Ministry of Sustainability
& Climate Resiliency
and Wellness
Cayman Islands Government

Cayman Islands Residential Sector Building Energy Efficiency Programme

Programme Highlights

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Executive Summary

The Residential Buildings Energy Efficiency Programme, an initiative by the Cayman Islands Ministry of Sustainability & Climate Resiliency and Wellness (formerly known as the Ministry of Sustainability & Climate Resiliency), was launched in 2022 to address multiple challenges facing the community, including high energy costs and the urgent need for sustainable environmental practices. As climate change poses significant threats to the Cayman Islands—ranging from rising sea levels to increased hurricane activity—the government recognised the imperative to promote energy efficiency as a crucial defensive strategy.

In collaboration with the European Union's RESEMBID programme, managed by Expertise France, this initiative sought to enhance the energy efficiency of low-income homes that are part of the Cayman Islands' National Housing Development Trust (NHDT), thereby making a direct impact on some of the most vulnerable in the Cayman Islands community. The NHDT serves as a critical platform for providing affordable housing solutions in the Cayman Islands, making it an ideal partner for integrating energy efficiency projects aimed at some of the most vulnerable sections of the population.

Stakeholders (front, from left) Meagan Colaiacovo, Kristen Smith, Lucy McLaughlin; (back, from left) Yann Garneau, David Barrett and Karen Ford.

Goals of the project include:

01 **Homeowner Support:** To reduce the energy expenditure of low-income households by retrofitting 10 NHDT homes with energy-efficient technologies such as solar panels, energy-saving appliances and improved insulation. This direct intervention was aimed not only at reducing monthly energy bills but also at contributing to the overall reduction of the islands' carbon footprint.

02 **Future Scalability:** An essential component of the programme was to train local stakeholders in conducting energy audits.

03 **Local Economic Engagement:** The programme also supported the local economy by involving local businesses in the retrofitting process, providing companies in green technologies and services with opportunities.

04 **Public Awareness and Motivation:** Through public education efforts, the programme aimed to raise awareness about the Cayman Islands' vulnerability to climate change effects. The ministry hoped to motivate widespread adoption of similar measures across the community by showcasing the benefits of energy-efficient practices through this programme.

Overall, the Residential Buildings Energy Efficiency Programme not only aimed to mitigate the immediate economic pressures on low-income households but also sought to foster a culture of sustainability and resilience thoughout the Cayman Islands, preparing the community to face and fight the adverse impacts of climate change effectively. This strategic initiative thus reflected a holistic approach, integrating immediate relief with long-term sustainability and community empowerment.

Introduction

Members of the RESEMBID team met with local stakeholders at the Parliament building.

The Cayman Islands, characterised by its unique environmental challenges and vulnerability to climate change impacts such as rising sea levels and increased hurricane activity, needs an innovative approach to sustainability and energy management.

In 2022, The Resilience, Sustainable Energy and Marine Biodiversity Programme (RESEMBID) awarded the Cayman Islands Ministry of Sustainability & Climate Resiliency and Wellness a total of more than €1.2 million (KYD $1.04 million) for two programmes — one to improve energy efficiency in public sector buildings and another to do so in government-built affordable homes.

RESEMBID, funded by the European Union and implemented by Expertise France — the development cooperation agency of the Government of France — supports sustainable human development efforts in 12 Caribbean Overseas Countries and Territories (OCTs) - Aruba, Anguilla, Bonaire, British Virgin Islands, the Cayman Islands, Curaçao, Montserrat, Saba, Sint Eustatius, Saint Barthelemy, Sint Maarten and Turks and Caicos.

"Reducing electricity consumption is essential to meeting global goals to combat climate change and lower emissions," former Ministry Chief Officer Jennifer Ahearn said at the time. ***"These programmes will be a step in the right direction towards meeting these objectives."***

"Electricity supply and consumption accounts for approximately one third of our national emissions. While we work to increase renewable sources of energy, we can simultaneously work to reduce the amount of power needed to keep our homes and offices running."

The Ministry's engagement began earnestly with identifying the dual opportunities of cost savings for residents and broader environmental benefits. By retrofitting homes with energy-saving technologies such as solar panels, efficient HVAC systems, and improved insulation, the programme promised significant reductions in monthly energy expenses for families. Furthermore, it supported the Cayman Islands' commitment to reducing greenhouse gas emissions, aligning with national and international objectives towards a more sustainable and resilient future.

