisations and individuals responsible for shaping CARICOM’s low-carbon, climate-compatible future.



Greening the Caribbean Curriculum

The people who will ultimately fulfil CARICOM's sustainable development goals are currently sitting in classrooms across the Caribbean. Those students will soon be developing and implementing clean energy policies and renewable energy programmes that will enable the region to proceed into its clean energy future. In order to take up the mantle, they need a firm grounding in the changes coming to the regional energy landscape.

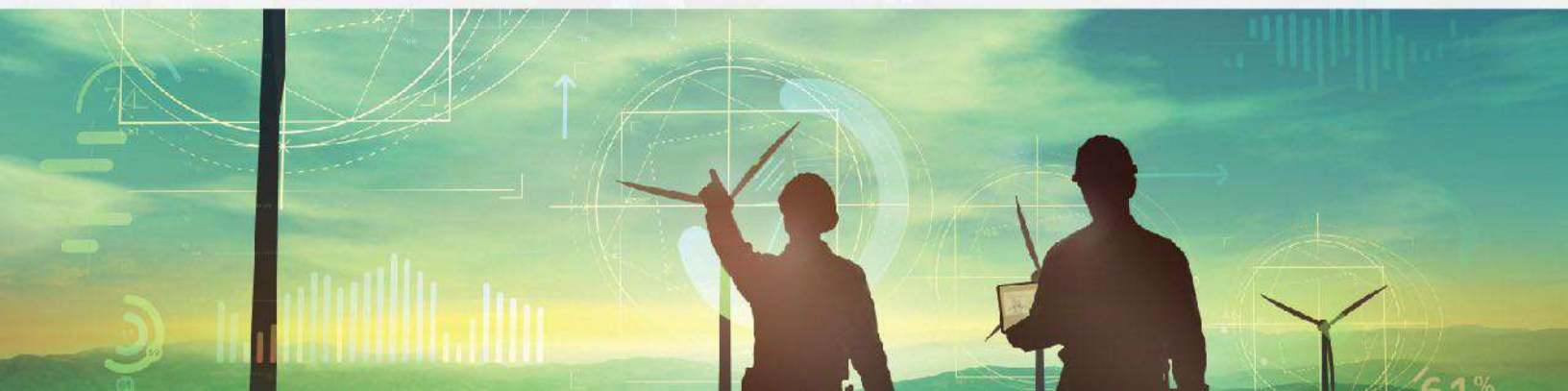
To provide that foundation, TAPSEC collaborated with the Caribbean Examinations Council (CXC) and the University of Guyana in 2020 to invite educators from across the region to plan, design and develop an updated curriculum. This new Green Education curriculum aimed to "mainstream 'greening' learning concepts" by integrating renewable energy and energy efficiency into the existing syllabi of 11 CSEC and CAPE subjects. TAPSEC further facilitated a Winter Boot Camp and 25 sensitisation workshops in order to ensure that teachers were prepared to deliver the updated curricula to their students.

This was the culmination of a three-year initiative to update and improve regional teaching materials and methods. The goal was to equip students with the knowledge and skills necessary to face 21st-century challenges such as sustainable energy development and climate change. It began in 2018 with the GIZ-funded

Renewable Energy and Energy Efficiency Technical Assistance (REETA) programme, which supported the development of a digital toolkit for the new Green Engineering Syllabus, teacher training and a concept paper encouraging the move to "green" the CXC curriculum.

During CARICOM Energy Month 2021, TAPSEC facilitated the Green Table Talk series, which was held to introduce the public to the Greening Education initiative. The two-part series explored the curriculum updates and how they would empower Caribbean youths to participate in the region's SMART future. In December of 2021, more than 700 educators from 10 Caribbean countries turned out for a TAPSEC-supported virtual workshop with CXC officials. Over three days of interactive sessions, they learned techniques to incorporate these new "green" concepts into their classrooms.

With the benefit of these new "green" syllabi, delivered by trained teachers, students across the Caribbean will soon emerge into the world with an understanding the regional importance of sustainability and a personal mission to safeguard their nations from the threats of climate change. As this new generation begins to take an active role in directing national development pathways, they will ensure that the region's sustainable development goals are in safe hands.



> A LEAP Forward in Clean Energy Capacity Development

The LEAP Training Programme was an important component of TAPSEC's holistic approach to capacity development. Here, TAPSEC collaborated with the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) to launch this three-phase training series, which upskilled 140 energy sector professionals on the use of the Low Emissions Analysis Platform (LEAP).

The LEAP software is a climate mitigation planning and development tool. It takes in energy sector data, assesses energy sector scenarios and determines a nation's renewable energy targets. The latest version of the software was designed and developed by Dr. Charles Heaps, Energy Modelling Programme Director at the Stockholm Environment Institute. Dr. Heaps consulted on the training programme, supporting TAPSEC's efforts to ensure its effectiveness within the constraints created by the ongoing pandemic.

The participants came from various parts of the regional energy industry – including utilities, regulators, universities and ministries – across 14 of the 15 CARICOM nations, to learn how to use this software to develop their respective energy sectors. The training programme covered data input and analysis and, in its most advanced phase, instilled an understanding of how the software works, providing those participants with the expertise they need to tailor the software to the needs of their nation's energy sector.

In the wake of this training, final-year engineering students are being encouraged to enter LEAP training in order to begin their careers with an understanding of this crucial software.

“

We've been blown away by the level of commitment and engagement from the participants and how much effort they put into taking part in the workshop.

The younger generations of people in the Caribbean are really committed to this topic and they're really committed to thinking about what they want the Caribbean to look like in the next 20-30 years. It's really striking how engaged and positive the younger generation are.

After having the training, the next step is for the countries to go off and build a model that can help them think through on these issues.

”

*Dr. Charles Heaps,
LEAP Training Programme
Consultant*

> A LEAP Forward in Clean Energy Capacity Development

Paulos Simpson



UWI Mona Student

I'm very happy for this training. In one of the courses for my training I had to use the LEAP software and I didn't understand a lot of the functions of the application at the time. When this training came along, I was very happy to take it on because I wanted to better understand the LEAP software. This training did that for me. I got a better understanding, through this training, of the LEAP application. I'd love to be able to be employed within the energy sector and be able to show my expertise using that software.

Graham King



UWI St. Augustine Lecturer

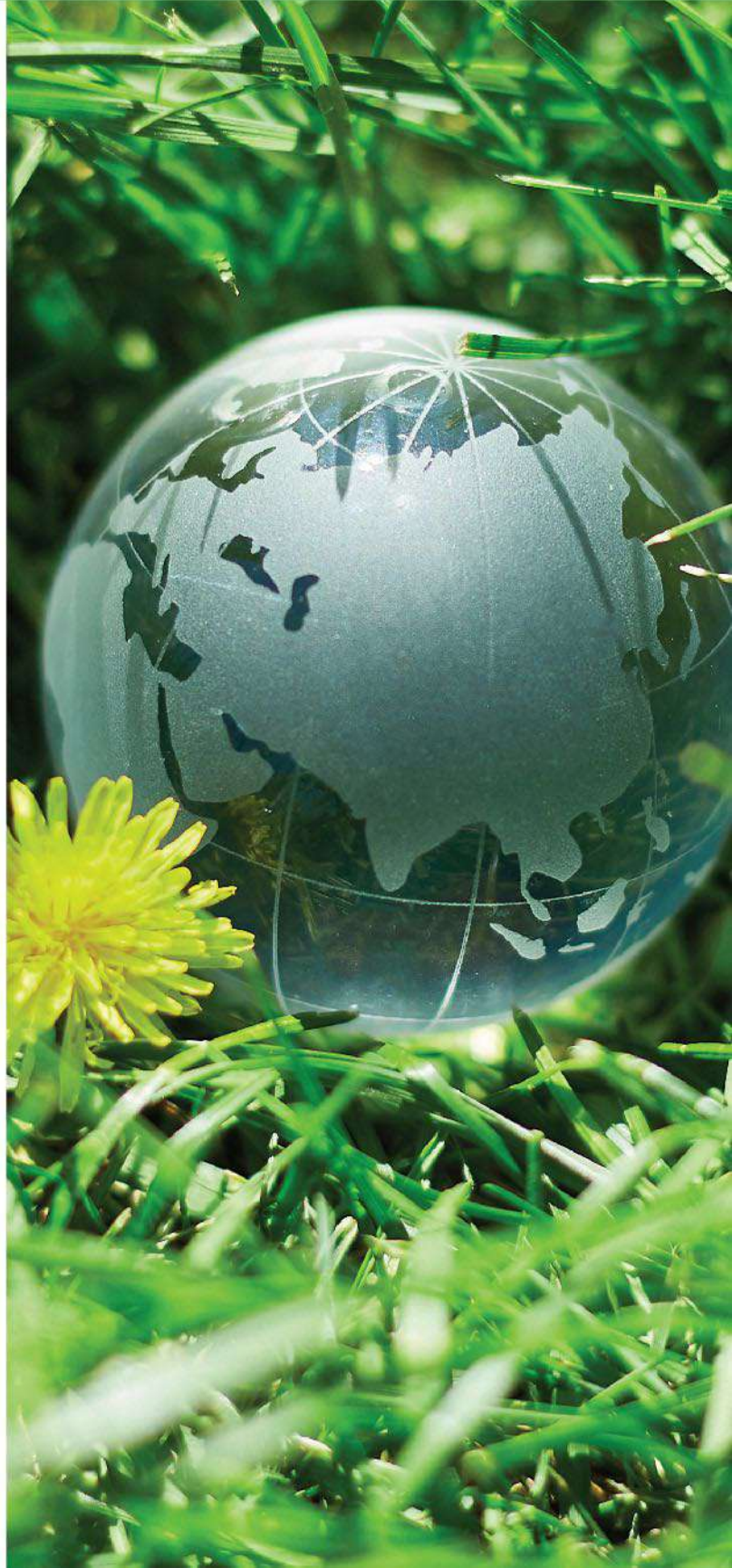
It has been extremely useful. I wasn't aware of LEAP software before. This approach to modelling, looking at a very broad systems level, is a very useful approach for the work we're doing and certainly directly able to feed into policy recommendations and policy development for sustainable transport. I want to commend the team for both the course, which I think has been very well-organised, very well-administered, accessible, and clear in terms of what's required of us as participants, and for developing this tool. It cuts out years' worth of pre-work that would go into creating our own models. LEAP now becomes one of the cornerstones of our work as we look at sustainable transport solutions. It's really been a positive and enjoyable experience.

Duncan McKain



Pursuing Masters in Renewable Energy Management at UWI

The training excelled because the in-depth nature of it allows us to actually create models in such a detailed way that it should make policy planning much simpler from a perspective where you don't need powerful computing hardware to make assessments. In low-to-middle income countries, the LEAP software will be incredibly useful. I'm hoping to do an analysis of energy storage for low-to-middle income countries for my thesis and I think LEAP will make it much easier to work out the problem.



> Facilitating Tertiary Collaboration Through the Regional Universities Network

Caribbean universities play a critical role in promoting the regional sustainable energy transition. They educate current and future energy sector professionals and they conduct research which leads to technological advancements and updated policies. Given the pressing need to make significant progress toward regional goals, a spirit of collaboration between these institutions is more important than ever. To that end, CARICOM proposed the Regional Universities Network (RUN), a consortium of regional universities working together to carry out research on emerging technologies and develop courses relevant to sustainable energy.

TAPSEC offered financial support to this initiative via a financing agreement with the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) and technical assistance in the form of a work programme. Managed by CCREEE, the RUN includes the University of the West Indies (UWI), the Anton de Kom University of Suriname (AdeKUS), the University of Guyana (UG), the University of the Bahamas, the University of Belize, the University of Haiti and the University of Trinidad and Tobago (UTT).

