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# Powering Future of Sustainable Energy Through C'bbean Collaboration

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The 40 kW solar PV grid system installed at the Microgrid Training Centre.

Somewhere in the Caribbean, on an island barely visible on the globe sitting on her desk, a future research scientist is imagining a way to reduce her family’s fluctuating electricity bill. What if—instead of managing skyrocketing costs driven by events far beyond their shores—her community could rely on electricity generated here at home, from sources native to their island? What would that system look like? How would it work? Who would build it?

As of September 2022, this soon-to-be scientist might just be stepping into a secondary school classroom where she will begin to learn the concepts that will help her answer those questions. Another student, studying Power Engineering at the university level, may be walking into a brand new regional Centre of Excellence, where he can see a solar-powered facility in action, gaining direct experience that will inform his future designs.

Elsewhere, young professionals in the regional energy sector are busy putting the learnings from valuable internship opportunities to use, doing their part to push our region closer to its sustainable energy goals. Meanwhile, established professionals are inputting critical energy sector data into sophisticated software to help inform the sustainable development of their national energy sectors.

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These scenarios, and many more that will determine the Caribbean's future, are happening right now thanks to the collaborative efforts of the regional institutions supported by the Technical Assistance Programme for Sustainable Energy in the Caribbean (TAPSEC). Funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and the European Union (EU), TAPSEC was a five-year programme dedicated to uplifting regional endeavours to create a Caribbean free of the impacts of unpredictable fossil fuel prices and their devastating environmental effects.

Implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, based in Barbados and staffed by a small team of experts hailing from Guyana, Trinidad and Tobago, and the Dominican Republic, TAPSEC operated via close partnerships formed with several regional institutions, including the Caribbean Community (CARICOM) Secretariat, the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) and the Dominican Republic's Ministry of Energy and Mines (MEM). Through these collaborations, TAPSEC provided technical and financial support to more than 80 projects executed by these regional institutions and aimed at improving access to modern, affordable and sustainable energy services for all Caribbean citizens.

At the core of TAPSEC's mission was the understanding that meaningful change requires major capacity development. When long-term success is the goal, a development programme must focus on skill-building while strengthening the processes and resources of the organisations and communities that will carry the initiatives forward.

To this end, the projects supported by TAPSEC included regional interventions designed to restructure the existing information pathways holistically, providing students and professionals with the education, skills and experience they need to lead the Caribbean's sustainable energy transition. These interventions, executed in partnership with regional institutions through TAPSEC's Information and Capacity Development component, begin at the secondary school level with a "green" reimagining of the existing curriculum and proceed through the tertiary level, into internships and professional training before culminating in an innovative knowledge management framework. Collectively, the following projects will enable our regional energy sector to shine bright long after TAPSEC's conclusion.



*The 40 kW solar PV grid system installed at the Microgrid Training Centre.*

### **“Greening” the Secondary School Curriculum**

The future of energy begins in the classroom. That’s where you will find the people who will soon be developing and implementing the sustainable energy policies and programmes that will transform our region, provided they are given the tools they need to do so.

TAPSEC collaborated with the Caribbean Examinations Council (CXC) and the University of Guyana (UG) to provide secondary students with those tools via the “Mainstreaming Green Learning Concepts in the Educational Syllabus” project. It began with educators from across the region working together to plan, design and develop an updated curriculum that would introduce students and teachers to new sustainability concepts at the upper-secondary and post-secondary levels. The existing syllabi of 10 CSEC and CAPE subjects ranging from Technical Drawing to Social Studies to Environmental Science were adapted to include renewable energy and energy efficiency concepts. Then, CXC held a series of training workshops to bring educators up to speed on the delivery of the new syllabi before overseeing the development of relevant teaching and learning resources that are currently housed within its online Learning Institute platform.

CXC is currently in the roll-out phase of the project, releasing the new syllabi into schools as they emerge from the organisation’s thorough review process. As they enter the classroom, these new educational concepts will empower students to make, not just big adjustments, but small subtle ones within their communities that will lead to the kind of lasting change our region needs.

### **Building Regional Centres of Excellence**

The scientists, researchers and engineers who will help design and build the Caribbean’s sustainable energy future can now get hands-on experience at the first centre of excellence for renewable base microgrid and SMART grid training in the Northern Caribbean. Established at the Discovery Bay Marine Laboratory (DBML) of the University of the West Indies (UWI) Mona campus, the state-of-the-art Microgrid Training

Centre (MTC) is designed to serve as a teaching, research and testing centre for SMART grid photovoltaic (PV) technology for students, engineers and scientists from across the region and the wider world.

Implemented by TAPSEC, the construction of the 40 kW solar PV grid system was financed by an agreement signed with the GIZ and funded by the BMZ and EU. Combined with the DBML’s existing renewable energy system—which previously powered 50 per cent of the facility’s needs—the new MTC generates enough energy to fully power the world-class marine and coastal ecosystem research and education facility. It also boosts the laboratory’s resilience against severe weather impacts that could jeopardise years of important research, saves the facility 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. Even more impactful is the MTC’s role as a pilot project, demonstrating how the adoption of renewable energy technology can lead to energy independence and climate resilience.

The MTC is just one of 11 regional renewable energy/energy efficiency Centres of Excellence developed with TAPSEC’s support. Other Centres were established at various institutions across the region—including three other UWI campuses—using a variety of renewable energy/energy efficient technology, from hydropower to solar thermal, to bioenergy. With these upgrades, each of these facilities is now equipped to provide the kinds of advanced services that will help power the regional sustainable energy transition.

Coming soon in part two: How TAPSEC promoted regional efforts to bridge the gap between education and employment (and increase access to reliable data) on the path to sustainable energy development.

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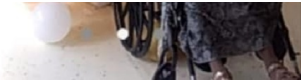


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