

E-Mobility Gaining Momentum in the Caribbean

By Robert Blenker
 President and CEO of WRB Energy

Electrification—the shift from fossil fuel- to electricity-powered transportation, commercial and industrial processes, and buildings—is becoming important in the reduction of greenhouse gas (GHG) emissions, increased efficiency, reduced costs, and improved sustainability.

Electrification in the transportation industry drives a host of benefits worldwide, including for nations in the Caribbean that are striving to reduce dependence on imported foreign fuel, increase renewable energy, and strengthen resiliency. As part of transport electrification, electric vehicles (EVs) are gaining traction by proving to be more energy-efficient, cost-effective, and gentler on the environment as compared to conventional internal combustion-engine (ICE) vehicles.

EVs in Grenada

WRB Energy has first-hand knowledge of the benefits of all-electric vehicles at Grenada Electricity Services (Grenlec), the electric utility company serving Grenada. Several years ago, Grenlec initiated an EV pilot program at its utility headquarters in Grand Anse.

Grenlec purchased two Nissan LEAFs and a Nissan NV200 five-seater van for use in its current fleet. Grenlec tracked the performance of the vehicles for mileage efficiency and fuel savings.

Mileage – 75-100 MPGe

In the first six months of the pilot, the vehicles averaged the equivalent of 100 miles per gallon (MPGe) after traveling approximately 10,000 miles in Grenada. The vehicles averaged 3.88 miles/kWh. Over time, the mileage averaged approximately 75 MPGe. It is important to note that the actual mileage for electric vehicles can vary based on road conditions, manufacturer/model type, weather, and the operator's driving style (speed and fast starts/stops).

Fuel Costs

The electric vehicles averaged a 43% reduction in fuel costs compared to their combustion-engine counterparts with similar daily usage. In the first six months of the pilot, the vehicles used a total of 2,550 kWh at a cost of US\$1,082 which represents total savings of US\$828.50 in fuel costs. Because of the van's larger size, the vehicle consumed more energy than the LEAFs.

Driving 100 Miles in Grenada



US **\$16.50**
 gas-powered
 vehicle



US **\$9.70**
 all-electric
 Nissan LEAF

The vehicles averaged 100 miles on a single charge. And because the vehicles have fewer moving parts, it is expected that maintenance costs will be lower.

Reduces air pollution and greenhouse gases.

Road Performance

The Grenlec team found that the high torque of electric motors provides faster acceleration with less noise than a conventional internal combustion engine car. The electric vehicles handle the road well, even on Grenada's hilly terrain.

Environmental Benefits

EVs have zero tailpipe emissions which reduce air pollution and greenhouse gases (carbon dioxide), contributing to a cleaner environment. Although the power plant that generates electricity produces emissions, EVs operate at a much higher efficiency, and therefore, produce fewer pollutants than gas-powered vehicles. Additionally, the increased use of renewable energy for generating electricity in the future can further reduce carbon emissions. According to Collin Cover, General Manager of Grenlec, the EVs performed better than expected in terms of efficiency, cost savings, and operation. "The challenge to increased use of EVs in Grenada is the lack of availability through local car dealers," says Mr. Cover.

EVs Speeding Up in Barbados

Headquartered in Barbados, Megapower Ltd., an importer of EVs since 2013, has been instrumental in facilitating the sales of EVs, installation of charging stations, and construction of solar carports throughout the Caribbean, including Antigua, Grand Bahamas, Grenada, St. Vincent, and Turks and Caicos. According to Joanna Edghill, co-founder of Megapower, the future of EVs in the Caribbean is strong. "EVs represent a natural confluence of three forces: the need to decrease dependence on fossil fuels to reduce costs and combat climate change; generate clean energy from solar and wind power; and greater awareness and education of EV benefits, including lower operating and maintenance costs as well as improved road performance," says Ms. Edghill.



Joanna Edghill of Megapower Ltd., Barbados, in an electric bus manufactured by BYD.

According to Ms. Edghill, the use of EVs in Barbados is accelerating because of the support of the nation's electricity provider, Barbados Light & Power (BL&P), the Government of Barbados, and local businesses. In 2013, Megapower began developing a public charging network in Barbados, offering open, free-to-use access at high-traffic locations, including supermarkets, restaurants, and sports facilities, to increase public awareness and encourage usage.

In 2015, the charging units were replaced with pay-as-you-go cards. In 2018, BL&P assumed 50% of the cost for three rapid CHAdeMO charging stations. Now there are more than 35 public locations across Barbados. The charging sites are noted on Megapower's public EV network mobile and web-based app: www.plugshare.com.

Working with Megapower, BL&P has also provided incentives and interest-free loans to utility staff for the purchase of EVs. The implementation of Time-of-Use (TOU) rates is being explored as well.

The Ministry of Energy is highly active and influential in supporting EV adoption. To date, Megapower has supplied 14 EVs to various government ministries and agencies through Inter-American Development Bank loan projects with the Government of Barbados. To further pioneer electric transport in Barbados, the Government also introduced **33 electric buses** in July 2020 with the goal of **100% electric vehicles** for transport over the next decade.

