

# **BUILDING A SKILLED WORKFORCE FOR THE GREEN TRANSITION:**

## **THE CHANGING TECHNICAL AND VOCATIONAL EDUCATION LANDSCAPE IN BELIZE**

Emma Findlater, Inter-American Development Bank  
Emma Näslund-Hadley, Inter-American Development Bank  
Ingrid Acosta, Ministry of Education, Culture, Science, and Technology  
María Fernanda Prada, Inter-American Development Bank  
Mario Eckardt, Inter-American Development Bank

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Belize's tourism-dependent economy was hit hard by the COVID-19 pandemic, pushing the importance of diversification and resilience to the forefront of discussions. To create a sustainable, resilient, and job-generating economy, the country is preparing for a transition to renewable energy. To meet this challenge, the Inter-American Development Bank and the government of Belize are working together to modernize technical and vocational education and training (TVET) so as to equip Belizeans with the skills demanded by a green economy. By harnessing the potential of TVET to bridge the skills gap and meet market demand, the changing training landscape in Belize is not only creating job opportunities, but also laying the foundation for a sustainable and prosperous future. The effort starts with the nation's target of generating 85 percent of its electricity from renewable sources by 2030.



# SKILLS TO BUILD GREEN ECONOMIES

## IN LATIN AMERICA AND THE CARIBBEAN

When a country's labor force responds efficiently to the human capital needs of companies and the economy, labor productivity is boosted; this in turn boosts economic growth (Amaral et al., 2017). People with the right skills stand better chances of accessing high-quality jobs, earning higher incomes, and experiencing overall well-being (Agosin et al., 2014). In this context, an efficient technical and vocational education and training (TVET) system—one that equitably delivers access to quality and relevant skills—is the key to achieving sustainable economic growth, greater economic opportunities, and increased productivity, while supporting a sustainable and equitable economic transformation.

TVET in Latin America and the Caribbean is not well aligned with the needs of the labor market. This contributes to a persistent skills gap that is the widest in the world (Prada and Rucci, 2023). The region is characterized by traditional TVET systems that focus on training in the basic skills for low-paying jobs; the skills being developed are decided in isolation from the private sector and are insufficient to keep pace with changing realities and align with the future direction of the economy. Leveraging TVET's potential for economic growth would require transforming the traditional systems so as to meet the needs of a changing economic landscape,

delivering training that aligns with labor market demand. The convergence of the Fourth Industrial Revolution and the pressing need for a green economic transition underscores the imperative of reforming the fundamentals of TVET education, including teaching pedagogy, curricula, and skills development. New technologies are transforming the way people learn, work, and interact. This process is generating jobs, altering the nature and complexity of work tasks, and changing how people communicate and learn. At the same time, the success of the green transition relies on the ability of the workforce to acquire the skills needed for emerging jobs and to perform traditional jobs in a greener manner.

A sectoral approach is needed for restructuring TVET. Such an approach will be needed to make TVET more relevant, ensure the private sector's close involvement in program design and delivery, and keep pace with the changing global economy by leveraging the opportunities presented by the changing technological and skills landscape.

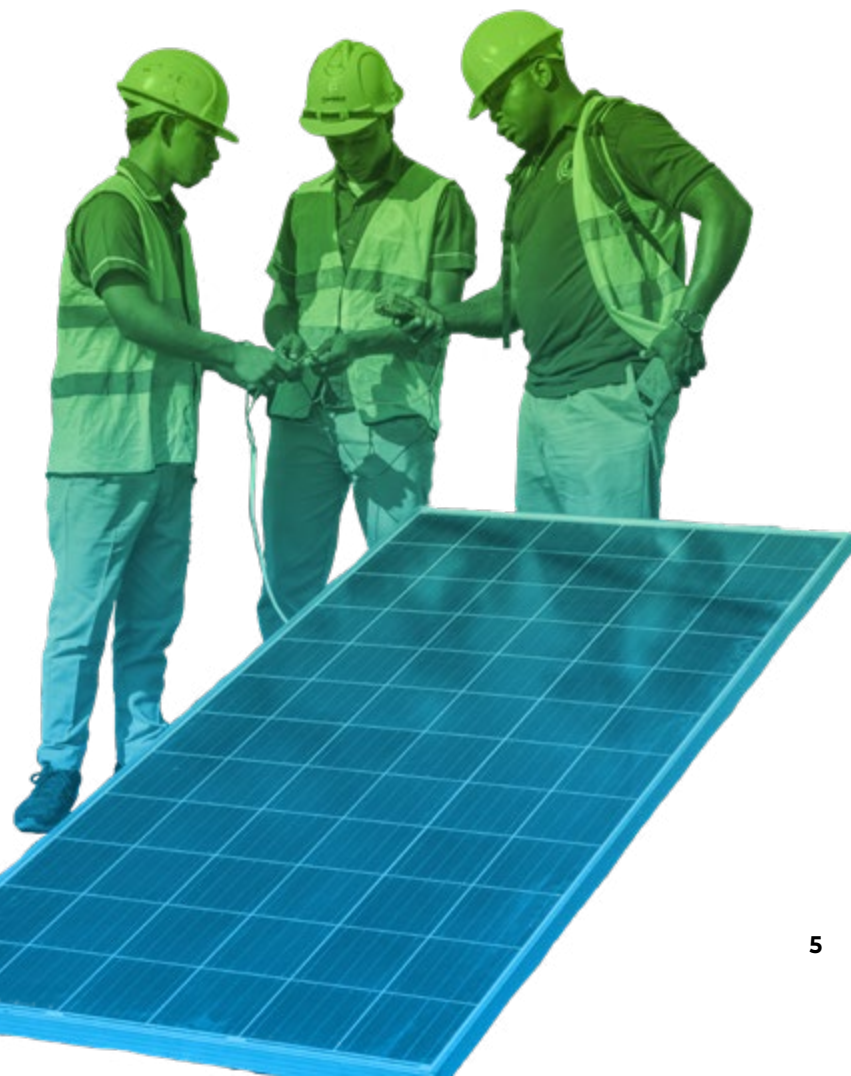
## UNLOCKING TALENT FOR A SUSTAINABLE AND EQUITABLE FUTURE

The transformation of TVET in Latin America and the Caribbean is central to the Inter-American Development Bank's (IDB's) work, which is focused on:

- Establishing a new vision—conceiving TVET as an engine for productive growth and sustainable development, designed in alignment with national development strategies or climate change commitments and adapted to productive trends with high-quality training that is accessible to all.

