Energizing Public Transit for Islands

Lessons from Bermuda's Electric Bus Initiative

Report / October 2024

Authors and Acknowledgments

Authors

Aradhana Gahlaut, RMI
E.J. Klock-McCook, RMI
Raquel Soat, RMI

Contacts

E.J. Klock-McCook, ekmccook@rmi.org
Aradhana Gahlaut, agahlaut@rmi.org

Copyrights and Citation

Aradhana Gahlaut, *Energizing Public Transit for Islands: Lessons from Bermuda's Electric Bus Initiative*, RMI, 2024, **https://rmi.org/insight/energizing-public-transit-for-islands-lessons-from-bermudas-electric-bus-initiative/**.

Cover photo courtesy of RMI. All images used are from iStock.com unless otherwise noted.

Acknowledgments

RMI deeply appreciates the Government of Bermuda's Ministry of Transport for their invaluable partnership in this initiative and recognizes the contributions of the following individuals:

Adrian Dill, Acting Director, *Bermuda Department of Energy*
Christopher Jonelle, Director, *Bermuda Department of Public Transportation*
Josh Simons, Assistant Director of Maintenance and Engineering Services, *Bermuda Department of Public Transportation*
Roger Todd, Former Permanent Secretary, *Bermuda Ministry of Health*

RMI

About RMI

RMI is an independent nonprofit, founded in 1982 as Rocky Mountain Institute, that transforms global energy systems through market-driven solutions to align with a 1.5°C future and secure a clean, prosperous, zero-carbon future for all. We work in the world's most critical geographies and engage businesses, policymakers, communities, and NGOs to identify and scale energy system interventions that will cut climate pollution at least 50 percent by 2030. RMI has offices in Basalt and Boulder, Colorado; New York City; Oakland, California; Washington, D.C.; Abuja, Nigeria; and Beijing.

Table of Contents

Executive Summary

The Government of Bermuda is on track to completely electrify its public bus fleet by 2030. It has achieved a significant milestone by successfully deploying 70 electric transit buses (e-buses) in its fleet as of 2024, leading to nearly 100% electric daily operations. This has enabled the Bermuda Department of Public Transportation (DPT) to replace a significant portion of its aging diesel bus fleet and provide high-quality public transit service while reaping substantial economic and environmental benefits (see Exhibit 1).

Exhibit 1 **Emissions and economic savings from e-bus operation in Bermuda**

Every year, the 70 e-buses will save Bermuda:

Over **$400,000** in fuel costs or funding to purchase **two e-buses**

1,200 tons of carbon dioxide emissions or annual emissions from **600 cars**

800,000 liters of diesel fuel or jet fuel used in **12 transatlantic flights**

RMI Graphic. Source: RMI analysis, Bermuda DPT

Bermuda's success in this electrification journey is primarily due to DPT's strategic planning, procurement, and deployment focused on the long-term goal of complete electrification. These strategies, summarized in Exhibit 2, can provide other transit agencies, particularly those operating in small markets or remote geographies, with a pathway to efficient, economical bus electrification. It is important to note that although emissions reduction was a key objective of this project, the primary motivation was replacing and improving the fleet, thereby elevating the public experience and modernizing transit operations.

Exhibit 2 Strategies for efficient and economical transit bus electrification in island countries

RMI Graphic. Source: RMI analysis

Introducing e-buses required a significant investment in vehicles, charging infrastructure, and site upgrades, and a robust project with sufficient buses was needed to make the case for this large investment. DPT recognized the economics of “digging once” to build sufficient infrastructure for a completely electric fleet and install large-scale upgrades ahead of time. Instead of deploying a pilot, the typical first move when testing technology in a new setting, the Government of Bermuda committed to an electric future by transitioning one-third of its fleet at the outset — a decision informed by economic feasibility and operational needs. DPT electrified at scale to boost savings and infrastructure utilization, plan for future fleet needs, meet public service goals, and solidify the use case of e-buses in Bermuda.

The e-buses served as the first move toward a long-term transportation electrification strategy in Bermuda, exposing many residents to EVs for the first time. The project has resulted in the training and upskilling of a large cohort of technicians and first responders in EV maintenance and operations and nudged the government and the electric utility to consider and plan for EV charging load.

Bermuda’s e-bus deployment presents a compelling example for other island nations. It can also be used as a proof of concept for the Government of Bermuda to drive transportation decarbonization efforts across the country. This project has spurred additional government action on low-emissions transportation, such as electrifying government fleet vehicles, developing national electrification policy initiatives, and assessing and developing solutions to upcoming challenges such as battery disposal. As these initiatives progress, coupled with the expansion of locally generated renewable energy, Bermuda will be well-positioned to benefit significantly from the EV transition, leading to a more sustainable, economical, and resilient future.