In addition to monthly seminars, during which academics from the participating universities present to each other and industry personnel, the RUN has produced the following four sustainable energy courses and two policy intervention projects:

Courses

Course Name	Developed By
Energy Information Management	The UWI, Mona
Energy Statistics	The UWI, Mona
MSc in Sustainable Energy and Climate Change for Online Delivery	The UWI, Mona AdeKUS
The Caribbean Regional Energy Efficiency Building Code (CREEBC)	

Projects

Project Name	Developed By
Marine Assessment Study	The UWI, Cave Hill
Energy Access Programme	UG

Intelligent Energy Planning Support Via the EMREV & REMC

The Caribbean's sustainable energy goals depend on strong energy policies, planning and decision-making. TAPSEC supported the establishment of the Energy Modelling and Renewable Virtual Integration (EMREV) Laboratory and the Regional Energy Modelling Cluster (REMC) with the aim of ensuring that governments across the region will have access to the data they need to make the decisions and implement the policies that will result in affordable, secure and resilient energy systems.

Led by the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE), the EMREV Lab is designed to test and model energy technologies, providing the region with cost-effective, sustainable access to this crucial data. EMREV personnel have been trained in the use of the Low Emissions Analysis Platform (LEAP) software, which allows them to assess energy sector data and scenarios in order to propose reasonable renewable energy targets. This information is shared through the CARICOM Energy Knowledge Hub (CEKH), which provides precise, up-to-date energy-related data to regional decision-makers.

Spearheaded by the Caribbean Institute of Meteorology and Hydrology (CIMH), the REMC is a community of energy modelling practitioners who work to support sound energy planning via forecasting and modelling. The community operates on a needs-based basis, coming together upon request to collaborate and share the knowledge needed to inform regional energy planning and policies. In addition to energy modelling and forecasting, they engage in a number of activities, including webinars and training, communication and various methods of information-sharing among regional experts.

Working together, the EMREV and REMC provide vital data-driven services to a variety of beneficiaries across the region, including government ministries, regulatory authorities, utilities, private sector clean energy developers, universities, research institutions, international development partners and civil society. Their efforts help to ensure that the path towards regional sustainable development is grounded in the reliable and accurate data necessary to reach the goal.





Greening Education Through Enhanced Courses

The future of the regional sustainable energy transition is being written right now on whiteboards throughout CARICOM. The people who will take the region over the finish line are currently learning what they need to do so, thanks to courses at the secondary and tertiary levels which were developed or enhanced with TAPSEC support. As part of its commitment to building regional institutional capacity for preparing future energy sector professionals to lead this charge, TAPSEC partnered with the Caribbean Examinations Council (CXC®), the University of Guyana (UG), the University of the West Indies Mona Campus (The UWI Mona), Anton de Kom University of Suriname (AdeKUS), Wigton Wind Farm and the University of Technology Jamaica (UTECH Jamaica). Thanks to these courses, students across the Caribbean now have an educational path to follow as they gear up to help the region reach its sustainable energy goals.



Under the “Mainstreaming Green Learning Concepts in the Educational Syllabus” project, TAPSEC partnered with CXC® and UG to amend 10 courses at the CSEC® and CAPE® levels.

TAPSEC further facilitated the creation of the following courses (some of which were established through the Regional Universities Network), which aim to build sustainable energy capacity in future and current energy sector professionals.

The following courses were revised to incorporate sustainability concepts:

- 1 CSEC® Technical Drawing
- 2 CAPE® Building and Mechanical Drawing (BMED)

Syllabuses for the following courses were re-developed, with technical assistance support provided:

- 3 CSEC® Integrated Science
- 4 CSEC® Social Studies
- 5 CAPE® Tourism
- 6 CAPE® Agricultural Science

For the following courses, recommendations of appropriate greening principles were made:

- 7 CSEC® Home Economics
- 8 CSEC® Industrial Technology
- 9 CAPE® Electrical and Electronic Engineering Technology
- 10 CAPE® Environmental Science

Tertiary-Level Courses Created

Course	Developed By
Energy Information Management	The UWI Mona
Energy Statistics	The UWI Mona
The Caribbean Regional Energy Efficiency Building Code (CREEBC)	AdeKUS
City & Guilds in Solar PV Installation	Wigton Wind Farm
MSc in Sustainable Energy and Climate Change for Online Delivery	UTECH Jamaica



Regional RE/EE Centres of Excellence

Over the course of its run, TAPSEC supported the strengthening and equipping of Renewable Energy (RE) and Energy Efficiency (EE) technologies at 11 regional centres of excellence, enabling them to provide advanced RE/EE services:

Centre of Excellence

Microgrid Training Centre
at the Discovery Bay Marine Lab
of the University of the West
Indies (UWI) Mona Campus

Guyana Energy Agency

The UWI Mona

The UWI Cave Hill

The UWI St. Augustine

Caribbean Community
Climate Change Centre

Caribbean Centre for Renewable
Energy and Energy Efficiency
(CCREEE)

Wigton Windfarm

CARICOM Regional Organisation
for Standards & Quality (CROSQ)

Organisation of Eastern Caribbean

Renewable Energy Thematic
Park in the Dominican Republic

RE/EE Technology Support

Solar Photovoltaic Microgrid

Hydropower Development

Solar Thermal

Solar Photovoltaic

E-mobility

Bioenergy

Energy Efficiency


Wind Power

Quality Infrastructure

Geothermal

Battery Storage



A young green plant with several leaves is growing out of a pile of coins. The background is a soft, out-of-focus light color. The text is centered in a white box with a thin black border.

**FINANCING
THE CARIBBEAN
ENERGY TRANSITION
TOWARD
CLIMATE-RESILIENT
ENERGY SYSTEMS**

> Finance Reflections



Simon Zellner
Programme Leader

“

Through the Finance Component, TAPSEC has directly contributed to the preparation of more than 10 RE and EE projects throughout the region.

”

Finance is TAPSEC's third project component and aims to increase the number of bankable renewable energy (RE) and energy efficiency (EE) projects in the region. Furthermore, under this component we aimed to introduce business and other financial mechanisms to lower transaction costs for RE/EE investments.

This component saw significant delays as in-person business operations temporarily drew to a, then indefinite, halt in all of the CARIFORUM Member States due to the Coronavirus pandemic. These face-to-face meetings and site visits with RE/EE project owners and developers are crucial to lift a projects' bankability. As a result, Finance at TAPSEC quickly shifted focus to transaction cost reduction.

Through the Finance Component, TAPSEC has directly contributed to the preparation of more than 10 RE and EE projects throughout the region. Together with the CARICOM Development Fund (CDF) the Credit Risk Abatement Facility (CRAF) was established and its first pilot projects have received funding through this mechanism.

TAPSEC has also developed a tailored Integrated Utility Service (IUS) model for CARICOM Member States, which has initiated implementation in five countries. Further, our partner, the Caribbean Development Bank (CDB) has deployed the IUS proof of concept to prepare a regional IUS programme funded by the Green Climate Fund (GCF). With support from TAPSEC, CCREEE could build out their Project Preparation Facility, providing a wide range of support across the project development cycle from pre-feasibility to financial close.

This is only a short overview and only the beginning. Through partnership we have been able to create financial solutions that will continue to benefit the region. You will find more in the following section of our Magazine.

Simon Zellner

Making Sustainable Energy Accessible Across the Caribbean With the Integrated Utility Service Model

Sometimes all it takes is an idea to spark meaningful change. The TAPSEC-supported Integrated Utility Service (IUS) model began as an idea for creating a welcoming environment for sustainable energy. In 2017, it became a scoping assessment and in 2021 it became a successful pilot programme. Now, Guyana is leading the charge in energy efficiency accessibility with its implementation of the IUS, and Barbados, Belize, Jamaica and St. Kitts are close behind with pilot projects of their own.

The IUS model encourages sustainable energy use by bridging the gap between customers interested in using renewable energy and energy-efficient technology and utilities interested in encouraging more efficient energy use among their customers. Through this programme, utilities finance the cost of the technology and installation by qualified energy service providers. Customers then repay that cost through their monthly electricity bills for a fixed period. Once the cost is repaid, customers can enjoy the savings generated by their upgraded, energy-efficient technology and the nation at large benefits from reduced emissions and less strain on the power grid.

On October 27th, 2021, Guyana became the first Caribbean country to take the IUS from a theoretical energy service model to a completed project when Guyana Power and Light Incorporated (GPL) commissioned five solar photovoltaic installations under its pilot programme. The installations were placed at the headquarters of the Organisation of American States (OAS), the Inter-American Institute for Cooperation on Agriculture (IICA) and at three of GPL's own Georgetown offices. With this new technology, the facilities' carbon footprints were reduced and they fell in line with Guyana's national climate plan, the Nationally Determined Contributions (NDC), which aims to see a 70% reduction in emissions by 2027. Most importantly, the installations confirmed the viability of this progressive model, which is now poised to transform the relationship between regional energy utilities and their customers across the region.

The strength of the IUS model is that it can be tailored to the unique needs and structures of the nation in which it is employed. With TAPSEC's support, Barbados, Belize and Jamaica have all designed their own versions of the pilot programme, which are now at the implementation stage.

The Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) is currently working with St. Kitts to develop its own IUS pilot programme. As they all prepare for launch, the Caribbean Development Bank (CDB) is drawing up a proposal to request financial support from the Green Climate Fund (GCF), which will facilitate the eventual execution of these pilots and the eventual expansion of Guyana's existing programme.

The Caribbean Electric Utility Services Corporation (CARILEC) is also beginning the development of additional IUS models for six Overseas Countries and Territories (OCTs) under the CARILEC Resiliency and Energy Efficiency Project (CAREEP). Funded by the Resilience, Sustainable Energy and Marine Biodiversity Programme (RESEMBID), the 18-month project targets energy affordability for residential customers, and will benefit Anguilla, British Virgin Islands, Cayman Islands, Sint Maarten, Montserrat and Turks and Caicos Islands.

Though TAPSEC has come to a close, the IUS lives on in the regional organisations that will take it forward along a natural pathway that will see it spread throughout the region. Through the efforts of institutions such as CCREEE and CARILEC, customers across the Caribbean will soon be seeing tangible benefits of a new avenue for accessing the energy-efficient technology that will transform the region.



The IUS: Making Sustainable Energy Accessible Across the Caribbean

9 views Sep 13, 2022

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> The Project Preparation Facility: Taking Sustainable Energy Projects “From the Cradle to the Grid”

Established in 1909, the Alexandra Hospital serves approximately 10,000 people on the island of Nevis. Over the span of more than a century, the island’s only hospital has evolved from its origins as a converted Government House to a 52-bed medical facility offering a wide range of services to Nevisians. As of May 2022, it entered the regional shift toward energy sustainability with the receipt of significant energy service upgrades courtesy of the Project Preparation Facility (PPF). Supported by TAPSEC and implemented by the Caribbean Centre

for Renewable Energy and Energy Efficiency (CCREEE), the PPF aims to facilitate the execution of renewable energy (RE) and energy efficiency (EE) projects across the region as a means of supporting CARICOM Member States as they strive to meet international, regional and national energy targets.

Much like the Alexandra Hospital, the PPF has evolved significantly from its own origins. What began as a project development resource designed to help RE and EE project developers attract the

financing they need for implementation is now a much broader mission to take these projects “from the cradle to the grid”. The aim is to advance the regional sustainable energy transition by doing everything necessary to see these projects implemented successfully.

Originally, the PPF’s scope was limited to providing support to project owners, private sector developers, Non-Governmental Organisations (NGOs), mixed capital companies and public agencies attempting to launch



“As of May 2022, it entered the regional shift toward energy sustainability with the receipt of significant energy service upgrades courtesy of the Project Preparation Facility (PPF).”



“The aim is to advance the regional sustainable energy transition by doing everything necessary to see these projects implemented successfully.”



“Supporting the implementation of RE and EE projects across the region aligns well with TAPSEC’s own commitment to partnership while enhancing the PPF’s impact on the regional sustainable energy landscape.”

The Project Preparation Facility: Taking Sustainable Energy Projects “From the Cradle to the Grid”

sustainable energy projects throughout CARICOM. Through the facility's web application portal and open calls held throughout the year, these project owners were invited to apply for technical support, which included business plan or project proposal refinement, conduction of feasibility or gender studies and anything else required to take the project to bankability. Once investment-ready, the projects would move into the matchmaking phase, where they would be introduced to potential financiers at the PPF's biannual match-making events.

