Ministry of Sustainability
& Climate Resiliency
and Wellness
Cayman Islands Government

Cayman Islands Public Sector Building Energy Efficiency Programme

Programme Highlights

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Executive Summary

The Public Sector Buildings Energy Efficiency Programme, spearheaded by the Ministry of Sustainability & Climate Resiliency and Wellness (formerly known as the Ministry of Sustainability & Climate Resiliency), represents a strategic effort funded through the RESEMBID initiative to enhance the energy efficiency of public sector buildings in the Cayman Islands.

The programme, carried out in collaboration with the European Union's RESEMBID programme, managed by Expertise France, called for comprehensive energy audits across 13 public buildings — including schools, libraries, post offices and the House of Parliament — and focused on retrofit efforts. The project specifically sought to involve a variety of buildings with different uses across all three islands, including the fire station in Cayman Brac and the airport in Little Cayman.

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

The programme aimed to significantly reduce energy costs and greenhouse gas emissions. The initiative not only targeted direct energy savings but also sought to bolster local capacity through training of local stakeholders to ensure the sustainability and scalability of energy efficiency efforts within the public sector.

Goals of the project include:

01 **Reducing energy consumption:** This was done through a comprehensive assessment of 13 public buildings (including schools, libraries, and the House of Parliament) to identify energy inefficiencies and areas for improvement. Based on the findings, the programme focused on retrofitting buildings with energy efficient equipment to reduce energy consumption.

02 **Economic impact:** By improving energy efficiency, the programme hopes to reallocate saved funds toward other critical public services, such as healthcare and education, while supporting local businesses involved in retrofitting projects.

03 **Building local capacity:** As part of the programme, local stakeholders were trained in energy auditing techniques, enabling the Cayman Islands to build long-term expertise in energy management within the public sector.

04 **Public Awareness:** Through public education efforts, the programme aimed to raise awareness about energy efficiency generally in the Cayman Islands.

Introduction

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

In 2022, The Resilience, Sustainable Energy and Marine Biodiversity Programme (RESEMBID) awarded the Cayman Islands Ministry of Sustainability & Climate Resiliency and Wellness 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."***

The programme was designed with specific goals to enhance the energy efficiency of public sector infrastructure, thereby reducing the government's energy expenditures and supporting broader environmental objectives as outlined in the Cayman Islands' National Energy Policy (NEP).

The focus extended across a diverse array of public buildings. Chronic inefficiencies in older public buildings, particularly outdated HVAC systems and inefficient lighting, contributed significantly to excessive energy consumption, imposing increased financial burdens on government budgets and detracting from other essential public services.

"It's important. Reduce energy consumption, I think, mainly because of climate change. But also historically, it was, a way to reduce, energy costs," said Alan Robinson Facilities Manager with the Cayman Islands Department of Education Services.

From left: Alan Robinson, Yann Garneau, Meagan Colaiacovo and David Barrett begin an energy audit at a public school.

Programme Implementation

The core of the Public Sector Buildings Energy Efficiency Programme's implementation phase involved comprehensive energy audits conducted by visiting energy consultants David Barrett and Yann Garneau, from Econoler. Their expertise was crucial in identifying inefficiencies and recommending sustainable solutions.

They evaluated the energy consumption patterns of key government buildings, including schools, libraries, and the House of Parliament, to identify the most impactful areas for energy-saving interventions.

The audits were comprehensive, covering various aspects of building operations, from HVAC systems to lighting and insulation. The aim was to create a detailed energy profile for each building, which would serve as the foundation for all subsequent retrofitting and upgrades.

"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 at the time. ***"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 said.

"It's really about raising awareness about energy efficiency and providing information to people and helping them in selecting better energy efficiency equipment," Garneau said.

The initial audits conducted by Barrett and Garneau resulted in a series of targeted recommendations for each audited building. These recommendations were tailored to maximise energy savings and cost-efficiency, providing a clear roadmap for the subsequent retrofitting phase. The detailed audit reports became essential tools for the government, guiding decision-making processes.

David Barrett conducts an energy audit at the airport in Little Cayman.

Measurable Results

The energy audits conducted projected significant energy savings in key buildings by up to 25%. This projection is crucial for planning further energy-saving initiatives and allocating resources effectively.

"Reducing energy costs in public buildings frees up funds for other vital projects," Garneau said.

By reducing energy consumption, the public sector buildings are also expected to lower their greenhouse gas emissions, contributing positively to the Cayman Islands' climate action goals as outlined in the National Energy Policy (NEP), which calls for 70% of Cayman's electricity generation to be from renewable sources by 2037.