- Creating new opportunities—striving for excellence in training quality, giving people opportunities to acquire the skills they need to access high-quality jobs, maintain those skills, and progress in their careers at all stages in life.
- Generating a new focus—to increase the relevance of not only training design but also the results achieved by people and companies—designing, delivering, and improving training programs with the private sector's involvement and consistent with the needs of the labor market.

As part of our efforts and with financial support from Germany and Switzerland, the IDB—through the Multi-Donor Fund for the Transformation of Technical and Vocational Education in Latin America and the Caribbean (TVET Fund)—is promoting numerous initiatives that propose an innovative solution to at least one challenge of the skills system. The IDB is working hand in hand with the private sector and demonstrating that initiatives can be scaled up to increase the system's transformation. This project is one of the 25 initiatives financed by the TVET Fund and is an example of how TVET's transformation is not an elusive wish but a concrete, evident, scalable reality. Through these collective efforts, we are forging a brighter future for people and economies across the region, harnessing the power of skills for work to uplift lives and build a more prosperous, sustainable, and equitable tomorrow.



## WHY A GREEN ECONOMY MAKES SENSE FOR BELIZE

The COVID-19 pandemic dealt an unprecedented shock to Belize's economy, highlighting its vulnerability. According to the World Travel and Tourism Council, in 2019, tourism constituted 39 percent of Belize's gross domestic product (GDP) and 40 percent of total employment. The crisis spurred by the pandemic affected the country's main employment source, severely constraining both income and consumption. Meanwhile, climate change, natural disasters, external market pressures, and rapid technological change have been contributing to slow economic growth in Belize, stagnant per capita income, and rising poverty rates. Meaningful economic transformation and diversification are necessities.

As a small island developing state, Belize relies heavily on global partners for trade, tourism, and financing. Because of its size, Belize is unable to capitalize on economies of scale and is subject to disproportionately high costs of infrastructure and services. Its dependence on a narrow range of economic activities, including agriculture, tourism, and fishing, increases its vulnerability to shocks and external influences.

Although Belize's small population and extensive tropical forest coverage make it a net carbon sink, it experiences disproportionate effects of climate change. Between 2000 and 2019, Belize ranked 8th out of 180 countries in average losses per unit of GDP (Eckstein, Künzel, and Schäfer, 2021). Hurricane Earl in 2016 caused damages estimated at 11 percent of GDP (IMF, 2018). Belize is a net electricity importer, and its national greenhouse gas (GHG) emissions have been growing steadily over the past 20 years.



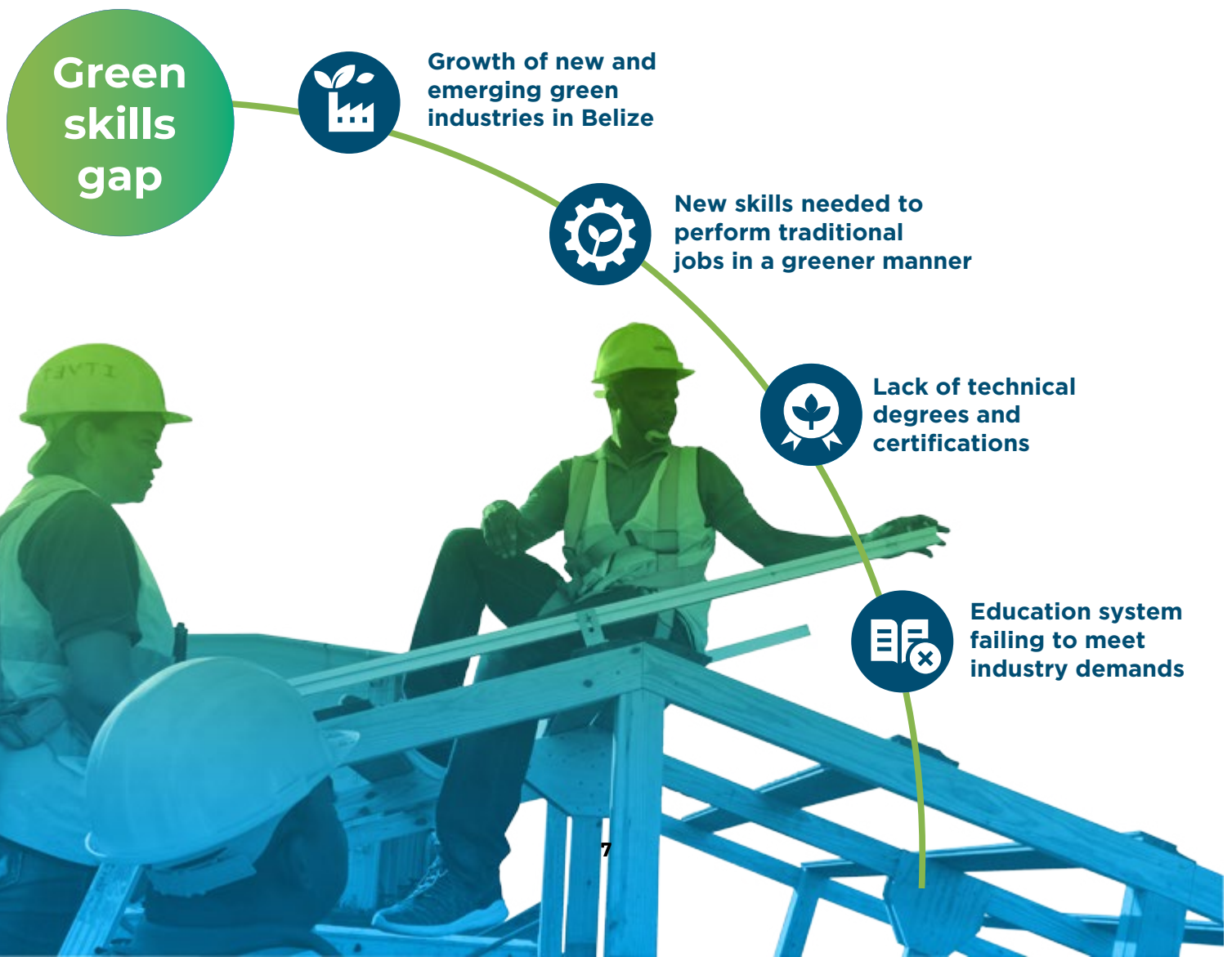
Belize's Medium-Term Development Strategy 2022–2026 and long-term development strategy, Horizon 2030, are focused on building a green economy that prioritizes low-carbon, resource-efficient, sustainable, and socially inclusive development.