Though a number of project proposals were received during the facility's original implementation, it became clear that many Small and Medium Enterprises (SMEs) lacked the expertise to prepare commercially-viable project proposals. This realisation inspired a major pivot in the PPF's strategy. While the original avenues for technical support and investment matchmaking remain open to project developers across the region, the CCREEE has also expanded the facility's approach, shifting to one in which it leverages its relationships with regional and national institutions to find projects that need support. Through the PPF, the CCREEE has stepped directly into the project development space, focusing on high-impact, high-visibility and high-social consequence projects across the region. Now, PPF support can begin at the conceptualisation stage before taking a project through the development stage and finally into implementation.

This is the approach that facilitated the upgrades to Nevis' Alexandra Hospital. It began with outreach to CCREEE's executive board, which includes a rotating array of Member States, to find out what kinds of projects were required in their respective countries. Once the project was selected, the PPF assessed the facility's needs, proposed the recommended upgrades, secured the funding and handled the procurement before shifting into a monitoring role and handing the project over to the Nevis Electricity Company Limited (NEVLEC) for bid assessment and installation. With the successful completion of the project, the hospital now benefits from new energy-efficient air conditioning units as well as upgraded and efficient lighting, which has, according to early assessments, reduced their overall energy load by a third. This not only improves the hospital's services but makes it cheaper and more energy efficient to run.

The PPF also selects projects based on a 2020 assessment of the regional project pipeline, prioritising those that are ready for implementation and will have transformative impacts. There are currently six other projects in the facility's pipeline, including a rural electrification project in the Belizean hinterland, energy efficiency upgrades for government buildings in Antigua and Barbuda and a major solar project in Suriname. The focus is mainly on socially transformative projects, particularly those targeting EE, which tends to have tangi-

ble impacts in addition to lower costs and quicker returns on investment than larger RE projects.

The new strategy also has the added benefit of allowing the PPF to align closely with some other TAPSEC-supported initiatives, such as the Integrated Utility Services (IUS) pilot programme, Integrated Resource and Resilience Planning (IRRP) and CARICOM Regional Energy Efficiency Building Code (CREEBC). The Alexandra Hospital upgrades are intended to be the first IUS-type project in Nevis, with the long-term goal of allowing NEVLEC to utilise the energy savings to invest in future EE projects. The PPF also hopes to engage in executing projects recommended by the various IRRPs currently under development and, where the facility produces tenders for various projects, it requires that vendor solutions meet the standards set out in the CREEBC.

This strategic collaborative approach to supporting the implementation of RE and EE projects across the region aligns well with TAPSEC's own commitment to partnership while enhancing the PPF's impact on the regional sustainable energy landscape. With this level of end-to-end support, the PPF is providing a strong boost to CARICOM's ultimate goal of ensuring that its citizens can enjoy reliable, sustainable and resilient energy services.

> Financing CARICOM's RE/EE Future Through the Credit Risk Abatement Facility

Renewable energy (RE) resources are abundant across the Caribbean region. From solar to wind power, geothermal energy to hydropower, CARICOM holds a wide variety of potential. However, most of these resources have remained untapped due to a lack of investment in the projects that would seek to utilise them.

Enter the Credit Risk Abatement Facility (CRAF). Established by the CARICOM Development Fund (CDF) in collaboration with the CARICOM Secretariat's Energy Unit and TAPSEC, CRAF seeks to increase investment in RE and energy efficiency (EE) projects by reducing the risks involved in lending. It does so by serving as a bridge between project developers, small and medium enterprises (SMEs) and financiers in CDF Member States, creating an ecosystem that ultimately encourages the uptake of RE and EE technologies.

CRAF executes its mandates via three integrated pillars: the Credit Risk Instrument (CRI), the Technical Assistance Programme (TAP) and the Monitoring and Evaluation Framework (MEF). Through its CRI, CRAF offers a partial credit guarantee to financiers, intermediaries and Energy Service Companies or funds interested in financing RE and EE projects. Acting as collateral for SMEs seeking to reduce their operating costs and increase their competitiveness by purchasing the technologies, CRAF provides an additional guarantee to lenders who might otherwise hesitate to take the risk.

The TAP aims to remove the barriers to RE/EE project development by addressing knowledge gaps and increasing the technical capacity for the execution of those projects. It also brings bankable projects to market through partnerships with other organisations offering Technical Assistance in the region and builds capacity among financial institutions so they can better evaluate energy projects. Finally, the MEF houses tools and mechanisms for measuring and monitoring CRAF's performance against metrics and targets set out by the Facilities' funders. It assesses CRAF's effectiveness in encouraging additional lending from financial institutions within CDF Member States.

Recognising CRAF's importance to the drive to create a welcoming environment for RE/EE technologies, TAPSEC collaborated closely with the CDF and CARICOM Secretariat's Energy Unit to support the establishment of this project. In addition to the initial technical support to establish the Facility, TAPSEC also facilitated a consultancy to develop a pipeline of projects for the CDF, provided two interns who worked with CRAF and the Regional Development Division, and provided marketing support to sensitise SMEs across CDF Member States. This assistance enabled the hosting of the CARICOM Sustainable Energy Forum (CSEF) and Energy Statistics And Information Conference in 2022, which featured the launches of a number of TAPSEC-supported projects, including the CARICOM Energy Information System (sieCARICOM) and CARICOM Energy Knowledge Hub (CEKH) Data Portal.

(continued on page 58.)

> Financing CARICOM's RE/EE Future Through the Credit Risk Abatement Facility

It also promoted deep engagement with the private sector, which enabled CRAF to build a pipeline of RE/EE projects.

Since its establishment, CRAF has been adopted by five CDF Member States: Belize, Barbados, St. Lucia, Guyana and Suriname.

The first First Master Guarantee Agreement was signed on April 28th 2021 with the St. Lucia Development Bank, and three projects have since received technical assistance through CRAF at a value of US\$1,000,000. The Facility has also supported investments amounting to approximately US\$300,000 and onboarded four financial institutions in three countries. Additionally, it provided training for more than 60 officials in several financial institutions across the region.

The long-term impacts of CRAF will be substantial. Businesses adopting RE/EE technology will benefit from increased competitiveness, a more favourable environment for investment in these projects has been created across the region and the Facility itself now serves as a blueprint for other credit enhancement programs to support SME access to project financing. More broadly, projects facilitated by CRAF will help reduce regional reliance on fossil fuels as CARICOM nations make progress toward their Nationally Determined Contributions and further the shift toward the Caribbean's low-carbon, sustainable future.

Impact Highlights

- CRAF was adopted by five CARICOM countries (Belize, Barbados, St. Lucia, Guyana and Suriname).
- CRAF's first Master Guarantee Agreement was signed on April 28th 2021 with the St. Lucia Development Bank.
- In St. Lucia, 3 projects have received technical assistance under CRAF at a value of US\$1,000,000/EC\$2.7 million.
- Belize's Development Finance Corporation can now lend to SMEs at lower interest rates and without taking land collateral, thanks to CRAF's Credit Risk Instrument.



Did You Know?

The Sustainable Energy Finance Toolkit is Bringing RE and EE Projects to Bankability

The CARICOM Energy Knowledge Hub (CEKH) has a new addition in the form of the Sustainable Energy Finance Toolkit. Created by the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) with technical assistance from TAPSEC, the Toolkit provides the information Renewable Energy and Energy Efficiency project developers need to develop their projects to a stage where they can secure financing. It also contains information designed to help

financial institutions understand the technical information relating to RE and EE investment opportunities.

Featuring data from reliable sources such as the International Renewable Energy Agency (IRENA) placed within a Caribbean context, the Toolkit provides project developers with everything they need to bring their sustainable energy solutions to bankability.





**CLI-RES:
ENABLING POWER
SECTOR RESILIENCE**



> Cli-RES Reflections



Bernd Garbers

Advisor for the Climate Resilience and Sustainable Energy Supply in the Caribbean (Cli-RES) Project

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Out of 15 IRRPs in development, one for each CARICOM Member State, five are currently in the implementation phase in their respective countries.

”

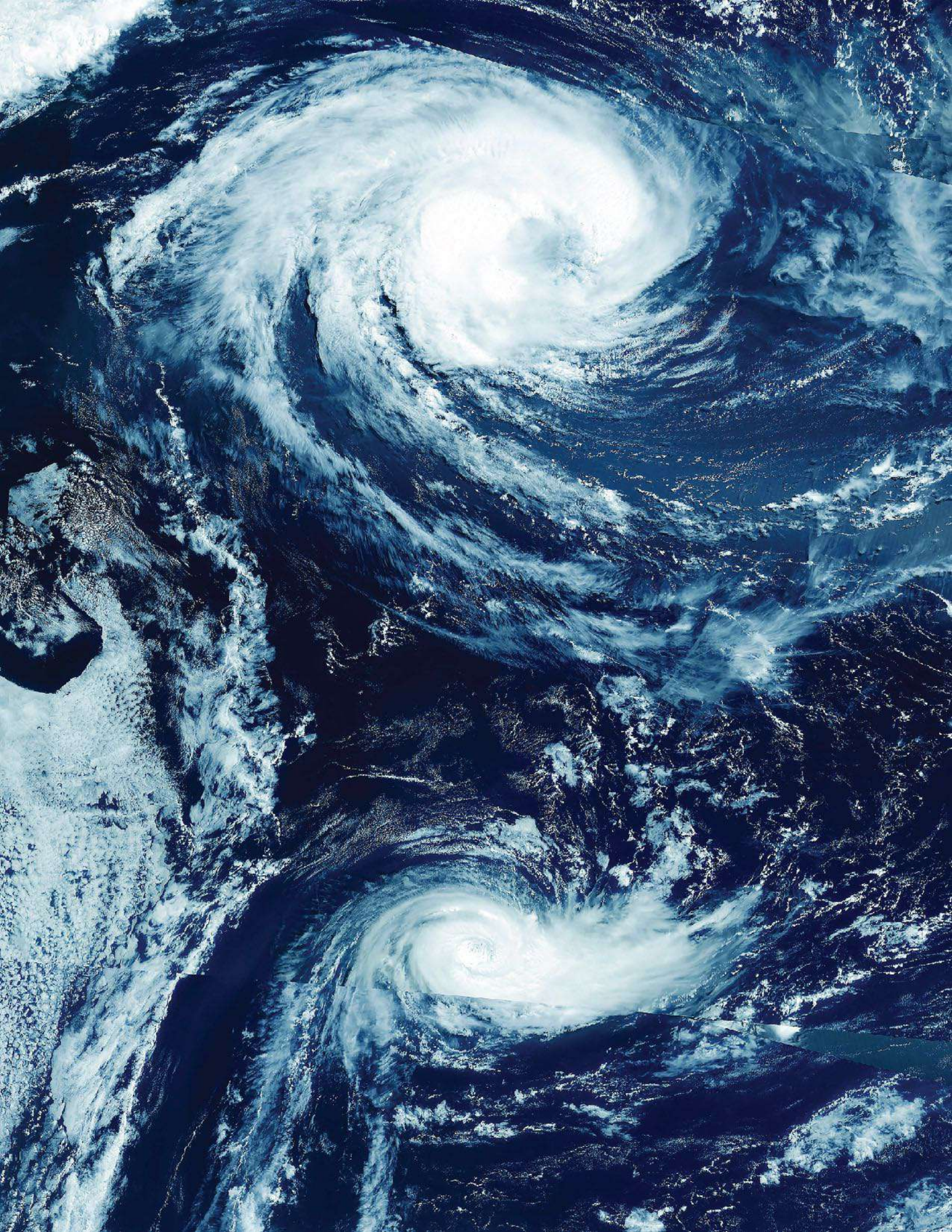
Alongside TAPSEC, the Climate Resilient and Sustainable Energy Supply (Cli-RES) supports the region's transition to a low-carbon, sustainable, and climate-compatible development pathway, by increasing and improving access to modern, affordable and sustainable energy services, to the benefit of all Caribbean citizens. In collaboration with our lead implementing partner, the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE), we have been developing country-specific Integrated Resource and Resilience Plans (IRRP); a development roadmap to a stronger, more reliable, diverse, and resilient power sector.

This initiative will be truly transformative for the region as this methodology for development was endorsed by CARICOM at the 82nd Special Meeting of the Council of Trade and Economic Development (COTED). Out of 15 IRRPs in development, one for each CARICOM Member State, five are currently in the implementation phase in their respective countries.

While the completion of the IRRPs is major success for our programme, the true lasting impact of the plans lies in the hands of our partners. The CCREEE has been equipped with the tools, resources, and technical capacity to move the IRRPS forward, which is their mandate.