One of the innovative aspects of the programme was its emphasis on capacity building within the local community. Recognising that sustainable change requires more than just the installation of technology, the programme also provided training for local stakeholders that equipped them with the knowledge and skills necessary to conduct energy audits and maintain the new systems, thereby fostering an environment of ongoing improvement and engagement.

Additionally, the programme was structured to stimulate the local economy by engaging Caymanian businesses in the retrofitting process. The businesses were selected following an open procurement process, ensuring that the economic benefits of the programme were felt within the local business community.

In raising public awareness about the benefits of energy efficiency, the Ministry aimed to create a ripple effect—inspiring broader community action towards energy conservation and sustainability.

Educational campaigns and public engagement initiatives highlighted how individual actions contribute to the national goal of combating climate change, positioning the Residential Buildings Energy Efficiency Programme as a cornerstone of community-led environmental stewardship in the Cayman Islands.

Through this multifaceted approach, the programme not only addressed immediate economic and environmental challenges but also laid the groundwork for a sustainable legacy, demonstrating the Ministry's proactive role in leading the Cayman Islands towards a more sustainable and resilient future.

Home owner Veronica Ebanks, left, speaks with Yann Garneau, from Econoler, during an energy audit at the home.

Programme Participants

In George Town, Ms. Veronica Ebanks was looking for help. As a single mother, she was one of the many who applied for the programme, drawn by the promise of reduced energy costs. The Ministry reached out to homeowners who are a part of the NHDT programme to see who would be interested in participating in the energy efficiency programme.

"I filled out the form they gave us, and then they came and did an inspection to see if my house was suitable. I was surprised and so happy when I found out I was selected," she said.

Ms. Joy Taylor-Ebanks (second from left) is joined at her home by the Ministry of Sustainability & Climate Resiliency and Wellness staffers Kristen Smith (left), Lucy McLaughlin (second from right) and Karen Ford (right).

"My last [energy] bill was $419 and some change... It's hard, very hard because I am not working right now and it's very hard."

In West Bay, Ms. Joy Taylor-Ebanks' story unfolds as one of realised benefits, renewed comfort and cost savings.

By the end of the project, Ms. Joy's home was retrofitted with energy-efficient foam, insulation, solar panels and was outfitted with a new energy-efficient air conditioning system.

"I always wished to have one on my house," she said of the A/C. ***"When I found out that I was one of the people selected to get one, I just could not let that pass me by. I'm ecstatic. I'm really, really over the hill. It's lovely. I'm going to be chilling out in my cool, cool home."***

As a retiree on a fixed income, the reduction in energy costs has a direct and meaningful impact on her budget.

"We just retired... not working, and to know that the programme helped me with this and [I'm] praying that, you know, the bill goes down really, really low. Whatever little change I have, I'll save," she added.

Programme Implementation

David Barrett and Yann Garneau, energy consultants from Econoler, were deployed to the Cayman Islands through the RESEMBID programme, and were tasked with pivotal roles in the execution of the Residential Buildings Energy Efficiency Programme. Their primary responsibilities included conducting detailed energy audits and leading comprehensive training sessions to equip local stakeholders with the skills necessary for sustainable energy management.

"We're going through the technical assessments to get the data, interact with people here so that they have a sense of what energy efficiency is about," Barrett said. ***"Later on, we'll begin to do the reports, which will then inform the beneficiaries of their energy use opportunities and the financial savings they could achieve."***

Barrett and Garneau engaged in hands-on energy audits across 10 NHDT homes and ultimately compiled the data in reports and provided recommendations to the Ministry with regards to how the homes could become more energy efficient.

Barrett, left, speaks with a home owner while carrying out an energy audit.

Yann Garneau inspects an air conditioning unit in the attic of the home of Ms. Veronica Ebanks as part of his energy audit.

Their work involved assessing current energy uses and inefficiencies, identifying opportunities for improvement and guiding the implementation of energy conservation measures.

"We are covering different modules regarding energy audits and for the actual energy audits, we're going on-site and collecting data on the energy consumption and water consumption of the buildings," Garneau said. ***"It's really about raising awareness about energy efficiency and providing information to people and helping them in selecting better energy efficiency equipment."***

The success of the programme hinged on several factors:

Effective Implementation of Recommendations: The detailed recommendations provided by the energy audits are crucial for achieving significant reductions in energy consumption.