The transition to a green economy could contribute to the development of an economy that is more resilient, sustainable, competitive, and job-generating. This transition is central to Belize's ability to achieve sustainable development, becoming more resilient to economic and environmental shocks and chronic stressors, and expanding its

narrow range of goods and services, while mitigating GHG emissions and pursuing environmentally sustainable and inclusive economic activities.

A transition to a green economy, however, requires green skills to facilitate the adoption of green practices and technologies and aid in their proliferation. It can be a catalyst for a shift to a green future. The IDB and the government of Belize are working together to bridge the current skills gap by helping the workforce acquire green skills, which are fundamental to the country's transition to a low-carbon, sustainable, more environmentally friendly, and competitive economy.

**Figure 1 Contributors to the green skills gap in Belize**





Renewable energy is the starting point. Belize has a target of generating 85 percent of its electricity from renewable sources by 2030. However, as noted, it is presently a net importer of electricity, and its GHG emissions have grown over the past 20 years (Ministry of Energy & Public Utilities, 2022; National Climate Change Office, 2020). This situation in Belize makes it vulnerable to external electricity and fossil fuel pricing, and market fluctuations and volatility.

A renewable energy transition supports sustainable and long-term business creation and job generation, provides secure and affordable energy, and reduces GHG emissions, eventually helping mitigate climate change. Opportunities for renewable energy deployment in Belize are growing with the falling cost of renewable energy and the high potential of technologies such as solar energy within the Belizean context. The cost of solar and

wind energy is projected to decrease by 25 percent and 30 percent, respectively, over the next 15 years (Bunker et al., 2018), and Belize has an estimated net present value of BZ\$524 in unrealized sustainable energy potential between 2014 and 2033 (Castalia Strategic Advisors, 2015). Renewable energy investment offers an opportunity to boost energy security amid rapidly growing energy demands and periodic energy supply disruption originating from Mexico during peak periods.

In August 2023, the Government announced plans to construct a 60 megawatt utility solar energy plant—a critical step toward large-scale renewable energy production in Belize. The adoption of an aggressive approach to energy efficiency and renewables is projected to create as many as 7,000–12,000 renewable energy jobs in Belize over the next 20 years (Bunker et al., 2018).





## BRIDGING THE RENEWABLE ENERGY SKILLS GAP

Belize's ambitious target of generating 85 percent of its electricity from renewable sources by 2030 presents an opportune launch point for the green economic transition and the creation of employment opportunities. But despite its potential, Belize's renewable energy sector is still relatively new, and a wide range of workforce skills requirements and training needs must be examined to support its growth. Belize's education system has not been tailored to meet the current and future needs of the renewable energy sector; this contributes to a persistent skills gap. Addressing this issue requires a concerted effort to promote renewable energy technologies and encourage investment in TVET programs that are designed explicitly to meet the sector's needs. TVET can play a key role in shaping a just transition to a green future.

According to Marbelie Lozano, manager at Solar Energy Solutions Belize Limited, the lack of technical degrees in renewable energy poses challenges

for the companies operating in the solar energy sector. Individual companies are having to train their professionals to install solar systems, but this approach is providing only an immediate business solution, and cannot substitute for comprehensive technical training in renewable energy with a formal degree. TVET has transformative potential to better empower people to shape a greener future.

Belize's national government, IDB, and the Belize City Institute for Technical and Vocational Education and Training (ITVET) are working collaboratively to enhance training and promote renewable energy careers in Belize. This partnership is training Belize's workforce in the skills for renewable energy jobs and providing a foundation for the country to achieve its target of generating 85 percent of its electricity from renewable sources by 2030. Through this partnership, a course is being offered via the Belize City ITVET as a sign of a socioenvironmental transformation; the course is contributing to the development of a future workforce that is skilled in installing, operating, and maintaining renewable energy and energy efficiency infrastructure.



## Small island developing states

Like Belize, small island developing states (SIDS) are particularly vulnerable to environmental and economic shocks. Transitioning to a green economy can help build their resilience to shocks, helping them mitigate and adapt to climate change, promote the use of sustainable natural resources, and support economic diversification. However, like Belize, a green skills gap is hindering progress toward a greener future.

The small land and population size of SIDSs make them uniquely adaptable to rapid change. Their natural geographies and geomorphologies provide strong potential to generate renewable energy such as solar, wind, and ocean and tidal energy, besides hydropower and geothermal generation (depending on the context). However, a lack of qualified professionals in the English-speaking Caribbean countries poses a major barrier to an efficient transition to renewable energy. At least 27,066 renewable energy professionals are required to achieve the national clean energy targets across these countries (Park et al., 2021).

## DRIVING CHANGE: A PROGRAM IN ACTION

Strides to modernize the TVET system in Belize are being made through joint efforts by Nova Scotia Community College (NCSS) in Canada and the Belize City ITVET under the framework of the collaboration between IDB and Belize's national government. A new renewable energy pilot program is now underway as part of this joint effort. The program presents a leap from basic trades training toward a TVET system that is capable of providing advanced training and responds to industry's skill needs.

The project was launched in February 2022 and welcomed the first cohort in August 2022. Graduates are expected to enter the job market in 2024. Along with the development of a TVET curriculum and the implementation of the pilot program, the project supports capacity building for local teachers. Renewable energy TVET training

will remain embedded within the Belizean public education system as part of the course offerings of the Belize City ITVET.