It has been a pleasure to work closely with the CCREEE on this endeavor. Cli-RES is ready to pass the baton to a team of professionals who are dedicated to the sustainable development of our beautiful Caribbean. The region is in good hands.

Bernd Garbers



➤ Preparing for the Realities of Climate Change with the Regional Emergency Response Strategy & Action Plan

In September 2017, Dominica, Saint Croix and Puerto Rico were devastated by Hurricane Maria, the worst natural disaster in the recorded history of those islands. The deadly Category 5 storm destroyed more than 90% of Dominica's structures as its powerful winds ripped leaves from trees and stranded residents of remote communities without grid-based electricity for more than a year. Maria damaged or destroyed 70% of St. Croix' buildings (including the island's only hospital) while knocking out the power grid and communications networks for the entire U.S. Virgin Islands. In Puerto Rico, it caused more than US\$90 billion in damages and left residents without full power for nearly a year.

Maria made landfall just 12 days after Hurricane Irma, another lethal Category 5 storm which had already pummelled Saint Croix and Puerto Rico with high winds, causing hundreds of millions of dollars in damage and leaving more than one million people without electricity.

This is the reality of life in the Caribbean in the era of climate change. Where islands in the "hurricane belt" previously had to prepare for one heavy storm each year, they're now facing the possibility of several consecutive destructive storms, with little time to recover from one before the next one hits.



To grapple with such circumstances, the Caribbean region needs a strong plan for responding to and recovering from the impacts of severe weather events and natural disasters. Unfortunately, very few islands have put the necessary protocols in place to respond efficiently and effectively to these situations.

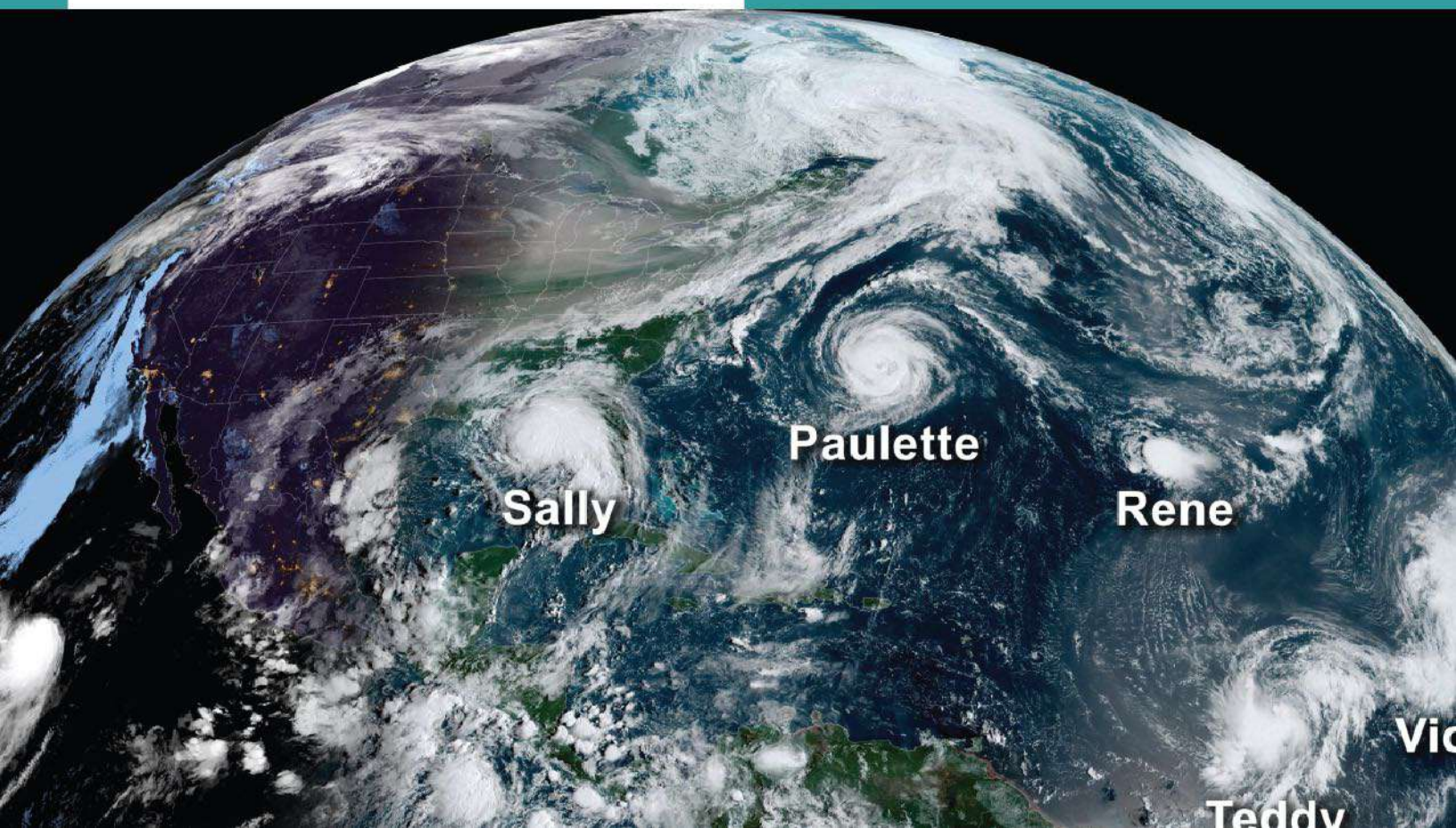
The Regional Emergency Response Strategy and Action Plan (ERSAP) project has been created with this in mind. Implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) as part of a financing agreement with the Caribbean Electric Utility Services Corporation (CARILEC), the ERSAP is designed to provide regional utilities with a clear plan for restoring power in the wake of catastrophic events.

With a focus on strengthening resilience in electric utilities, the ERSAP is the fifth component in the GIZ's approach to supporting the regional sustainability transition. It sits alongside the Policy, Capacity Development and Finance components under TAPSEC and the Integrated Resource and Resilience Plan (IRRP) under the Cli-RES project.

its long-term resilience planning, the ERSAP focuses on ensuring that nations can bring power back online as soon as possible in the wake of an emergency, providing the means to support national recovery in the midst of a chaotic and traumatic time.

The plan is being developed at the regional level by CARILEC to serve as a guiding document containing protocols that will allow Caribbean nations to implement the necessary measures to re-establish their infrastructure and recover quickly. It is expected to be completed by the end of June 2022, at which point implementation support will be provided to selected nations.

The ERSAP is singular among the projects and initiatives implemented by the GIZ in that it is being executed in the hope that it will never be required. However, at a time in which five named tropical systems can form simultaneously within the Atlantic basin (as happened in September 2020), it is more critical than ever for the Caribbean region to be properly prepared to recover from their impacts, even as we hope they never make land-fall.



> Preparing CARICOM For the Future With Integrated Resource and Resilience Planning

The CARICOM Energy Policy envisions a future in which energy sectors across the region are transformed through secure and sustainable energy supplies. To reach that future, CARICOM must engage in comprehensive planning that allows the region to withstand and recover from the significant challenges on the horizon. The Integrated Resource and Resilience Planning (IRRP) project was designed to facilitate such planning by developing living documents tailor-made to suit the unique energy needs, resources and context of each nation.

The IRRP project was developed and implemented by the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) with support from the GIZ-implemented Climate Resilient and Sustainable Energy Supply (Cli-RES) project. CCREEE partnered with three CARICOM Member States to develop IRRPs, which build on the more traditional Integrated Resource Plan (IRP). Where the IRPs focused on preparing for future electricity demands from the perspective of

energy efficiency and generation, the IRRP project brings resilience planning to the forefront by catering for expected external threats due to extreme weather events, the effects of climate change, natural disasters and large changes in demand caused by major events, such as a pandemic.

A robust IRRP charts a 15-25-year path for the holistic development of a country's power sector with an eye toward optimising the power grid in line with that country's energy goals. It takes a "least-regret" approach to find strategies for maintaining a stable energy supply based on known constraints, resources and expected hazards. The process of creating an IRRP involves collective partnerships with key stakeholders, such as governments, utilities and regulators. It consists of a comprehensive utility planning exercise that includes data gathering, metrics selection, forecasting, scenario determination, strategic and action planning and the creation

of an evaluation process. The result of this process is a living document that evolves in line with national developments and ensures that a nation's energy sector is progressing in line with the wider region's transition to energy sustainability and climate resilience.

IRRP's have been developed for Belize, Guyana and Trinidad and Tobago, with each plan geared towards achieving the nation's specific goals within their individual contexts. These goals may include stability, energy efficiency, diversification, resilience, cost-containment and increased energy access. Once implemented, each country's IRRP will serve as the foundation for the improvement of their energy sectors with the aim of providing reliable energy services that are prepared to handle and rebound from the impacts of external hazards. With these plans in hand, each country will also be well-equipped to play key roles in the wider region's transition to sustainability and climate resilience.





TAPSEC IN THE DOMINICAN REPUBLIC





> Partnering to Develop the Dominican Republic's Sustainable Energy Future

Energy Efficiency and Renewable Energy sources are the keys to unlocking the seventh United Nations Sustainable Development Goal (SDG), which calls for universal access to “affordable, reliable, sustainable and modern energy”. Through its Ministry of Energy and Mines (MEM), the Dominican Republic has committed to taking concrete action towards the sustainable development of a future society that satisfies humanity’s needs in an environmentally-conscious way. MEM partnered with TAPSEC to make great strides towards this goal, enabling the Dominican Republic to become one of CARIFORUM’s most advanced countries in terms of renewable energy penetration in the process.

As the Ministry with responsibility for the sustainable development of the nation’s energy sector, MEM focuses in part on formulating policies to guide the efficient use

of energy, the development of alternative energy resources and the maintenance of a reliable energy infrastructure. Following a 2018 planning meeting, the Ministry began collaborating with TAPSEC to implement a number of interrelated and groundbreaking projects designed to create a favourable sustainable energy environment for its people. The ultimate aim of this collaboration was to strengthen the Dominican Republic’s regulatory frameworks, improve its energy information network, increase the capacity for providing technical services and create financing mechanisms for projects that would allow for the national development of renewable energy and energy efficiency.

Outlining the impacts of the cooperative relationship, Charles De La Rosa, Director of Renewable Energy at MEM, says TAPSEC has helped “to guaran-

tee the use of energy efficiency and a greater participation of local renewable energy sources”, bringing the Dominican Republic that much closer to that seventh SDG. He describes TAPSEC’s wider impacts on the regional sustainable energy transition as positive, noting the Programme’s efforts to help increase universal access to electricity, mitigate environmental deterioration through energy efficient and renewable technology and reduce poverty conditions and vulnerability to climate change.

Looking back on the strides made thus far, Mr. De La Rosa offers a key piece of advice for other CARIFORUM countries aiming to make similar progress: planning is key. Describing the Dominican Republic’s experience as one of learning while executing, he notes that careful planning for the integration of new technologies is key for a smooth transition to CARIFORUM’s sustainable energy future.



MEM Sustainable Energy Project Highlights

Grid Codes for Variable Renewable Energy

In pursuit of the diversification of energy resources, TAPSEC facilitated MEM's engagement with consultants tasked with guiding the preparation of the nation's first grid codes for Variable Renewable Energy (VRE). With the eventual implementation of these codes, the drafts of which are currently being reviewed by the Superintendence of Electricity, the Dominican Republic's energy sector will be able to incorporate intermittent energy sources such as wind, solar, tidal and hydroelectric power without compromising the quality and security of the national energy supply. Therefore, once approved, these codes would serve as the technical standard for the connection and operation of the Dominican Republic's first-ever renewable power plants.

Energy-Efficient Laws

To further encourage the integration of renewable energy, consultants were also brought on to assist with the creation of a draft law on energy efficiency, which is designed to encourage the integration of renewable energy by reforming the energy sector's existing legislation. The aim is to restructure inter-agency systems to allow for streamlined processes for permits, certifications and licences for renewable energy and energy-efficiency imports. Currently before the Congress, this draft law is designed to enable a welcoming regulatory atmosphere for local and international investors to establish their renewable energy and energy efficiency operations within the Dominican Republic.