Community and Stakeholder Engagement: Both consultants highlighted the importance of engaging with the community and stakeholders to ensure that the measures are well-received and effectively implemented.

Sustainability and Capacity Building: The training provided to local stakeholders aimed to embed the necessary skills within the community, ensuring that the benefits of the programme are sustained over the long term.

The Ministry's team endeavoured, throughout the project, to raise community awareness not only about the programme itself, but about the methods through which the community can implement energy efficient measures in their own homes and businesses. This included the creation and publication of several press releases, social media posts and energy efficiency guides. It also included public appearances, including the 2024 Builder's Expo, as well as an appearance on Radio Cayman. Several of the events were included on CIGTV news coverage as well.

Once the training and site visits were completed, baseline assessments, energy savings calculations, financial analysis and reporting were created.

Following that work, the Ministry took the recommendations into consideration and engaged in an open procurement process for local businesses to supply and install the energy efficient devices and appliances. In the end, Parsons Air Conditioning, ProSolar and Eco House Cayman were selected as contractors for the programme.

Members of the programme team joined former Minister Katherine Ebanks-Wilks on Radio Cayman to discuss the programme and energy efficiency generally in the Cayman Islands.

Local Capacity Building

A vital component of the Residential Buildings Energy Efficiency Programme was local capacity building, executed through comprehensive training sessions aimed at civil servants and facility managers. The training fostered a sustainable foundation of knowledge and practice within the local government and public sectors.

Designed to be both theoretical and practical, the training curriculum includes the basics of energy efficiency, detailed audit techniques, and extensive fieldwork. The goal is to equip participants with the skills necessary to both conduct and propagate energy audits, ensuring the continuity and expansion of the programme's impact. This educational initiative is not only about transferring knowledge but also about creating advocates for energy conservation within the community.

"It's important for me, personally and professionally, to contribute to developing my students so that they can develop not only that eye, but also contribute to the Cayman Islands by learning those processes and gaining the skills that are needed." said Ricardo Benjamin, an electrical engineering lecturer who participated in the training aspect of the programme.

Ricardo Benjamin was one of 13 members of the public sector who, in November 2023, successfully completed an energy audit training course through the programme.
The training cohort included members of the Ministry's project team, and facilities managers from across the Civil Service and the University College of the Cayman Islands. It included 16 hours of virtual and in-person learning focused on how energy audits are conducted on residential and commercial buildings, the equipment needed to conduct energy audits, and the utility data required.

"It's so important to build local knowledge because if the knowledge is within the community, then more people learn about it and more people see it day-to-day," said Lucy McLaughlin, another participant.

Trainee Ricardo Benjamin works with Yann Garneau to collect data during a residential energy audit.

Meagan Colaiacovo, reflecting on her experience, appreciated the hands-on aspect of the training, which included auditing various types of buildings.

"It was super informative. It was nice to have a variety of different types of buildings... This programme was to increase the awareness of the little things that you can do," she said.

Barrett, leading the training sessions alongside Garneau, emphasises the strategic importance of these initiatives.

"By building local expertise, we ensure the programme's sustainability and that the benefits reach more households in the future," he said.

Thirteen members of the public sector successfully completed an energy audit training course in November 2023 as part of a Ministry of Sustainability & Climate Resiliency and Wellness programme

The Ministry's team also created Energy Efficiency guidelines, a series of DIY energy audits and energy saving guides the public can download and use to save energy and money in their home or business. The Ministry also developed a Kids' Energy Guide and Energy Saving Habits Guide to help the whole family get involved in saving energy. All of these resources and more are available at www.gov.ky/energy.

The Ministry also recognises the need to develop targeted mechanisms, such as low-interest loans, subsidies, or revolving funds, to ensure energy efficiency measures remain accessible and affordable for vulnerable households.

Challenges and Barriers

The Cayman Islands' journey to become more energy-efficient through the RESEMBID programme, supported by European Union funding, has seen both expected and unexpected hurdles. Econoler's staffers were key figures in navigating these challenges. Barrett's role involved conducting energy audits, providing technical assessments, and ultimately guiding both commercial and residential beneficiaries on how to reduce energy consumption and maximise financial savings.