The project also aims to establish Belize as a regional laboratory for innovation in green skills development. Although some institutions in the region have introduced renewable energy courses to partially address the growing labor market demand, these initiatives are not systematized. Belize, with its small population, is the perfect country to develop scalable, adaptable, and transferable renewable energy courses that can be implemented in other English-speaking Caribbean countries, helping those countries to close their skills gaps. Belize's government intends to leverage its expertise and knowledge to share best practices and promote the development of a sustainable green economy in the region. It intends to do so through the launch of a digital platform and the establishment of a community of practice for educators,

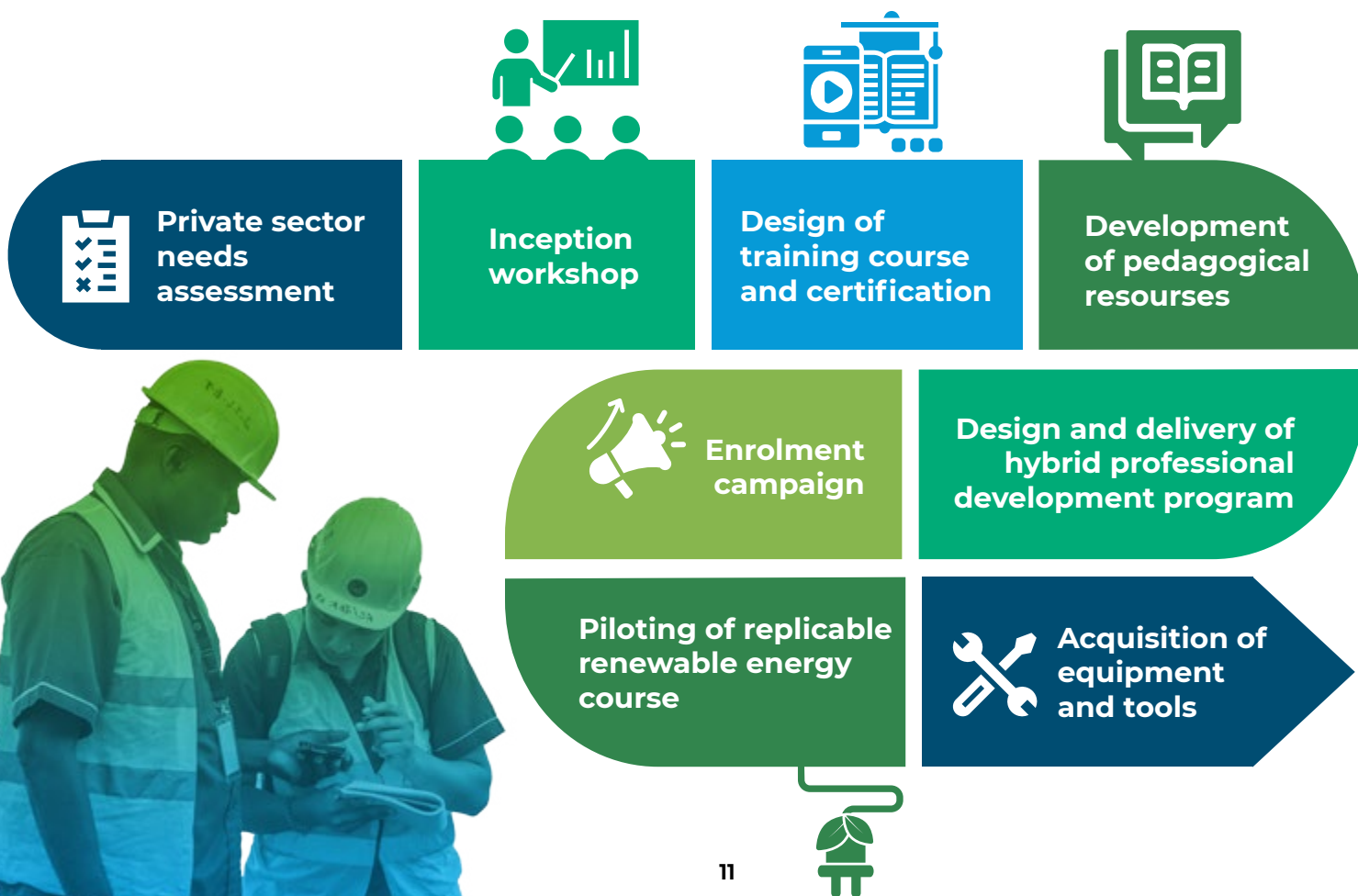
professionals, academic experts, and students. The platform will serve as an information repository, enabling access to relevant resources and materials.

This program represents a first step toward a systems-level reform of ITVET where the green transition and the changing technological landscape are incorporated as cross-cutting dimensions in the institute's restructuring, with an eye to a greener and more competitive future. As it progresses, this reform would address new and growing demand for "green" occupations, as well as the "greening" of existing occupations, resulting in new skill sets that necessitate curriculum updates and further new qualifications.

The project has two specific objectives: (1) to create and pilot a renewable energy program at the Belize City ITVET, and (2) to promote Belize as a regional laboratory for innovation in training methodologies for renewable energy professionals in the English-speaking Caribbean countries.

The project aims to shift the focus of TVET from basic trades training to preparing students for quality jobs in renewable energy, with the possibility of business development. The project is crucial in closing the skills gap in renewable energies in Belize and upgrading traditional TVET to offer advanced training in this field.

**Figure 2 Renewable energy TVET program development process**





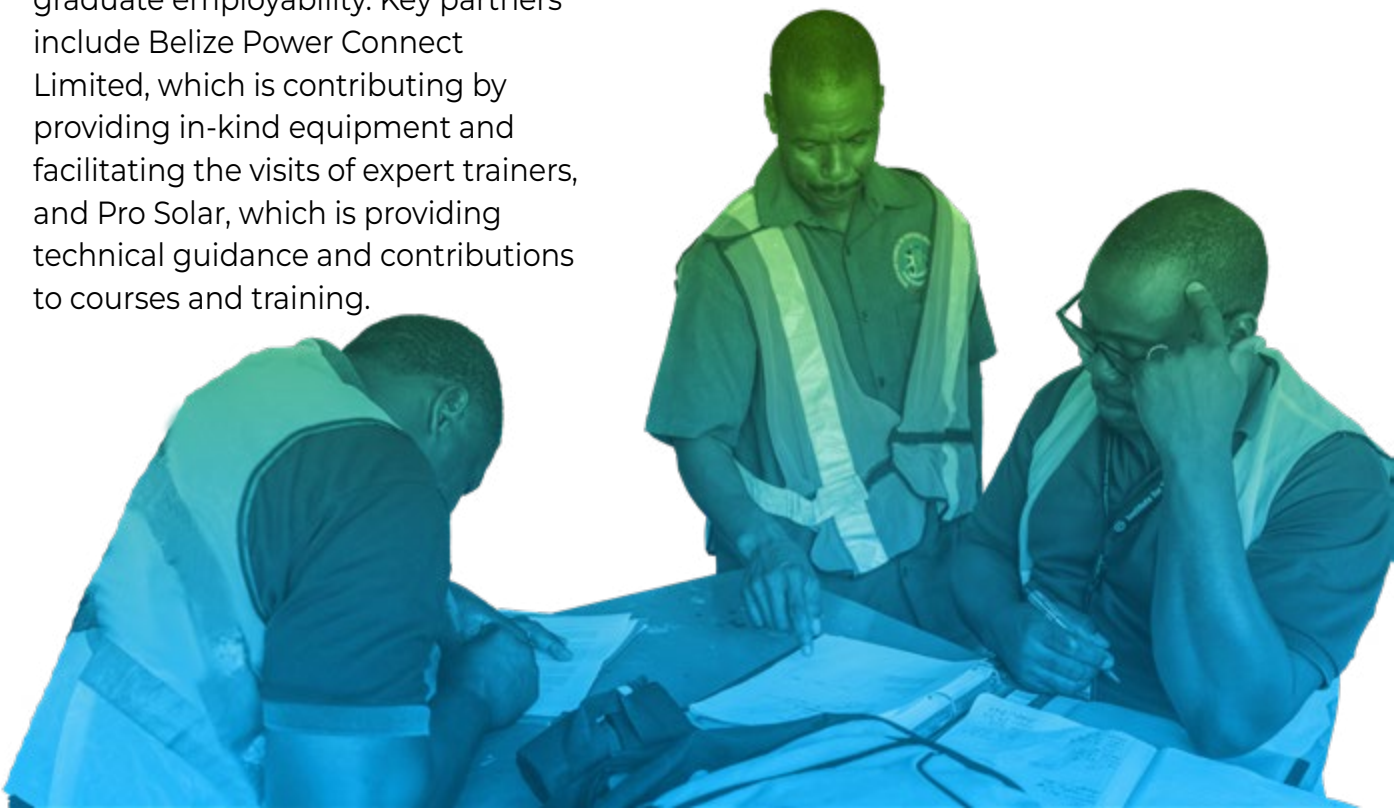
## WHO DOES WHAT?