The Public Sector Buildings Energy Efficiency Programme's preliminary audits highlighted several key areas where energy savings can be effectively realized across the audited buildings. The audited buildings include: Theoline L. McCoy Primary, Coast Guard Base (Drug Task Force Facility), East End Primary, Airport Post Office, George Town Post Office, George Town Library, Parliament Building, Edna Moyle Primary, West Bay Library/ Town Hall, West Bay Post Office, the Cayman Brac Fire Station and the Little Cayman airport terminal building. The findings focused on a comprehensive range of energy-saving measures, from simple changes like lighting improvements to more significant infrastructure upgrades such as solar power installation.

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

Key Energy Saving Areas:

Lighting: While some LED lighting had already been implemented in various buildings, the audits recommended a widespread LED retrofit alongside enhanced controls such as occupancy sensors to further reduce energy consumption.

Roof and Insulation: Notably, some buildings already featured roof insulation, which helps in reducing cooling costs. Additional insulation options were explored to enhance this effect.

Windows: Most buildings adhered to double-pane requirements due to hurricane codes, with some already utilising shading devices and tinting to reduce heat gain.

Air Conditioning: The audits found a variety of split AC units in use, with varying degrees of efficiency. Recommendations were made to upgrade these systems to higher efficiency models, particularly to address issues caused by saltwater damage.

Water and Hot Water: Many water fixtures were outdated and not utilising the best available technology. The possibility of installing solar hot water systems was suggested as a viable intervention.

Power Generation: Some buildings were equipped with diesel generators, presenting an opportunity to integrate solar PV panels either on roofs or as part of carport structures.

Shading: Several post offices were identified as having the potential to benefit from adding shade to the areas around the post boxes.

Public Sector Audits - Possible Interventions:

LED Lighting: Accelerate the transition to LED lighting across all facilities, incorporating advanced controls to optimise usage.

Building Envelope Improvements: Implement measures to reduce infiltration and add or enhance roof insulation to decrease the cooling load.

Window Treatments: Expand the use of window tinting and shading devices to further reduce heat ingress.

Air Conditioning Upgrades: Replace older AC units with high-efficiency models, tailored to withstand local environmental conditions such as saltwater exposure.

Water Efficiency: Introduce low-flow water devices and consider solar water heating to reduce both energy and water consumption.

Solar Power: Assess and implement solar PV systems where feasible, to reduce dependence on non-renewable energy sources and decrease operational costs.

These interventions are projected to reduce energy usage by up to 25% in the audited buildings.

> ***"We're all concerned about climate change... and we have the opportunity to make an impact in the earliest stages,"*** Barrett said. ***"Reducing energy consumption, especially in government facilities, allows for significant budget reallocation, which can be directed towards further environmental initiatives or other community needs."***

Community and Economic Benefits

The Public Sector Buildings Energy Efficiency Programme has ushered in substantial benefits for both the community and the local economy

The introduction of energy-efficient technologies creates brighter and more comfortable environments. They also can bring attention to the need to focus more on the importance of energy efficiency throughout the community.

"It's so important to have the local knowledge because if the local knowledge is there, then more people learn about it and more people see it day-to-day, and the more people can learn from each other," said Lucy McLaughlin, a participant in the energy audit training programme.

The energy savings achieved through the programme can be redirected to bolster public services and infrastructure, which supports broader economic growth. By reducing the operational costs of public buildings, the government can allocate more funds towards essential services such as education and healthcare, thus benefiting the wider community.

Parsons AC workers install a new energy efficient air conditioning unit at the Airport Post Office.

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.

"It's about creating better spaces for everyone while also protecting the environment," said Meagan Colaiacovo, another training participant.

The economic benefits are further compounded by the engagement of local businesses in the retrofitting process, which stimulates local economic activity and supports small to medium enterprises in the green technology sector.

After an open procurement process carried out by the Ministry, Parsons Air Conditioning, Refrigeration & Appliances was selected to install retrofitted air conditining units with a 20 Seasonal Energy Efficiency Ratio (SEER) rating at both the West Bay Public Library and the Airport Post Office, where five units were installed.

Ministry leaders also spearheaded campaigns to raise awareness of energy efficiency throughout the Cayman Islands. They created and coordinated press releases, social media posts and created a webpage dedicated to the programme. They engaged the public through events like the 2024 Builder's Expo and appearing on Radio Cayman. Through the programme, they were also able to engage with other community stakeholders like CASE Cayman.

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.

Training

Energy audit training began in late 2023.

The Public Sector Buildings Energy Efficiency Programme also allowed for local stakeholders from the private and public sector to learn more about energy efficiency and the energy audit process, empowering them with the skills necessary for sustainable energy management.