ISO Certifications

As part of the effort to ensure the creation of a high-quality renewable energy and energy efficiency infrastructure, TAPSEC assisted MEM with interpreting two global energy standards developed by the International Organisation for Standardization (ISO). The ISO50001:2015 provides a framework for implementing an energy management system, which will assist with improving energy efficiency and reducing environmental impact. The ISO50002:2014 outlines the requirements for conducting energy audits to gauge energy performance. With these two certifications in hand, the Dominican Republic's energy sector will be ready to effectively incorporate new sustainable energy resources.

Renewable Energy Theme Park

To build capacity and raise awareness of the importance of renewable energy and energy efficiency, TAPSEC supported the establishment of the Renewable Energy Theme Park (PTER) in Santo Domingo, Juan Bosh City. This interactive facility houses six immersive stations, each of which illustrates different renewable energy generation technologies: the water station, air station, sun station, biomass station, leisure & exercise station and rural applications station. Visitors can benefit from guided tours with trained staff, getting hands-on experience with the technologies that will serve as the foundation of the Dominican Republic's sustainable energy future. The facility itself is also climate resilient, thanks to an energy storage system consisting of three 5.5kW hybrid inverters and 40 AGM batteries.

See more about PTER here:



Parque Temático de Energía Renovable Ciudad Juan Bosch

4,479 views Jul 3, 2018 El Parque Temático de Energía Renovable será el primer proyecto educativo de su clase en el Caribe y servirá como modelo para ser replicado en otras ciudades...more

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Me encantaría ver cómo me encantaría que se implementara...



Sabana Real Pilot Project

With financial support from TAPSEC, MEM has partnered with Enestar, Edesur Dominicana S.A., the Ministry of Economy, Planning and Development and the Agricultural Cooperative of Multiple Services La Bella to provide the remote community of Sabana Real with a microgrid photovoltaic (PV) system through the Energy Transition project. This pilot project aims to provide a sustainable and resilient power supply to the community in the form of a 55.2 kWp PV power plant and a 245 kWh battery system. The upgrade will, in turn, facilitate the construction of a communication tower that will provide internet and telephone services to Sabana Real.

A close-up photograph of several light-colored wooden puzzle pieces scattered on a solid light blue background. The pieces are interlocking and have a natural wood grain texture. A white rectangular box with a thin black border is centered over the puzzle pieces, containing the text "COLLABORATION IS OUR CURRENCY: PARTNER INSIGHTS" in a bold, white, sans-serif font.

**COLLABORATION
IS OUR
CURRENCY:
PARTNER
INSIGHTS**



Working to Ensure That Project Success Equals Caribbean Community Success



Within the sphere of sustainable energy development, the Secretariat drives the regional sustainable energy agenda with the CARICOM Energy Policy and the Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) as their guides.



Dr Armstrong Alexis

Deputy Secretary-General,
Caribbean Community (CARICOM)

A development project is only as successful as its impacts on the community it seeks to uplift. It is not enough to achieve specific programme objectives; long-term changes must result from the programme's outputs for the larger mission to be achieved. An understanding of these truths informed TAPSEC's approach to supporting the Caribbean's sustainable energy transition. It underpinned the programme's partnerships with regional institutions, the aim of which was to facilitate Caribbean-led efforts to advance the transition in a way that would continue long after TAPSEC itself ended. This was especially true in its collaboration with the Caribbean Community (CARICOM) Secretariat—the oldest-surviving intergovernmental movement in the developing world and the organisation responsible for ensuring that the benefits of integration are equitably shared among its members.

Established in 1973 via the Treaty of Chaguaramas, CARICOM is a political and economic union of 15 Member States and five Associate Members. With roughly 16 million citizens across a variety of ethnic groups, languages and cultures under its umbrella, the CARICOM Secretariat serves a geographic area stretching from The Bahamas in the north to Suriname and Guyana on the South American coast.

Within the sphere of sustainable energy development, the Secretariat drives the regional sustainable energy agenda with the CARICOM Energy Policy and the Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) as their guides. They work to engage the Member States in the transition through systemic planning and implementation, via the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE). The ultimate goal is to facilitate a reliable supply of resilient, sustainable and affordable energy across CARICOM through the use of the region's indigenous energy assets, including geothermal, wind and sun. The Secretariat also coordinates with Member States and other strategic partners to conceptualise, develop and execute policies and strategies to increase the use of renewable energy and energy efficiency technologies across the Caribbean.

This is where TAPSEC comes in. As a TAPSEC implementing partner, CARICOM was involved in critical interventions to ensure that the programme's outcomes were achieved.

(continued on page 71.)



Working to Ensure That Project Success Equals Caribbean Community Success



“When I was briefed on the project by the CARICOM team, it was very clear to me that CARICOM had a very good relationship with the TAPSEC team”. From an institutional perspective, he describes the programme as a “very, very well managed” one that “met its project objectives and goals.”



Working closely with CCREEE (the organisation’s implementation arm), the Secretariat held the responsibility for ensuring that the three prongs of project success remained in sight throughout TAPSEC’s duration: implementation on time, within budget, and in line with the programme’s objectives. They also worked closely with partner organisations on TAPSEC projects such as the Regional Electric Vehicle Strategy (REVS), the CARICOM Regional Energy Efficiency Building Code (CREEBC) and the Regional Energy Apprenticeship Programme (REAP), which was designed by the CARICOM Secretariat Energy Unit.

The overarching aim of this extensive partnership was to move renewable energy and energy efficiency out of the realm of possibility and into the realm of action, where it can begin making a meaningful difference in Caribbean lives. According to Dr Armstrong Alexis, Deputy Secretary General of the CARICOM, his organisation is particularly interested in “consider[ing] how we transition from just project success into success for the community, success for our Member States”. Noting that there is a need to create qualitative change by appealing directly to the interests of CARICOM citizens, he says the necessary

mind-shift can happen if the successes of projects like TAPSEC “can be articulated across the board into the community so people fully understand what it is that we’re doing”.

Discussing the collaborative experience, Dr Alexis, who joined CARICOM just seven months before the programme’s conclusion reveals, “When I was briefed on the project by the CARICOM team, it was very clear to me that CARICOM had a very good relationship with the TAPSEC team”. From an institutional perspective, he describes the programme as a “very, very well managed” one that “met its project objectives and goals”.

What he’s looking forward to now, following the programme’s conclusion, is further implementation across the board that would move TAPSEC’s achievements “from being a project success to a national accomplishment”. Thankfully, several partner organisations—including the CCREEE and Caribbean Development Bank (CDB)—stand ready to help do just that, ensuring that CARICOM’s progress towards its sustainable energy future will continue apace.



A Commitment to Collaboration at the Heart of CARILEC's Mission



Keen on improving the operational efficiency and sustainability of its member utilities, CARILEC has been performing a uni-dimensional performance benchmarking study for its Member electric utilities every year since 2002.



Dr. Cletus Bertin

Executive Director of The Caribbean Electric Utility Services Corporation (CARILEC)

For more than 30 years, the Caribbean Electric Utility Services Corporation (CARILEC) has been at the forefront of regional energy development. From its beginning in 1989 as a nine-member electric utilities modernisation project to its current incarnation as the leading regional association of more than 100 electric energy solution providers operating across the region and the wider world, CARILEC has championed the growth and evolution of the regional energy sector.

The organisation's strategic approach to creating that growth lies in its commitment to collaboration, which happens to be its primary value, alongside innovation and agility; high ethical and professional standards; and social and environmental responsibility. In recognition of the changing realities of the market and the need to increase regional energy efficiency while reducing dependence on fossil fuels, CARILEC welcomed Independent Power Producers (IPPs) into its membership and onto its board of directors in 2018. It has since continued this collaborative approach to the regional energy transition by creating a new membership category for associate and affiliate members including students, academics, researchers and lecturers.

CARILEC orients utilities, investors and industry stakeholders around the characteristics, behaviour and outlook of the electric utility industry in the Caribbean

region. While encouraging innovation in the power generation space by inviting new players, CARILEC has been advocating for regional governments to create and implement the policies and regulations required to enhance the regional energy transition towards sustainability. Its partnership with TAPSEC has been a vital part of that effort to drive change. As a member of the programme's Steering and Technical Advisory Committees, CARILEC had direct input in developing work plans for projects created under TAPSEC's three main components and direct responsibility for seeing some of them through to completion.

Keen on improving the operational efficiency and sustainability of its member utilities, CARILEC has been performing a uni-dimensional performance benchmarking study for its Member electric utilities every year since 2002. The organisation has also conducted environmental studies and Data Envelopment Analyses to compare the utilities' technical, economic, financial and organisational performance indicators as a means of measuring and monitoring utility performance.

Naturally, one of the key projects executed by CARILEC with TAPSEC support was the Electric Utility Benchmarking Study Automation Project.

(continued on page 73.)



A Commitment to Collaboration at the Heart of CARILEC's Mission



He describes the collaboration between CARILEC and TAPSEC as “indispensable” and one of “mutual understanding, mutual respect and mutual interest” in terms of the region’s energy transition and in terms of “concerns about sustainability and building greater resilience in the energy sector in the region.”



It sought to develop and adopt a fully automated benchmarking tool, modernising and digitising the data collection, analysis, measurement and monitoring of utility performance that is typically done through its benchmarking studies.

Implemented in two phases, the project began by updating the Key Performance Indicators (KPIs) used to assess the operations of regional utilities. The KPI updates included existing utility performance metrics as well as new standards relating to renewable energy, energy efficiency and operational safety and health.

The second phase focused on scoping and designing the web-based tool with a view to support automating the updated KPI and benchmarking framework within a new benchmarking platform. This new interactive CARILEC Benchmarking Platform is being built specifically to suit the needs of CARILEC, the utilities, regulators et al, allowing a modernised and digitised approach to accurately measure utility performance.

CARILEC also participated in the CARICOM Energy Policy and Regulations Help Desk as one of the four management institutions providing steering, guidance, promotion and advice towards the long-term institutionalisation of the Help Desk as part of the Help Desk's Oversight Committee. At the technical level of the Help Desk, CARILEC formed part of the Application Review Facility, supporting the management and evaluation processes of technical requests submitted by CARICOM Member States to the Help Desk.

Another critical intervention is the Regional Emergency Response Strategy and Action Plan (ERSAP), which was implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) as part of a financing agreement with CARILEC. The ERSAP

consultancy is directly managed by CARILEC and the project is designed to provide regional utilities with a clear plan for restoring power in the wake of catastrophic events. Developed at the regional level, the document is meant to serve as a guide to allow Caribbean nations to re-establish their infrastructure and recover quickly from the impacts of severe weather.

CARILEC also teamed up with TAPSEC to support the Dominican Republic's drive to transition to renewable energy production through the use of Variable Renewable Energy (VRE). This shift required a comprehensive review of the nation's existing power system, an assessment of the technical requirements of power generation plants using VRE and the development of new national grid codes designed to ensure the quality and security of the Dominican Republic's power supply.

The success of each of these projects hinged on the partnerships that facilitated their execution. Dr. Cletus Bertin, CARILEC's Executive Director, credits the organisation's collaboration with TAPSEC, GIZ, the CARICOM Secretariat, CCREEE, CROSO and others as “essential in the accomplishments that were achieved through these projects and other related initiatives”. He describes the collaboration between CARILEC and TAPSEC as “indispensable” and one of “mutual understanding, mutual respect and mutual interest” in terms of the region's energy transition and in terms of “concerns about sustainability and building greater resilience in the energy sector in the region.”

As TAPSEC comes to a close, Dr. Bertin and his 13-member team are “quite satisfied that the project outputs have been achieved and will be realised in the coming years”. They remain committed to leveraging their collaborative arrangements with their regional partners and membership in order to fulfil their organisation's mission to accelerate the Caribbean's energy sector transition through innovation and advocacy.

CXC®: Leading the Educational Shift Towards Sustainability with TAPSEC's Support



The ideal Caribbean person is someone who lives in harmony with their physical and social environment. This is the perspective of Latoya Wedderburn-Rose, a manager in the Syllabus and Curriculum Development Department at the Caribbean Examinations Council (CXC®).