- The NCSS has developed a two-year renewable energy program that is delivering blended training to course instructors to build their knowledge of renewable energy/energy efficiency and their capacity to offer relevant courses. It is also supporting program implementation through on-site and virtual coaching.
- The NCSS is working closely with the Belize City ITVET and the Ministry of Education, Culture, Science, and Technology (MoECST) to build capacity for sustaining the program offerings beyond the pilot period, to be incorporated in the ITVET's regular course offerings.
- Private sector partners are involved in the program's development and delivery. They are helping align courses with industry needs and ensuring local relevance, and are exploring opportunities for in-company training to increase graduate employability. Key partners include Belize Power Connect Limited, which is contributing by providing in-kind equipment and facilitating the visits of expert trainers, and Pro Solar, which is providing technical guidance and contributions to courses and training.

## PROGRAM ACHIEVEMENTS

This program is a groundbreaking initiative that aims to develop the first renewable energy certificate program in Belize as it advances the country's green economic transition and sustainable development. Anticipated results include:

- A two-year renewable energy certificate program piloted at the Belize City ITVET, which the MoECST can continue offering beyond the pilot phase and expand to other ITVETs in the country.
- A pioneering 2024 cohort of 12 graduates (accounting for 17 percent of the Belize City ITVET enrollees in 2022), followed by subsequent graduating classes, who have the technical competencies and entrepreneurial skills required to help close the renewable energy skills gap in Belize. These graduates will



be poised to lead the charge in the sector's growth, driving innovation and helping expand renewable energy technologies' adoption across the country.

- Countrywide capacity building for teachers to support skill development for a green economy, with six teachers trained through a 1.5-year hybrid program that includes classroom training and on-site coaching. Trained teachers can apply their technical knowledge of renewable energy/energy efficiency, engage students in inquiry- and problem-based learning, and foster entrepreneurship and the development of transferable skills. Further, trained teachers can apply inquiry- and problem-based pedagogy<sup>1</sup> to their broader course load to improve learning beyond the renewable energy/energy efficiency program.
- A training model for teachers of renewable energy/energy efficiency is available to replicate and potentially scale up, for training other ITVET instructors in the country. This will contribute to a wider range of green skill output from the education system, including program curricula, and teaching and learning resources.
- Establishment of Belize as a regional hub in the English-speaking Caribbean countries for developing the skills for a green economy. Situated strategically among the English-speaking Caribbean countries, Belize, with its strong renewable energy potential and progress in closing the skills gap, can become a regional hub for green economies, attract investments, and showcase best practices in developing and delivering innovative and market-driven green skills programs and knowledge sharing through dialogue, resources, and teaching pedagogy.

Furthermore, to ensure program relevance and graduate preparedness, the ITVET is establishing a Program Advisory Committee composed of local industry leaders, including from the private sector and government. This committee will meet twice annually for comprehensive program review and feedback sessions, providing insights into graduate profiles, program content, and emerging industry trends. This ongoing feedback mechanism will be used to continue to refine the program and ensure graduates possess the skills and knowledge demanded by the current workforce. By fostering strong industry connections and embracing ongoing program improvement, the ITVET will continue to shape the TVET landscape in Belize, providing graduates with the skills and qualifications needed for successful careers and able to satisfy market demands.

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<sup>1</sup> Inquiry- and problem-based pedagogy has been shown to enhance student learning when compared with traditional teaching. It creates active problem-solving opportunities in settings that resonate with students. Students learn by collaboratively solving valid real-life problems, developing explanations, and communicating ideas (see Bando, Näslund-Hadley, and Gertler, 2018).

## **NABCEP certification for the country's first renewable energy certificate program**

The first renewable energy certificate program in Belize is designed to meet the North American Board of Certified Energy Practitioners (NABCEP) industry standards. NABCEP is a global leader in photovoltaic certification, and the most recognized in the United States. After certification, U.S. NABCEP-certified professionals earn US\$11,000 a year on average; 26 percent of these professionals start their own business.

The Belize City ITVET is looking to become a NABCEP Registered Training Provider; future students will be able to become NABCEP certified through the institute.

Developed in close collaboration with the private sector, course content and design will be responsive to industry, thereby making graduates more employable. The system will be upgraded from providing traditional basic trades training to advanced training. Beyond simply teaching technical subject matter it will transform the learning environment through hands-on, learner-centered, inquiry- and problem-based pedagogy.