With greater public acceptance and confidence in the availability of charging stations and low maintenance, companies including FLOW Cable & Wireless Communications, DHL Express, and Mount Gay Rum invested in EVs for their service fleets. DHL Express delivery services now rely 100% on electric vehicles for its operations in Barbados. Additionally, the National Petroleum Corporation procured six EVs in 2019. "I would never have imagined selling electric vehicles to the oil company when we started our business," adds Ms. Edghill.



Megapower, dealer for manufacturer SAIC Group, launched the first 24 MG ZS SUV EVs in Barbados with many more on the way. For more information, visit www.megapower365.com.

Cost-effective Financial Incentives

According to Stanley Barreto, Business Partner and Director of Megapower Antigua, government support and cost-effective financial incentives can go a long way in building the EV market in the Caribbean. Mr. Barreto believes that through legislation, governments can incentivize the use of EVs through rebates, concessions at ports, reduced import duties, and taxes. “We also need to boost consumer awareness and education to allay misconceptions about performance, battery life, and maintenance. Once people see government officials and transport fleets using EVs, the public becomes more confident and open to investing in EVs,” says Mr. Barreto. Megapower also designs, constructs, and commissions solar carports to increase the use of renewable energy in Barbados and throughout the Caribbean. Based on cost analysis, the company believes that minimizing imported fuel and integrating more renewables makes economic sense for many island nations.

Driving the Future of E-Mobility

A viable path forward for greater use of EVs includes fostering partnerships between government, utilities, manufacturers, private businesses, and nonprofits to spur market transformation. This incorporates consistent governmental policies and tax incentives to accelerate availability through local dealers, development of charging infrastructure, training of maintenance service personnel, and consumer education. Partnerships for E-Mobility can achieve mutual goals for economic development, increased revenue, environmental responsibility, and sustainability.



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Robert is a veteran renewable energy executive with more than 30 years of experience sourcing, developing, and managing infrastructure projects, specifically in Latin America and the Caribbean.

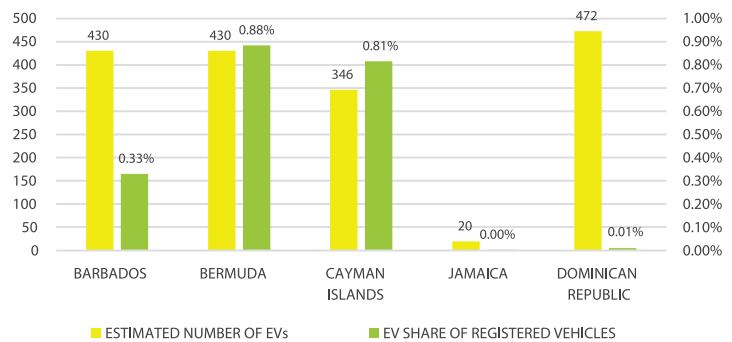


WRB Energy develops renewable energy projects in the Caribbean and Latin America to help stabilize electricity prices and reduce dependence on imported fuels to drive economic growth and sustainability. WRB Energy manages the entire project lifecycle, including site selection, design, permitting, financing, construction, and operation.

To learn more, visit wrbenery.com.

ESTIMATED NUMBER OF EVs AND SHARE OF REGISTERED VEHICLES, CASE STUDIES

Source: Prado 2019 (Barbados); Bermuda Transport Control Department, 2019 Transport Green Paper (Bermuda); Cayman Islands Government Information Services; Oficina Nacional de Estadística & ASOMOEDO (DR)



Source: Electrified Islands: The Road to E-Mobility in the Caribbean

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EVs in the Caribbean at-a-glance

A recent report, *Electrified Islands: The Road to E-Mobility in the Caribbean*, examines the progress, benefits, and barriers to EV expansion in case studies from Barbados, Bermuda, the Cayman Islands, Jamaica, and the Dominican Republic.

Benefits:

- Energy efficient
- Cost less to operate
- Sound driving performance, quieter
- Lower maintenance
- Zero tailpipe emissions

Barriers:

- Lack of public awareness and education
- High upfront costs and limited availability
- Potential lost tax revenue from fuel imports
- Development of EV charging infrastructure
- Lack of trained sales and maintenance personnel

Opportunities:

- Reduce dependence on fuel imports
- Create partnerships between government, private businesses, and nonprofits to accelerate adoption based on mutual goals and benefits, including economic development, revenue generation, sustainability, and environmental responsibility
- Support increased use of renewable energy for electricity generation
- Resiliency – Use/repurpose EV batteries for energy storage and back-up power
- Build economies of scale by aggregating market demand and supply for Caribbean nations

On the island nations experiencing the most success with EV adoption, including Barbados, Bermuda, Cayman Islands, and the Dominican Republic, there are several common elements fostering growth. These countries have governmental policies as well as public and private partnerships in place to spur market transformation.

1. EVs play a role in national energy policy to reduce the use of fossil fuels and increase the generation of renewable energy.
2. The transportation sector is exploring and testing EVs for public transport, including bus fleets.
3. Governments working to reduce import duties on EVs.
4. Manufacturers increasing the number of dealers and EV training of automotive service providers.
5. Electric utilities championing and promoting the use of EVs, including the inclusion of EVs in service fleets. Utilities are also analyzing the long-term impacts of EVs on the grid and developing special utility rate structures for EV use and off-peak charging.
6. Participation by highly visible commercial enterprises using EVs for tourism, public transport, delivery services, and other business-related purposes.