Jodine Williams

Senior Manager responsible for Syllabus and Curriculum Development Caribbean Examinations Council (CXC®)



Latoya Wedderburn-Rose

Manager, Syllabus and Curriculum Development Department, Caribbean Examinations Council (CXC®)

The ideal Caribbean person is someone who lives in harmony with their physical and social environment. This is the perspective of Latoya Wedderburn-Rose, a manager in the Syllabus and Curriculum Development Department at the Caribbean Examinations Council (CXC®). Her organisation is the region's examinations and awarding body with responsibility for developing the syllabuses used to prepare students for regional examinations. It is also one of TAPSEC's partners in the "Mainstreaming Green Learning Concepts in the Educational Syllabus" project, which was designed to help create the ideal Caribbean person to drive the regional shift towards sustainability. CXC's mandate, which it has undertaken since its establishment in 1972, is to provide a range of certifications that respond to the region's needs, making it the ideal organisation to help lead the educational aspect of this regional transition.

For Jodine Williams, Senior Manager of CXC's Syllabus and Curriculum Development Department, this TAPSEC-supported project was an amazing way to shift CXC® into a new space amid the growing conversation about the regional response to sustainability and climate change. Through this initiative,

CXC® could influence the educational shift by creating syllabuses that supported the regional transition simply by introducing students and teachers to new sustainability concepts at the upper secondary and post-secondary levels.

The seeds of this particular project were sown in 2018, with the GIZ-funded Renewable Energy and Energy Efficiency Technical Assistance (REETA) programme. As part of a larger effort to improve regional teaching materials and methods, the REETA programme supported the development of a digital toolkit for a new Green Engineering Syllabus, teacher training and a concept paper advancing the move to "green" the CXC® curriculum. Based on the success of the REETA programme and with the support of the TAPSEC programme, that concept has blossomed into this three-phase project. Phase one involved enhancing teacher capacity, while phase two focused on integrating concepts around renewable energy and energy efficiency into 10 syllabuses at the Caribbean Secondary Education Certificate (CSEC) and the Caribbean Advanced Proficiency Examination (CAPE) levels.

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CXC®: Leading the Educational Shift Towards Sustainability with TAPSEC's Support

TAPSEC's support for this initiative came in the form of facilitating the hiring of consultants from the University of Guyana (UG), who guided CXC® in infusing those greening concepts into the curriculums.

In phase three, CXC® oversaw the creation of relevant teaching and learning resources, which are currently housed within the organisation's online Learning Institute platform. The project is now in the close-out phase, with two of the updated syllabuses going into schools in September of 2022 and the remaining ones proceeding through various stages of review in preparation for future implementation.

TAPSEC's support for this initiative came in the form of facilitating the hiring of consultants from the University of Guyana (UG), who guided CXC® in infusing those greening concepts into the curriculums. TAPSEC also enabled CXC® to host a number of training workshops, including one specifically designed to support teachers with the implementation of the new research-based School Based Assessments (SBAs) related to the updated curriculums.

Wedderburn-Rose describes the collaborative experience as "a beautiful relationship" and "a team effort" with a level of collaboration that allowed all parties to work together to overcome the challenges inherent in pivoting to a digital execution in the midst of the pandemic. Williams also praises the partnership with TAPSEC, describing it as "an absolute pleasure" and a "meaningful and productive experience" that made it very easy to facilitate the necessary changes involved

in shifting to a digital space. This spirit of collaboration is one of her biggest takeaways from the experience of this project, as it underscores her belief that "once we are able to collaborate and, in a collegial way, work towards a common goal, we will be able to do amazing things within this region".

Feedback from the teachers involved has been similarly positive and CXC® is looking forward to more insights from the educators and students at the forefront of the rollout at the end of the next academic year. Ultimately, Williams and Wedderburn-Rose expect to see this project bear fruit in the form of a growing appreciation for sustainability and an understanding of the importance of efficient management of regional resources. After all, education is never limited to the classroom. Having learned these new "green" concepts, students will be primed to make subtle but important changes within their schools and homes. As they step into adulthood and take leadership roles within their communities, they will be well-prepared to help guide the region towards its sustainability goals. That is how a single curriculum development initiative can create a huge impact on a regional scale. With this project, says Williams, "we would have impacted families, and when we impact families, we impact society. And once we impact society, then we can anticipate change".

The UWI Mona: Leading the Charge Towards Regional Energy Sustainability in Tertiary Education

“Tertiary educational institutions have a critical part to play in the regional transition towards sustainable energy.”



Dr Dale Webber

Pro-Vice-Chancellor and Principal,
University of the West Indies
(UWI) Mona Campus

Tertiary educational institutions have a critical part to play in the regional transition towards sustainable energy. As the portal through which burgeoning energy professionals step into the regional energy sector and the main means through which existing energy professionals enhance their skill sets, they are incredibly influential in terms of orienting their students towards regional goals. Tertiary educational institutions also help to guide governmental policy decisions across the region through their research. They were therefore among some of the most important participants in TAPSEC's overall mission, none more than the University of the West Indies Mona Campus (The UWI Mona).

As the oldest campus of the University of the West Indies, itself the number one university in the English-speaking Caribbean, the UWI Mona was naturally an ideal match to house one of TAPSEC's most ambitious projects: the Microgrid Training Centre (MTC) at the UWI Mona's Discovery Bay Marine Lab (DBML). Located on Jamaica's north coast, about 70

miles from Kingston, the DBML is one of three UWI Mona outstations. It accommodates marine and field science courses and research, allowing students to gain hands-on experience in their chosen fields of study. The DBML was originally equipped with a renewable energy system that provided 50% of the facility's needs. With the addition of the MTC's 40 kW solar photovoltaic (PV) grid system, it is now fully powered by renewable energy and much more resilient against the impacts of severe weather and power disruptions that could jeopardise years of important research. As the Northern Caribbean's first-ever centre of excellence for renewable base microgrid and SMART grid training, the MTC provides engineering students with first-hand experience with the sustainable energy technology they will encounter in the field and serves as an example of the kind of sustainable energy solutions that can be implemented by other institutions across the region. It has also facilitated UWI Mona's involvement in developing the CXC® Green Engineering CAPE® Programme.

(continued on page 77.)



The UWI Mona: Leading the Charge Towards Regional Energy Sustainability in Tertiary Education



The relationship between TAPSEC and the UWI is a model that many other institutions should be embarking upon. It should be something that can be replicated through other institutions, through government entities [and] through the private sector, where partnership allows us to achieve goals that we never thought possible. TAPSEC opened many opportunities for us. It made us realise that sustainable energy is a game changer. And we should all embrace it.



According to Dr. Dale Webber, Pro Vice Chancellor and Principal of the UWI Mona, the energy savings generated by the MTC will allow the University to re-invest in education: "This project has saved the [DBML] almost 30% of its expenditure in terms of outlay on utilities. That 30% can now be put back into the organisation for the development of students, for scholarships [and] for support of [nearby] schools". It also serves as a sustainable energy proof of concept to other educational institutions and even organisations in the hospitality industry. For Dr. Webber, it is just the first step in his long-term vision for building regional capacity and climate resilience: "Wouldn't it be great for us to be able to implement a similar solar system incrementally at the Mona campus where we can effectively get away from fossil fuels? Wouldn't it be great for the entire campus to be able to do that over time?"

Describing the project as "a major door-opener", Dr. Webber credits the University's "rewarding" collaboration with TAPSEC with providing much-needed procurement advice and knowledge transfer opportunities that were crucial to its success. Expressing his hope that this kind of cooperation will serve as an example for future projects of a similar nature, he explains, "The relationship between TAPSEC and the UWI is a model that many other institutions should be embarking upon. It should be something that can be replicated through other institutions, through government entities [and] through the private sector, where partnership allows us to achieve goals that we never thought possible. TAPSEC opened many opportunities for us. It made us realise that sustainable energy is a game changer. And we should all embrace it."



Creating the Caribbean’s Sustainable Energy Future Through Education



The ultimate aim was to empower students to — not just learn about sustainability but — become advocates within their own households and communities. ”



Dr. Paulette Bynoe

Deputy Dean of the School of Graduate Studies and Research at the University of Guyana (UG)

Environmental education is a vital part of creating the changes that will shift the Caribbean towards sustainable energy development. So says Dr. Paulette Bynoe, Deputy Dean of the School of Graduate Studies and Research at the University of Guyana (UG). She would know, having led the team contracted by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)-implemented TAPSEC programme to partner with the Caribbean Examinations Council (CXC®) to “Green” the regional secondary and post-secondary curricula.

Alongside her team, Dr. Bynoe worked to integrate elements of energy conservation, renewable energy and energy efficiency into ten CSEC and CAPE subjects. The ultimate aim was to empower students to — not just learn about sustainability but — become advocates within their own households and communities. To achieve this goal, the UG team began with auditing the subjects to determine

the extent to which they captured aspects of sustainable energy. They then surveyed teachers and students and touched base with energy experts for their insights on what should be included. Based on their learnings, they modified the existing curricula to include a focus on energy conservation, renewable energy and energy efficiency. In order to empower the region’s educators to deliver the updated curricula effectively, Dr. Bynoe and her team developed a teacher’s training manual, housed within CXC®’s Learning Institute platform, and embarked on a comprehensive capacity-building exercise, during which they conducted a number of dynamic, interactive and engaging training sessions with teachers from across the Caribbean. The result is a group of educators well-prepared to guide their students in taking positive actions towards sustainable energy development.

(continued on page 79.)



Creating the Caribbean's Sustainable Energy Future Through Education



The charter's ultimate goal is the same as that of the "Greening the Curriculum" project: to shift the common thinking towards an understanding that humans are not outside of the environment but part of it and to do so by enlightening the students who will soon be leaving their classrooms and lecture halls to lead the change themselves.



Dr. Bynoe credits the successful execution of this project to UG's strong partnership with CXC® and GIZ/TAPSEC. Fondly recalling the helpful bilateral communication that enabled the development of this project from beginning to end, she says "I would work with CXC® any day". She also applauds the organisation for conceptualising the project which, she explains, provides the region with what it needs to make a change. As it relates to TAPSEC, Dr. Bynoe says "we could not do what we did without the support" and praises the programme for its hands-on approach. From monthly meetings, to project planning and attending sessions, TAPSEC's level of engagement went beyond that of a typical funding institution, creating a sense of ownership and offering encouragement that helped her team to always "put [their] best foot forward".

This "greening" of regional curricula falls in line with the University's own perspective on the importance of

sustainability as Dr. Bynoe is currently in the process of creating a charter intended to guide UG in greening its own operations. This charter, which will focus on the pillars of ecology, social participation and economics, aims to integrate sustainability into various subjects offered by the University as well as operational policies such as procurement. The charter's ultimate goal is the same as that of the "Greening the Curriculum" project: to shift the common thinking towards an understanding that humans are not outside of the environment but part of it and to do so by enlightening the students who will soon be leaving their classrooms and lecture halls to lead the change themselves.

After all, as Dr. Bynoe says: "Every single citizen of this world can have a role in the trajectory towards a greener planet, towards sustainability and towards being carbon neutral. We just have to be motivated to do it and what moves us to the motivation is the process of environmental education."

Gathering Essential Information for CARICOM's Sustainable Energy Future with Help from OLADE

“

The organisation's current goal is to help the region generate more than 70% of its power from renewable energy sources by 2030.

”



Alfonso Blanco

Executive Secretary,
The Latin American
Energy Organization (OLADE)

We live in the information age. At a time when information technology sits at the core of worldwide development and when access to information directly impacts a nation's ability to provide opportunities for its citizenry, information is very much the key to unlocking CARICOM's sustainable future. For this vibrant region comprising various cultures and people and connected by a drive to reach that future, strong collaboration is the fuel needed to drive CARICOM to its destination.

Created in 1973, the Latin American Energy Organisation (OLADE) exists to integrate Latin American and Caribbean countries through the development of the regional energy sector. While the organisation originally focused on the oil markets, OLADE's agenda has since expanded to include the incorporation of renewable energy sources and support for the overall regional energy transition. The organisation's current goal is to help the region generate more than 70% of its power

from renewable energy sources by 2030. Headquartered in Quito, Ecuador, OLADE includes 27 Member Countries (including eight CARICOM Member States), represented by their Energy Ministers or Secretaries.