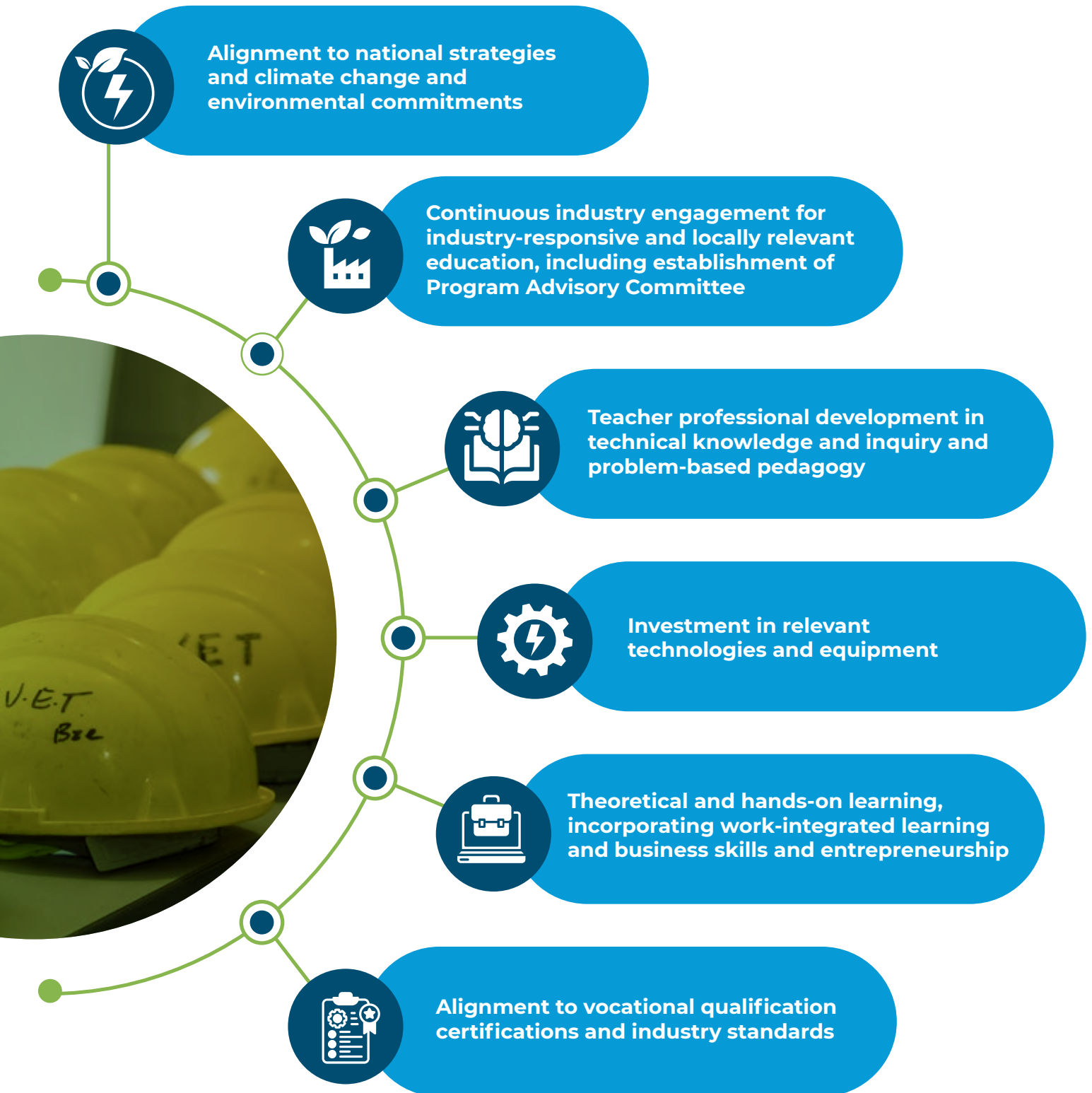
## **EXPANDING GREEN SKILLS DEVELOPMENT BEYOND RENEWABLE ENERGY**

This intervention offers an opportunity for a broader transformation of the TVET system, to build a national ecosystem for skill formation that aligns more effectively with the country's needs and commitments. The program's success offers a template for course design and teaching pedagogy that equips graduates with the required skills to meet current and future market demands, close the skill gap, and support the country's transition to a green economy.

Building on the success of the partnership with IDB, plans are underway to develop two new green skills programs at the Belize City ITVET to expand course offerings beyond Belize City with the NCSS's support, as well as establish a Centre for Skills for the Green and Blue Economy at the Belize City campus. These programs will expand the skilled workforce's capacity beyond renewable energy and energy efficiency. By doing so, they will establish the Belize City ITVET as a leading green skills hub within the country. This marks one step further in the evolution of Belize as an emerging hub for innovation in green skills, positioning it at the forefront of the green economy transition in the English-speaking Caribbean region.



Figure 3 Fundamentals of the green skills course model for enhanced TVET education