Local stakeholders from the Ministry, as well as the University College of the Cayman Islands (UCCI), participated in an intensive training curriculum focusing on energy auditing techniques. The sessions covered a range of topics from basic energy concepts to advanced auditing procedures.

"I was very interested in the energy audit and learning about how to make buildings in Cayman a bit more efficient," said McLaughlin.

Equipped with new skills and insights, the trainees now have a local expertise that previously did not exist.

"[It] has been a wonderful experience," said Ricardo Benjamin, another training participant. ***"I'm sharpening my skills and developing a more detailed eye for the energy audit process. It's important for me to develop these skills not only for my personal growth but to contribute to the community by training others."***

That potential for scalability is vital for the programme's success, ensuring that the benefits of energy efficiency are experienced widely across the public sector.

"I think it was important for me, as the project officer for the public sector side of the programme, to understand and gain that experience," Colaiacovo said. ***"This programme was to increase the awareness of the little things that you can do. The public sector is going to be focusing more on the little differences we can make."***

Challenges and Lessons Learned

Challenges:

01 Behavioural Habits: One of the significant challenges faced in the Public Sector Buildings Energy Efficiency Programme was addressing behavioural habits in energy use alongside technical upgrades.

"It's usually a behaviour thing," said Garneau with regards to how people approach energy efficiency. "If everyone was knowledgeable about energy efficiency, then they would make the right choices."

02 Navigating Older Buildings: Another substantial hurdle was navigating older building infrastructure with unique inefficiencies. The diversity in building ages and conditions posed particular challenges for retrofitting efforts as the team was not permitted to physically impact buildings that hold historical and cultural significance.

David Barrett conducts an energy audit at a public school.

From these challenges, several key lessons emerged, which have been instrumental in shaping the programme's approach to future initiatives.

Small changes, like improving lighting or optimising air conditioning use, can lead to significant cost savings. This lesson has been pivotal, as it highlights that even minimal interventions can have substantial impacts on energy consumption and costs, making the efforts more approachable and manageable for public sector entities.

Additionally, the programme reinforced the idea that training and capacity building are essential for long-term sustainability. The training sessions not only equipped local professionals with the skills needed to maintain and expand upon the initial upgrades but also ensured that the knowledge would perpetuate within the community, supporting ongoing improvements.
The programme has allowed for a more nuanced understanding of what is required to effectively reduce energy consumption in government buildings.

Recommendations

As the Public Sector Buildings Energy Efficiency Programme evaluates its achievements and challenges, several strategic recommendations emerge for enhancing and expanding its impact:

01 **Scaling the Programme:** The success of the programme demonstrates the potential for broader application. Expanding the initiative to include more public sector buildings — such as additional schools, government offices, and healthcare facilities — alongside incorporating measures like renewable energy systems (solar panels and solar water heaters) could dramatically increase energy savings across the board. This expansion is essential not just for reducing operational costs but also for setting a sustainable example in the community.

"The projects we've initiated have shown that with the right commitment, expanding these efforts is not only possible but necessary for substantial energy and cost savings," Barrett said.

02 **Behavioural Training:** Technical upgrades need to be complemented by behavioural changes to maximise their effectiveness. Community workshops and continuous educational programmes focusing on energy-saving habits could help embed these practices into daily routines. By targeting behaviour change, the programme can enhance the efficacy of the installed technologies and ensure that energy savings are sustained over time.

"It's critical that the community gets involved," Garneau said. *"We need to complement our technical solutions with behavioural training that makes energy efficiency a part of everyday life."*

03 **Policy Integration:** Integrating energy efficiency standards into the planning and development of future public sector building projects can ensure that all new constructions and renovations adhere to high efficiency standards. This policy-driven approach will institutionalise energy conservation measures, making them a fundamental part of public infrastructure projects.

David Barrett inspects a generator at a public library.

Conclusion

The Public Sector Buildings Energy Efficiency Programme represents a significant step toward a sustainable future for the Cayman Islands. Through comprehensive energy audits, targeted retrofits, and an emphasis on capacity building, the initiative has successfully enhanced the operational efficiency of public sector buildings.

By embedding energy efficiency standards into the development of future public sector projects, the Cayman Islands can ensure that these practices are not merely temporary measures but are sustained over the long term, contributing to the national goals of reducing greenhouse gas emissions and fostering a resilient community.

As the Cayman Islands continues to face environmental challenges, the lessons learned from this programme provide valuable insights into how small island communities can effectively respond to global issues like climate change while simultaneously enhancing local capabilities and economic stability.

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