"We're all concerned about climate change... and we have the opportunity to make an impact in the earliest stages," Barrett said.

Garneau echoed these sentiments, highlighting that the aim was to ***"reduce energy consumption... mainly because of climate change,"*** but also to alleviate financial burdens on low-income households by reallocating funds towards more critical areas of their budgets. He pointed out that behaviour change was one of the most significant barriers.

"It's usually a behaviour thing," Garneau said. ***"If everyone was knowledgeable about energy efficiency, they would make the right choices."***

Barrett elaborated on simple behaviours that could lead to significant energy savings, such as adjusting air conditioner use and opting for more energy efficient lighting.

"Behaviour is probably the hardest part to change, not technology," he said.

Measurable Impact

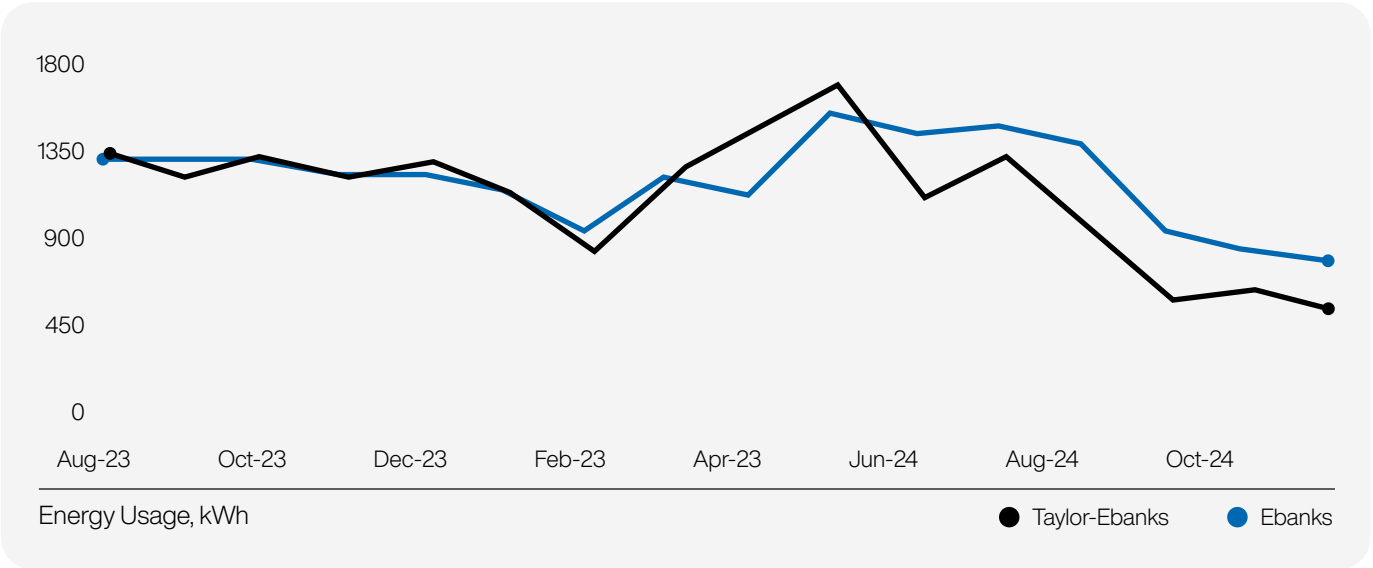
The Residential Buildings Energy Efficiency Programme has demonstrated significant results in reducing energy consumption across the participating home, including substantial reductions in monthly energy usage.

Ms. Taylor-Ebanks experienced a decrease in her monthly energy consumption from 1368 kWh in August 2023 to just 529 kWh by November 2024. This 61% reduction showcases the effectiveness of the energy-efficient upgrades installed in her home, such as improved insulation and a high-efficiency air conditioning system.

Ms. Ebanks also saw a notable improvement in her energy efficiency, with her usage decreasing from 1,326 kWh to 765 kWh during the same period, amounting to a 42% reduction. She experienced monthly energy savings of about 312 kWh, or about KYD $41 per month.

Workers from Parsons A/C install a new energy efficient unit at the home of Ms. Taylor-Ebanks.

Across all 10 homes participating in the programme, the average energy consumption in August 2023 was 1,368 kWh per household, which by November 2024 had fallen to an average of 714 kWh. That represents a savings of approximately KYD $86 per month.