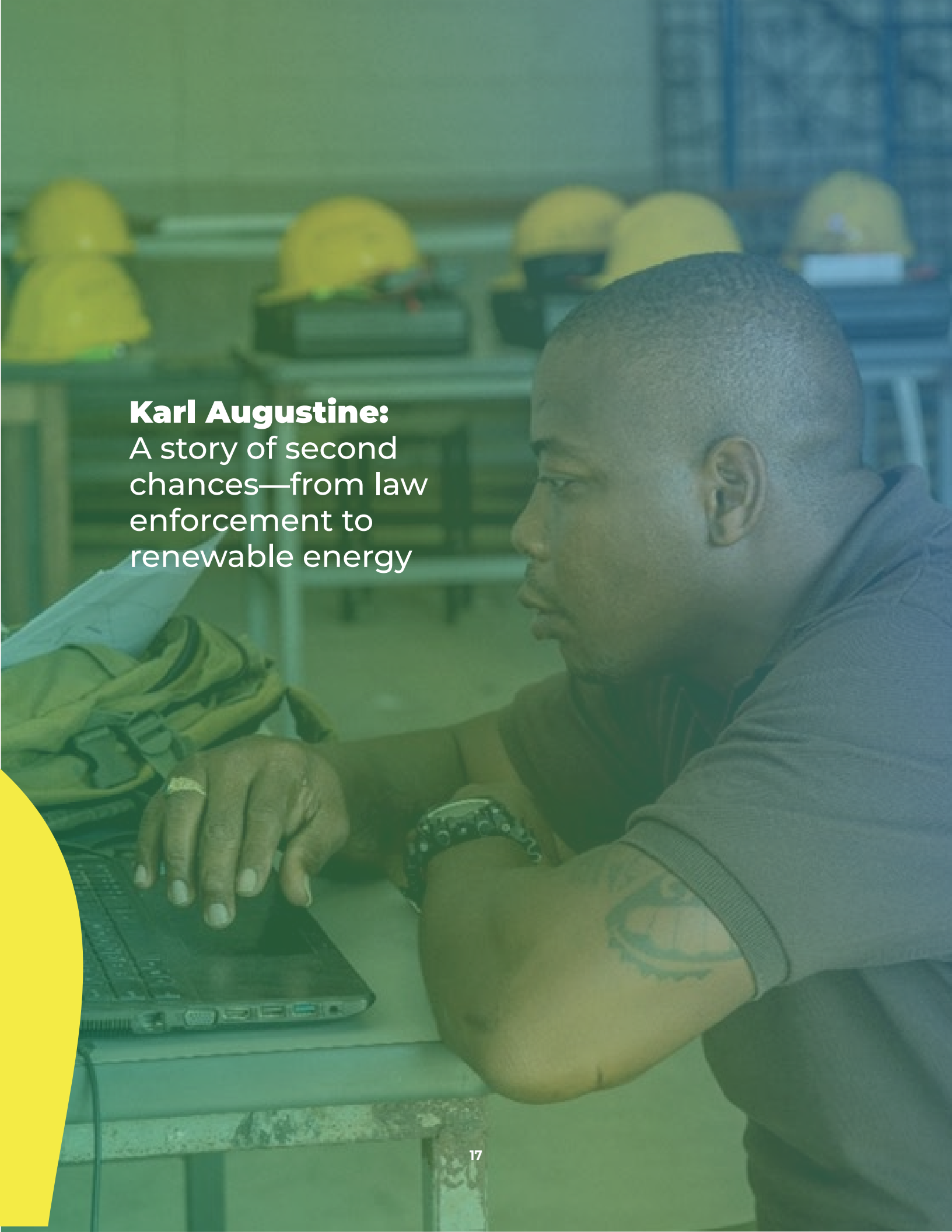


A woman wearing a yellow hard hat and a safety vest is working on solar panels. The image is overlaid with a green and blue gradient. The text is centered over the image.

*#GREENSKILLS*

**EMPOWERING  
PEOPLE FOR  
THE GOOD OF  
THE PLANET:**

**STORIES OF HUMAN IMPACT**

A photograph of a man, Karl Augustine, working on a laptop in a workshop. He is wearing a grey polo shirt and has a tattoo on his left arm and a watch on his left wrist. He is looking intently at the laptop screen. In the background, there are shelves with several yellow hard hats. The image has a greenish-blue tint and a yellow circular graphic element in the bottom left corner.

**Karl Augustine:**  
A story of second  
chances—from law  
enforcement to  
renewable energy



Karl Augustine is a man on a mission. Besides having a full-time job as a police officer and being a father of three, he is also a full-time student of the ITVET's renewable energy program. But why did Karl enroll in the program? It is because he is determined to create a better future for himself and his family, and contribute to a better world.

For Karl, a career in renewable energy represents a chance to move on from law enforcement to a field with opportunities to learn and grow. "Renewable energy is something that is new to Belize, and a lot of people don't know about it," he explains. "It's essential not just for Belize, but for the world."

Karl is one of roughly a half of the program's students, who are returning to education to reskill, and he is determined to make the most of this opportunity. He is fascinated by the technical aspects of renewable energy, and is also eager to learn how he can make a positive impact on his community and the environment.

Karl explains how the program's blended approach of theoretical and practical and hands-on learning enhances his own learning, keeps him interested, and plays to his natural curiosity—"I love to learn and understand how things work so I can fix them."

Beyond the classroom, Karl takes every opportunity he can to do more research and expand his knowledge. He sees himself becoming a renewable energy technician after the program ends, but is also interested in exploring this field's entrepreneurial potential.

With his enthusiasm, dedication, and passion for learning, Karl is a shining example of how the renewable energy program at the ITVET is changing lives and creating new opportunities for Belizeans. And with more students like Karl, the future of renewable energy in Belize looks brighter than ever.


***Karl Augustine (right) measuring solar radiance during an Integrated Lab class at the Belize City ITVET, December 2022.***







**Jermy Chan:**  
A high school graduate  
finding exciting career  
opportunities



Fresh out of high school, Jermy Chan straightaway enrolled in the renewable energy program at the Belize City ITVET, eager to learn all there is to know about this exciting and rapidly growing field. At 17, Jermy is still trying to navigate jobs, careers, and the future and understand what opportunities are out there for him in Belize.

Jermy was drawn to this program by the opportunity to take on a new and exciting challenge. He was introduced to the program by a friend of his father, and saw an opportunity to learn something entirely new. Within a few short months, Jermy had already delved into the fundamentals of climate change and solar energy.

But Jermy is not content with just theoretical learning. He cannot wait to get hands-on with equipment and to start putting his knowledge to the test. With a new semester just around the corner, Jermy impatiently awaits the next semester, which combines classroom learning with a more hands-on, practical approach.

The raw energy of youth and the liveliness that Jermy displays aligns with his younger classmates in the program and is complemented by the seriousness and maturity of his older classmates. Together, they create a balanced and productive learning environment.

As for what the future holds, Jermy has big plans. He is already dreaming of pursuing further trade programs through the ITVET and building a comprehensive range of skills to complement his specialist knowledge in renewable energy. He is confident that his expertise will be in high demand in the coming years as Belize and the Caribbean embrace the power of the sun and move toward a brighter, clearer, and more sustainable future—“I know it’s going to be big. I know it’s going to progress in Belize, here in the Caribbean where it’s always sunny.”





**Kirk Spencer:**  
A new approach to  
teaching for a field  
brimming with  
opportunity

On an early Friday morning in December, the instructors of the Belize City ITVET's new renewable energy program gather in front of the program workshop with woodworking tools in their hands. There is a buzz of anticipation in the air, for earlier that week, they received news that this afternoon, one of NCSS's teaching coaches, Mark Miller, will give them hands-on coaching in how to properly install solar panels on rooftops. But there is no roof on which to practice the afternoon's tutorial. This does not deter the instructors, who not only showed up but spring into action to build one themselves—piecing together a structure that would be their training ground for the day ahead.

And so, a few hours later, Kirk Spencer, the renewable energy program's Integrated Lab teacher, finds himself sitting atop the newly built roof structure with a safety harness attached. The moment he had been eagerly anticipating had finally arrived: he was about to fit his first ever solar panel and the first solar panel fitted on the ITVET campus.