With the support of TAPSEC and as part of its long-standing relationship with the Caribbean region, OLADE has provided CARICOM with the key to accessing the data that will power the regional energy transformation. The CARICOM Energy Information System (sieCARICOM), was designed by OLADE based on the existing general Energy Information System already in use throughout Latin America. OLADE worked closely with the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) to tailor the system specifically for the region's needs with the aim of enabling CARICOM to gather and process the energy sector data it needs to reach its sustainable energy goals.

(continued on page 81.)



Gathering Essential Information for CARICOM's Sustainable Energy Future with Help from OLADE



Noting that “information is essential” to the regional energy transition, he says programmes like TAPSEC “are the catalysts of the transformation because they are focused on overcoming the existing barriers in our region, capacity-building, improvement of regulations, creation of long-term energy policies and development of strategies to fight climate change.”



In order to design the sieCARICOM, OLADE needed to leverage its existing Caribbean connections to collect the necessary data. As a longtime implementing agency for regional projects supported by international financiers such as the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, OLADE has a strong existing network of cooperation within the Caribbean. This was the network that enabled the organisation to connect to various ministries, utilities and energy companies across CARICOM during the information collection process. Once the sieCARICOM was complete, OLADE again reached out to begin the capacity building aspect of the project, ensuring that regional officials were properly trained to use the system to prepare the energy balances and other associated reports which will provide the high-quality energy statistics the region needs.

Alfonso Blanco, Executive Secretary of OLADE, describes this project as a continuous one focused on improving regional information systems and grounded in the close working relationship between his organisation and CARICOM. Not only will OLADE continue to engage in training as regional officials change, but it will continue to review the data prepared by the system and

maintain the system itself, providing updates on a yearly basis.

Mr. Blanco credits TAPSEC's support as crucial to OLADE's efforts to launch the sieCARICOM and implement its newly-developed methodology for energy balances throughout the region. Noting that “information is essential” to the regional energy transition, he says programmes like TAPSEC “are the catalysts of the transformation because they are focused on overcoming the existing barriers in our region, capacity-building, improvement of regulations, creation of long-term energy policies and development of strategies to fight climate change.”

As the person who pioneered the open data strategy within his office, Mr. Blanco firmly believes that open access to information will encourage the kind of innovation CARICOM needs, saying “if all Caribbean countries have better information with a standardised process for energy information collection, this will be the basis for new investment in the region, the basis for increased participation of renewables throughout the region and the basis for improving the quality of life of the people.”

> Pursuing Regional Sustainability Through Energy Efficiency with CROSQ

“

In 2018, CROSQ stepped into the sustainable development arena via its quality infrastructure and energy efficiency programme, executed through two key initiatives: the CARICOM Regional Energy Efficiency Building Code (CREEBC) and the CARICOM Regional Energy Efficiency Labelling Scheme (CREELS).

”



Deryck Omar

Chief Executive Officer for
CARICOM Regional Organisation
for Standards and Quality (CROSQ)

A standard is only as strong as the agreement on which it rests and widely agreed-upon quality standards help business to flow freely within the Caribbean and throughout the world. An awareness of this fact guides the efforts of the CARICOM Regional Organisation for Standards and Quality (CROSQ).

Since 2002, the organisation has been tasked with facilitating the development of regional standards, promoting the compatibility of measurement systems and supporting the sustainable production and trade of goods and services throughout the CARICOM Single Market and Economy (CSME). Through a collaborative network of 15 Bureaus of Standards (one for each CARICOM Member State), CROSQ works to ensure that the region has a common definition of quality, a common way of testing quality and a common way of inspecting and certifying quality of goods and services traded across a variety of industries.

In 2018, CROSQ stepped into the sustainable development arena via its quality infrastructure and energy

efficiency programme, executed through two key initiatives: the CARICOM Regional Energy Efficiency Building Code (CREEBC) and the CARICOM Regional Energy Efficiency Labelling Scheme (CREELS). CROSQ collaborated with the CARICOM Secretariat Energy Unit, the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE), and the Caribbean Community Climate Change Centre (CCCCC) to tailor these projects to the region's unique needs. They were designed to work in tandem to help CARICOM Member States manage their energy usage through building infrastructure and appliances, respectively. Where the CREEBC focused on boosting energy efficiency through the creation of regional building codes and compliance programmes, the CREELS aimed to harmonise the standards for energy performance and energy efficiency testing of the domestic and commercial equipment that would be used within the new energy-efficient structures.

(continued on page 83.)



Pursuing Regional Sustainability Through Energy Efficiency with CROSQ



Noting that “sustainability is the ability to efficiently use resources today such that there’s more resources for tomorrow”, he expresses the hope that these projects will have helped CARICOM learn “how to use less energy today so there are more and better quality energy generating resources for tomorrow”.



CROSQ’s collaboration with TAPSEC began in 2019 with the signing of a one-and-a-half-year grant agreement with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. This grant agreement (which was later extended by an additional year) facilitated CROSQ’s drive to roll out and encourage implementation of the newly-developed CREEBC at the national level among all 15 CARICOM Member States and pilot test the CREELS in five Member States. The approach was divided into three components: policy market regulations, institutional strengthening and capacity building, and knowledge management and awareness raising.

Through this framework, CROSQ was able to encourage implementation of the CREEBC via a digital awareness campaign, the production of two companion training documents (which were also translated into French for the Haitian market) and the hosting of a training programme and an online certification programme. For the CREELS, CROSQ launched a pilot programme testing energy efficient labelling for air conditioners, refrigerators and lights in Barbados, Belize, Jamaica, St. Lucia and Trinidad and Tobago. The pilot project included public outreach to raise awareness of the importance of buying appliances that meet the minimum standards, outreach to retailers and importers to educate them about the need to voluntarily comply with the new standards and

capacity building among regional Bureau of Standards and customs officials to enable them to inspect appliances and utilise the regional energy efficiency labs housed in Jamaica and Trinidad and Tobago.

Reflecting on the collaboration that underpinned these efforts, CROSQ Chief Executive Officer Deryck Omar praises, not just the support provided via the grant agreement, but the “camaraderie, the expert knowledge, the project management skills and advisory services” which “came pro bono” courtesy of the GIZ and TAPSEC. He also highlights GIZ’s “great listening” in providing a one-year extension of the grant agreement when the pandemic shutdown created global supply chain issues that impeded project execution.

Looking towards the future, Mr. Omar sees the rollout of the CREEBC and CREELS as catalysts for creating a better regional understanding of the value of energy efficiency and the ways that standards and quality assurance programmes can help support the drive to increase it. Noting that “sustainability is the ability to efficiently use resources today such that there’s more resources for tomorrow”, he expresses the hope that these projects will have helped CARICOM learn “how to use less energy today so there are more and better quality energy generating resources for tomorrow”.

Creating an Ecosystem for RE Projects to Thrive Through Partnership

“Tertiary educational institutions have a critical part to play in the regional transition towards sustainable energy.”



Rodinald Soomer

Chief Executive Officer,
CARICOM Development
Fund (CDF)

For the Caribbean region to achieve its sustainable energy goals, every nation must receive the support it needs to do its part. That understanding underpins the mandate of the CARICOM Development Fund (CDF), which is to address disparities among CARICOM Member States by providing financial and technical assistance to those nations with limited resources so they may benefit from the CARICOM Single Market Economy (CSME). In the sustainable energy space, the CDF teamed up with TAPSEC to take a novel approach to this mission, working to create a welcoming ecosystem that will allow Renewable Energy (RE) and Energy Efficiency (EE) projects to thrive throughout the Caribbean region.

The CDF provides assistance through a variety of country programmes aimed at various themes determined by Member States, including infrastructure development, renewable energy and energy efficiency, business development and enterprise competitiveness, promotion of regional investment and human capacity development. As it relates to the regional sustainable energy transition, the CDF recognised its role in providing support in the financial arena. The institution began with direct interventions to support infrastructure development within Member States via

energy sector capacity building through loans and grants for various RE projects. The organisation also assisted companies with the implementation of RE and EE solutions via grants and lines of credit provided by national development banks. With TAPSEC's help, the CDF has now pivoted away from direct financing and towards providing credit enhancements in the form of the Credit Risk Abatement Facility (CRAF), thereby creating space and incentives for financiers throughout the region to step in and invest in sustainability.

Through the CRAF, the CDF provides a partial guarantee to financial institutions to encourage lending to Small and Medium Enterprises (SMEs) seeking to invest in RE and EE solutions for their businesses. It also provides technical assistance grants to RE and EE companies for project development and to boost the bankability of their projects. This creates a strong pipeline that begins with the creation of needed sustainable energy projects, connects those projects to the SMEs that need them, and connects them both to the financiers that can enable development and investment

(continued on page 85.)

> Creating an Ecosystem for RE Projects to Thrive Through Partnership

“

“It has been a very, very productive partnership with TAPSEC,” Mr. Soomer continues, noting that TAPSEC staff were housed within the CDF offices, creating an environment of seamless interactions that were only enhanced by the TAPSEC team’s responsiveness, interactivity and adaptability.

”

This is intended to inspire a regional shift in the approach to sustainable energy projects, creating an atmosphere where domestic financiers are incentivised to invest in renewable energy and energy efficiency within the SME sector. The ultimate aim is to help create a mainstream, self-sustaining market for the solutions that will bring the regional sustainable energy goals within reach.

Rodinald Soomer, Chief Executive Officer of the CDF describes TAPSEC’s support as “critical to [the] internal transition to delivering a new product and having a new service in the market for companies interested in renewable energy”. The relationship was brokered through CARICOM Energy to provide the CDF with much-needed technical assistance in developing the overall model, financial model, policies and procedures. TAPSEC further provided a financial contribution which, when combined with the CDF’s own financing, facilitated the development of an IT portal that allows for the entire CRAF process to be digitised. This aspect was critical in that it provided an additional attraction to financiers by guaranteeing a quick response and turnaround for the process.

“It has been a very, very productive partnership with TAPSEC,” Mr. Soomer continues, noting that TAPSEC staff were housed within the CDF offices, creating an environment of seamless interactions that were only enhanced by the TAPSEC team’s responsiveness, interactivity and adaptability. He reveals that this mode of operations proved crucial to the success of the partnership as it allowed both teams to progress with the urgency required to get the project off the ground.

The benefits of the partnership also extended to other areas, facilitating the development of a strategy and roadmap which the CDF intends to use to guide its future interventions in the sustainable energy space. The institution also benefited from TAPSEC’s Regional Energy Apprenticeship Programme (REAP), which provided not only interns to assist with the country programme and the CRAF, but valuable insights into the overall internship model which the CDF intends to adapt into other aspects of their operations.

The partnership between TAPSEC and the CDF has sown the seeds that will blossom into regional sustainable energy success well into the future. In the short term, Mr. Soomer believes that “the ecosystem for energy investments is significantly enhanced with the implementation of CRAF” in Belize, Barbados, St. Lucia, Guyana and Suriname. He expects the Facility’s impacts to multiply as it is rolled out into the remaining CARICOM Member States, creating larger sustainable energy portfolios in national commercial banks, national development banks and credit unions. In the longer term, he hopes to see governments throughout the region reforming their regulations to encourage additional investment as the interest in renewable energy becomes apparent.

The ultimate goal, according to Mr. Soomer, is to create behavioural change through experience, rather than advocacy. In so doing and building on the “catalytic” work done by TAPSEC, he and the CDF have every intention of “tak[ing] the next step [to] ensure that we multiply the good work that has been started”.

A Regional Sustainable Energy Transition For Us, By Us

“

The success of the regional sustainable energy transition depends on more than the availability of renewable energy resources and energy-efficient technology. It requires more than experts ready and able to lead the charge.”



Joseph Williams

Coordinator, Sustainable Energy Unit
Caribbean Development Bank (CDB)

The success of the regional sustainable energy transition depends on more than the availability of renewable energy resources and energy-efficient technology. It requires more than experts ready and able to lead the charge. While these things are, of course, critical to the Caribbean's effort to shift toward a low-carbon, sustainable and resilient pathway, they are not enough to get us there. To be successful, the region must believe in its ability to develop and implement the solutions necessary to reach sustainability. This faith is what will guide us to our ultimate goal: a future in which all CARICOM citizens have access to modern, clean and reliable energy supplies at affordable and stable prices.