Lessons Learned

The Residential Buildings Energy Efficiency Programme has provided invaluable insights into the dynamics of implementing energy efficiency initiatives within low-income communities in the Cayman Islands. These lessons are pivotal for refining future strategies and enhancing the program's effectiveness.

What worked:

01 **Personalising Solutions for Each Household:** The success of the programme significantly depended on tailoring energy solutions to the specific needs of each household. This approach ensured that the interventions were relevant and maximally effective, leading to substantial reductions in energy consumption and increased satisfaction among residents. Ms. Joy Taylor-Ebanks, reflecting on the upgrades in her home, shared, ***"The new air conditioning unit was exactly what I needed. It was adjusted to suit just my home's layout, which made all the difference."***

An Eco House worker installs energy efficient foam insulation in one of the homes.

02 **Building Local Expertise:** While not qualifying locals as 'auditors,' the programme focused on educating local stakeholders about energy efficiency principles and basic assessment skills to help sustain the initiative. This scalability factor is crucial for extending the programme's reach without continually relying on external experts.

Areas for Improvement:

01 **Enhancing Community Education on Behaviour Changes:** One of the consistent challenges highlighted by the programme was the need for more comprehensive community education to promote behaviour changes.

"We need to enhance our outreach efforts, perhaps through more interactive workshops that engage directly with household behaviours that affect energy use," Barrett said.

02 **Streamlining Assessment Processes:** Making the initial energy assessments more efficient could accelerate the retrofitting process and reduce wait times for participants.

"We are looking at ways to streamline the assessments to make them quicker without compromising on the thoroughness needed," Garneau said.

Recommendations

Scaling the Programme:

01 **Expand to More Households:** Utilising the skills imparted to local participants, the programme can expand its reach. This approach leverages the existing trained workforce to extend benefits to more households, amplifying the impact across the community.

02 **Further Training Initiatives:** Continued investment in training and development initiatives is essential for maintaining the momentum of the programme and ensuring its long-term viability. Additional funding and resources could be allocated to these educational efforts.

03 **Workshops and Communication Campaigns:** To foster energy-efficient habits among residents, the programme should introduce more workshops and comprehensive communication campaigns. These should focus on practical tips and the financial benefits of energy efficiency, incorporating real-life examples to illustrate potential savings.

04 **Making Energy Efficiency Affordable:** Introducing financial incentives, such as subsidies for energy-efficient appliances or rewards for reduced energy consumption, could significantly boost participation rates. Real-life examples include offering reduced pricing schemes for the most efficient appliances or providing rebates on energy bills for households demonstrating substantial energy savings over time.

Members of the Ministry's team at the 2024 Builder's Expo.

By implementing these lessons and recommendations, the Cayman Islands' Residential Buildings Energy Efficiency Programme can enhance its effectiveness, sustainability, and scalability, thereby making a more significant impact on the community.

Conclusion

The Residential Buildings Energy Efficiency Programme, spearheaded by the Cayman Islands Ministry of Sustainability & Climate Resiliency and Wellness, represents a pivotal step toward fostering a sustainable and resilient community. By targeting the energy inefficiencies in homes of low-income families, the initiative has demonstrated a profound capacity to enhance the quality of life for residents while contributing significantly to environmental conservation.

Through the installation of energy-efficient technologies, comprehensive training of local stakeholders, and the active involvement of local businesses in the retrofitting process, the programme has laid down a robust foundation for sustainable energy use that transcends immediate utility savings

The programme navigated through the complexities of changing long-standing behaviours, streamlining technical processes, and cultivating broad-based community engagement.

The enduring impact of the Residential Buildings Energy Efficiency Programme will be measured not just by the kilowatts saved but by the continued empowerment of residents to lead energy-efficient lifestyles. It stands as a beacon of the Ministry's commitment to leading the Cayman Islands towards a sustainable future, illustrating the integral role of community-led initiatives in the global fight against climate change.

As the programme evolves, it will undoubtedly continue to serve as a model for similar initiatives globally, highlighting the critical importance of holistic approaches to sustainability that engage every layer of the community. In the face of escalating environmental challenges, the Cayman Islands' proactive measures through this programme demonstrate a proactive and adaptable approach to ensuring a sustainable and resilient future for all its residents.

content studio

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