Kirk is one of six instructors participating in the renewable energy pilot program, which is being developed and delivered by a team of experts from the NCSS, including two Belize-based team members, who are working with the MoECST, and the IDB to pave the way for a new generation of renewable energy experts in Belize.

The objective of the program is to enhance the ITVET system with a new training program that includes applied learning and is industry responsive. This will produce graduates that can help build

the growing industry because they hold advanced renewable energy and energy efficiency certifications.

As the sun begins to descend, Kirk carefully dismantles and packs away the solar panels and stores them securely for the weekend. Finally, with his day's work complete, he takes a moment to reflect on the program that he is a part of.

Kirk was one of the select few instructors who were chosen to participate in the renewable energy program's professional development training, which spans a year and a half. The program is rigorous and combines online and in-person training with on-site coaching. It is designed to build the instructors' capacity to deliver a high-quality renewable energy program for students at the Belize campus.

For Kirk, this program is a game changer. As the only instructor devoted full time to the new renewable energy program, this was his introduction to the field of renewable energy. Kirk came with qualifications in building construction, having taught mostly plumbing and electrical skills, but the professional development program has opened a whole new world of learning for him and instilled in him a commitment to helping Belize create a more sustainable economy.

As he chats about the program, Kirk's enthusiasm for learning is infectious. He excitedly rattles off all the technical knowledge he has acquired on different types of renewable energy systems,



from solar to wind and beyond. But the program has equipped him with more than just technical expertise; it has taught him how to approach teaching itself, so as to improve the learning environment and increase students' engagement—how to interact effectively with students, how to foster teamwork, and how to deal with sensitivities. Through the training, Kirk is learning how to support the development of a well-rounded and adaptable worker, one who can develop positive client relationships and problem-solving solutions, and build a business.


For Kirk, every day is a new adventure that brings with it opportunities for his students to learn and grow, and develop inquisitive minds and an interest in learning. To Kirk, these students are the future of Belize's solar energy sector and the founders of future businesses.

As he gets up to leave, there is a gleam in Kirk's eye as he says, "If we can develop in them the attitude that they can continue to press forward after this program and continue to learn, they will reach places that we will never dream." These students are paving the way for a brighter and greener future in Belize.

***Hands-on photovoltaic panel installation during an in-person teacher training session at the Belize City ITVET, December 2022.***





A portrait of Miriam Choc, a woman with dark hair pulled back, wearing a light-colored striped shirt and a necklace. She is smiling slightly and looking towards the camera. The background is a thatched roof of a building, and the entire image has a blue-green color overlay. A yellow curved shape is visible in the top-left corner.

**Miriam Choc:**  
The female face  
of renewable  
energy in Belize

Miriam Choc is a Mayan woman with a vision. She grew up in the remote village of Santa Elena, in the southern Belize District of Toledo, where electricity and education were scarce. Her father died when she was young, and her mother raised her and her siblings. Miriam had to drop out of school after completing her primary education as her family could not afford her high school education. After that, Miriam supported her mother as she could and later opened a small store with her husband. They sell groceries and cornmeal at the store, and raise chickens.

But Miriam never gave up on her dream of learning new skills and pursuing further education. In 2016, she got a chance to do just that when a nongovernmental organization came to her village with a proposal to bring solar power to the area. As part of the organization's solar initiative, Miriam and her sister were chosen to go to India for six months to train as solar technicians. They returned with a certificate and a mission: to install solar systems in the 40 households that made up their community of Santa Elena.

Miriam's work did not end there. She wanted to expand her knowledge and skills in renewable energy. She faced many challenges in Belize, where opportunities for skills development in that field were few. In 2021, she enrolled in a US program to continue her solar education and build her knowledge and skills further. Miriam now runs an indigenous- and female-led solar power company, Belize Power Connect Limited, along with her sister and another Mayan woman who participated in the same India-based training, and two members of the nongovernmental

organization that introduced Miriam to the field of solar energy. Miriam has since entered into contracts for private solar energy installations, supported other remote communities that lack access to the energy grid, and installed solar systems and provided training in their maintenance through a small grants program.

Miriam has come a long way since she first started to understand the potential of solar energy. Before 2016, she had heard of the concept of solar energy but did not know how it worked or its potential in Belize and its value, particularly to rural and remote communities. She now has expertise in larger and more complex systems, with series of panels, the use of alternating current and inverters, solar water pumps, and the connection of systems to the utility grid. But the path has been far from direct.

Miriam's work in Belize has not gone unnoticed. She has made a name for herself as part of a leading indigenous- and female-run solar energy enterprise. In 2022, Belize Power Connect was contacted during the design of the Belize City ITVET's new renewable energy course. Along with others from her company, Belize Power Connect, Miriam has supported the development of the new renewable energy course through technical support and donating a 40-watt system to the ITVET, which it can use for practical demonstrations and exercises. Miriam enjoyed working with the ITVET students. She shared her knowledge and experience with the students through student work experience days, when they travelled to the Toledo district to join her and the team in installation projects.



Miriam could not have pursued her path to becoming a solar technician and solar energy business owner at the time in Belize, when formal training or skills certification opportunities in this field were not available. She had to overcome many barriers and challenges, including access to finance and equipment, besides the doubts and questions raised by some people regarding the abilities of a woman in a male-dominated sector.

Miriam's life has changed since she became a solar technician. Her confidence and income have grown, and she inspires other girls and women who want to pursue education and careers in renewable energy and science, technology, engineering, and mathematics. She has noticed an increasing demand for solar energy in Belize and has been receiving a growing number of inquiries and requests for her services. She is also receiving a

growing number of investment offers and support from people who want to contribute toward women working in solar energy. Miriam hopes to inspire other women and girls who want to pursue careers in renewable energy or other fields that are traditionally seen as male dominated.

Miriam hopes that her story and the government's increased support for education and training will encourage others to enter the field of renewable energy and seize opportunities that come their way. The ITVET program exemplifies how Belize is investing in its future by empowering people with renewable energy skills that can benefit them, their communities, and their environment. Miriam believes that solar power is not only a source of energy but also of empowerment.

***Solar installation in Santa Elena with panels installed by Miriam Choc and her sister, Santa Elena, July 2023.***





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A photograph of two construction workers wearing hard hats and safety vests, standing on a wooden structure at a construction site. The image is overlaid with a semi-transparent green and blue filter. A large yellow circle is visible on the left side of the page.

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