An understanding of the importance of this confidence forms the foundation of TAPSEC's approach to its support for the regional sustainable energy transition. It also informs the Programme's collaboration with the Caribbean Development Bank (CDB). Every pillar and project of TAPSEC was developed with input from the national and regional institutions that best understand the Caribbean's needs. Therefore, as a member of the Programme's Technical Advisory Committee, the CDB was heavily involved in guiding the creation of the initiatives that would comprise TAPSEC's extensive project portfolio. Across the arenas of

policy, capacity development and finance, more than 70 projects were developed to expedite and complement existing regional efforts while targeting some of the challenges impeding the transition.

Naturally, this aligns strongly with the CDB's mission, which is to reduce poverty and transform lives through sustainable, resilient and inclusive development. The bank focuses on a range of sectors — including water, sanitation, transportation, education and, of course, energy — and it operates with an eye toward resilience within five dimensions: economic, social, environmental, financial and institutional. The aim is to be responsive to the Caribbean's development needs so as to provide borrowing members with the resources they require. As a relatively small institution with 19 borrowing members across the region and an additional nine non-borrowing members across the globe, the CDB has had to be selective in how it offers its support, leveraging partnerships with other regional institutions — such as the Caribbean Centre for Renewable Energy & Energy Efficiency (CCREEE) — and partnerships with programmes such as TAPSEC to expand its reach.

(continued on page 87.)



A Regional Sustainable Energy Transition For Us, By Us

RENEWABLE
ENERGIES

NUCLEAR
ENERGY



Sustainable energy development is fundamental to the CDB's mission, which is why the institution approaches its involvement in the sector in accordance with two mantras: "There is no sustainable development without sustainable energy" and "The climate change challenge is largely an energy challenge."



Sustainable energy development is fundamental to the CDB's mission, which is why the institution approaches its involvement in the sector in accordance with two mantras: "There is no sustainable development without sustainable energy" and "The climate change challenge is largely an energy challenge". With these in mind, the bank has aimed to help tackle the issue of regional energy security through renewable energy. The plan is to wean the region off of its dependency on foreign fossil fuels, which leaves us vulnerable to fluctuating prices as well as harsh environmental impacts.

According to Joseph Williams, Coordinator at the CDB's Sustainable Energy Unit, the bank sees TAPSEC as "a complementary intervention to enhance some of the efforts on the ground in areas that were particularly challenging". He highlights the CARICOM Regional Energy Efficiency Building Code (CREEBC), CARICOM Energy Policy & Regulations Help Desk and the Regional Electric Vehicle Strategy (REVS) as three particularly impactful initiatives coming out of the Programme. The CDB intends to incorporate the outputs of each of these TAPSEC interventions (in addition to many others) going forward to inform internal policy, guide regional policy and develop technical assistance or investment projects.

Discussing the collaboration with TAPSEC at both the formative and execution stages, Mr. Williams describes the Programme's efforts as helpful to the CDB's goal of enhancing the progress towards the regional sustainable energy transformation: "it makes sense for us to be in partnership with, supportive of and collaborate with the objectives of the TAPSEC project because it's about enhancing our ability to get the transition moving". As to the experience of the collaboration itself, he praises the Programme's effective communication and flexibility in response to challenges that arose during execution. Mr. Williams also highlighted the TAPSEC team's willingness to participate in other projects within the CDB's portfolio, which, he says, "enhanced collaboration generally".

Overall, he says, "TAPSEC has helped to move the needle", to move the region, in the direction it needs to go. With the benefit of this support, the region is fully-equipped and eminently capable of doing what's necessary to fundamentally change its energy systems in ways that will allow it to produce, transmit, distribute and use clean energy in a way that will benefit every CARICOM citizen and fuel regional sustainable development.



“

Programmes like TAPSEC are the catalysts of the transformation because they are focused on overcoming the existing barriers in our region, capacity-building, improvement of regulations, creation of long-term energy policies and development of strategies to fight climate change.

”

- Alfonso Blanco,
Executive Secretary of OLADE

“

The camaraderie, the expert knowledge, the project management skills and project management advisory services for how to implement the grant agreement, all of that came pro bono and it was indispensable. GIZ/TAPSEC has a wealth of information in grant agreement management, project advisory services and energy efficiency expertise at their fingertips.

”

- Deryck Omar,
Chief Executive Officer for
CARICOM Regional Organisation
for Standards and Quality (CROSQ)



“

What really underpinned the collaboration was an overriding consensus that there is a need for the transitioning of the sector to be more sustainable, more resilient, less reliant on imported fossil fuels, more resilient to the natural disasters and various external shocks in the industry as it relates to fuel prices.

”

- Dr. Cletus Bertin,
Executive Director
of The Caribbean Electric Utility
Services Corporation (CARILEC)





“

On behalf of the Caribbean Examinations Council, I would like to say that we are heartened that we were considered for inclusion in a project of this nature. And we are heartened that we were able to participate and [...] contribute to the evolution of the project. It was an absolute pleasure working with the TAPSEC group.

”

- Jodine Williams,
Senior Manager at the Caribbean
Examinations Council (CXC®) responsible
for Syllabus and Curriculum Development

“

We could not do what we did without [TAPSEC's] support. That type of support is always critical, when the funding institution shows that sort of interest. I felt their ownership of the process as a stakeholder. The encouragement helped us to always put our best foot forward.”

- Dr. Paulette Bynoe,
Deputy Dean of the School
of Graduate Studies and Research
at the University of Guyana (UG)

”



“

TAPSEC has had a positive impact in the regional transition through the management of universal access to electricity for all the inhabitants of the region, mitigating environmental deterioration, energy efficiency and renewable technology to reduce poverty and vulnerability to climate change. We have been working with TAPSEC in all these aspects to achieve our goals and the commitments that we have made internationally.

”

- Charles De La Rosa,
Director of Renewable Energy of the Ministry
of Energy and Mines (MEM) of the Dominican Republic





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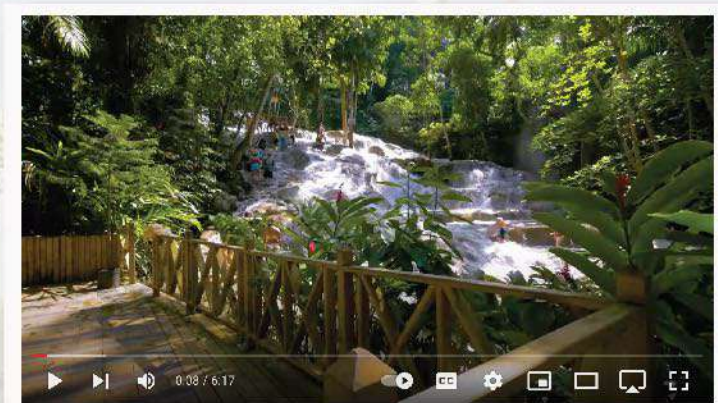


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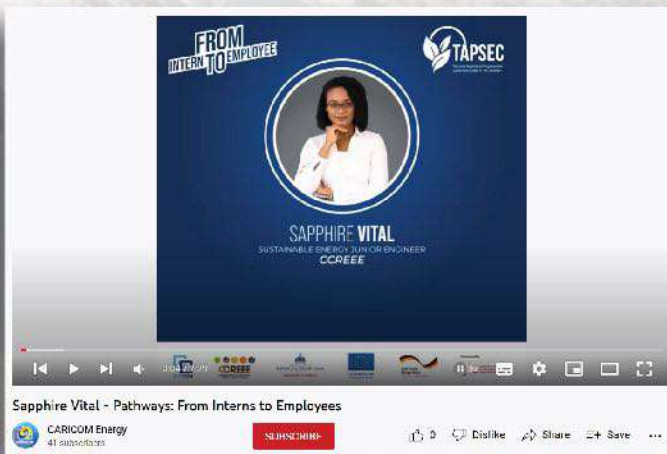
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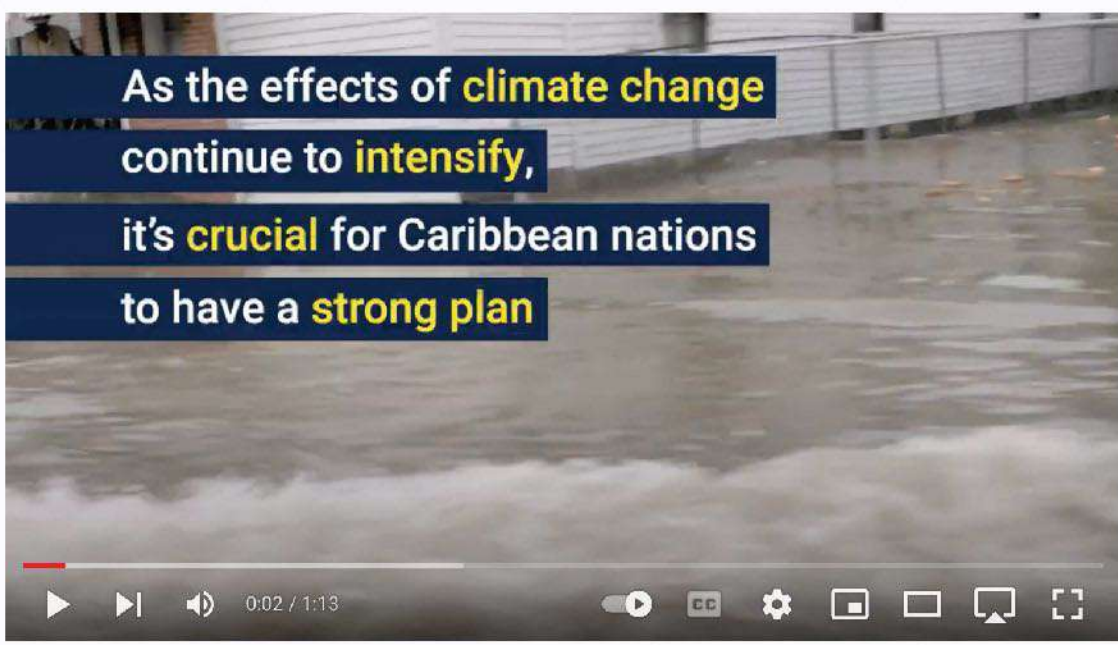
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➤ Thank You, From The People Behind The TAPSEC Journey



Throughout its five-year duration, the scale of TAPSEC's tireless efforts to advance the regional transition to a low-carbon, sustainable and climate-compatible development pathway has been quite impressive. Thanks to these efforts, critical groundwork has been laid that will enable Caribbean institutions, leaders, and professionals to make great strides toward the sustainable energy goals that will create a future in which every single citizen can claim access to modern, clean and reliable energy.

At the end of the programme's run, as they look back on the work that has been done and the achievements that have been accomplished, the members of the TAPSEC team would like to share their wholehearted appreciation with all of the partners and stakeholders with whom they have collaborated over the past five years.



TAPSEC - The People Behind the Journey

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Fuelling the Future: The Technical Assistance Programme for Sustainable Energy in the Caribbean

A Caribbean region free from the impacts of volatile fuel prices and damaging fossil fuels. This was the vision at the core of the execution of the Technical Assistance Programme for Sustainable Energy in the Caribbean (TAPSEC). A clear understanding of the support needed to achieve that vision informed how the programme pursued its objectives.

Implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and the European Union (EU), TAPSEC supported the Caribbean's transition toward sustainable development through partnerships with a number of national and regional organisations. Working closely with the CARICOM Secretariat, the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) and the Ministry of Energy and Mines in the Dominican Republic's Ministry of

Energy and Mines (MEM), TAPSEC facilitated a wide range of interventions designed to enable the region's shift to a resilient, low-carbon, clean-energy future.

Initiated in 2016 by the CARIFORUM Directorate and the European Union (EU) under the 11th European Development Fund (EDF), TAPSEC had a mandate to implement the outcomes and recommendations as outlined in the CARICOM Energy Policy (CEP) and the Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS).

Through multi-pronged policy, information and capacity development and finance interventions, with an 80+ project portfolio, our collective efforts fuelled an ecosystem that would foster increased and improved access to modern, affordable and sustainable energy services, to the benefit of all in our region.



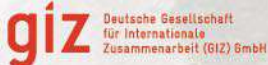
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