Introduction

Improving Service and Air Quality through Electrification

Bermuda began its journey to electrify its public bus fleet in 2018, as DPT, in collaboration with RMI, launched an initiative to electrify the island nation's public bus fleet and make it more reliable, energy efficient, and resistant to the impacts of fluctuating oil prices.[i]

The motivation for this project lay largely in replacing Bermuda's aging diesel bus fleet. In 2018, a large portion of the 120-bus fleet was in disrepair, leading to frequent service interruptions and the need for a large investment in vehicle repair and replacement. Bermuda had already embarked on the clean energy transition by increasing local renewable energy generation. Additionally, the government had taken note of e-bus deployments and evolving battery technologies around the world, and decided this was an opportune time to invest in electric transit on the island. Deploying e-buses enabled Bermuda to address the immediate operational and economic challenges posed by the aging diesel fleet while also reducing fuel and maintenance costs and tailpipe emissions.

> **"These buses embody our commitment to innovation, environmental responsibility, and community well-being."**
>
> **— Adrian Dill, Acting Director, Bermuda Department of Energy**

Driving an EV Revolution in the North Atlantic

With nearly 600 registered EVs[1] — including a fully electric mini-car rental fleet and electrified government vehicles (most recently healthcare and ministerial vehicles)[2] — Bermuda is positioning itself as a leader in the EV transition. The North Atlantic island nation's unique geography and energy landscape make it a strong use case for EVs. The archipelago comprises seven interconnected islands totaling 21 square miles, leading to shorter driving distances that dispel most EV range concerns. Bermuda's topography is made up of low hills traversed by narrow, winding roads, making the high power-to-weight ratio of EVs particularly well suited to local driving needs.

Bermuda's energy is almost completely dependent on oil imports, which raises local fuel and electricity prices. EVs, when deployed in tandem with large-scale domestically generated renewable energy, can help reduce the nation's dependence on imported fossil fuel and lower transportation energy costs, further incentivizing the decarbonization of the broader energy system.

---

i Crude oil prices have increased from approximately $30 per barrel at the start of 2020 to $72 per barrel as of September 2024 (Trading Economics, "Crude Oil Commodity Summary," accessed September 12, 2024, **https://tradingeconomics.com/commodity/crude-oil**).

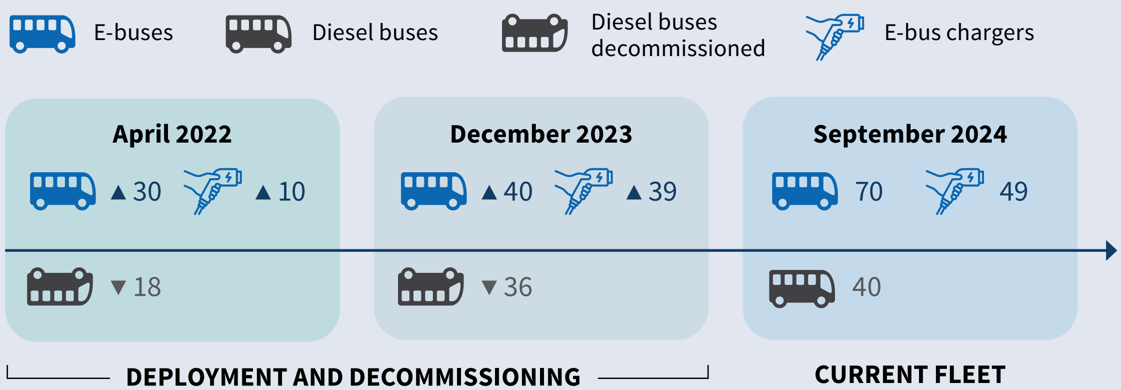
Another critical benefit of EVs for the residents of Bermuda is lowering tailpipe emissions, which improves local air quality. As is common in many island nations, many residents use two-wheel vehicles as their primary personal vehicle, thereby increasing direct exposure to ambient air pollution and making roadside emissions reduction particularly crucial. Recognizing these promising benefits spurred decisive action by the Government of Bermuda to pursue electrification of its public transit system. Its progress is shown in Exhibit 3.

Status Check: 70 Buses Charging Ahead

As of September 2024, Bermuda DPT operates a fleet of 70 e-buses and 40 diesel buses; however, only nine of the diesel buses are typically in service. The e-buses are charged by 49 chargers (50 kilowatt [kW]) at three depots spread across the island.

Exhibit 3

E-bus and infrastructure deployment timeline



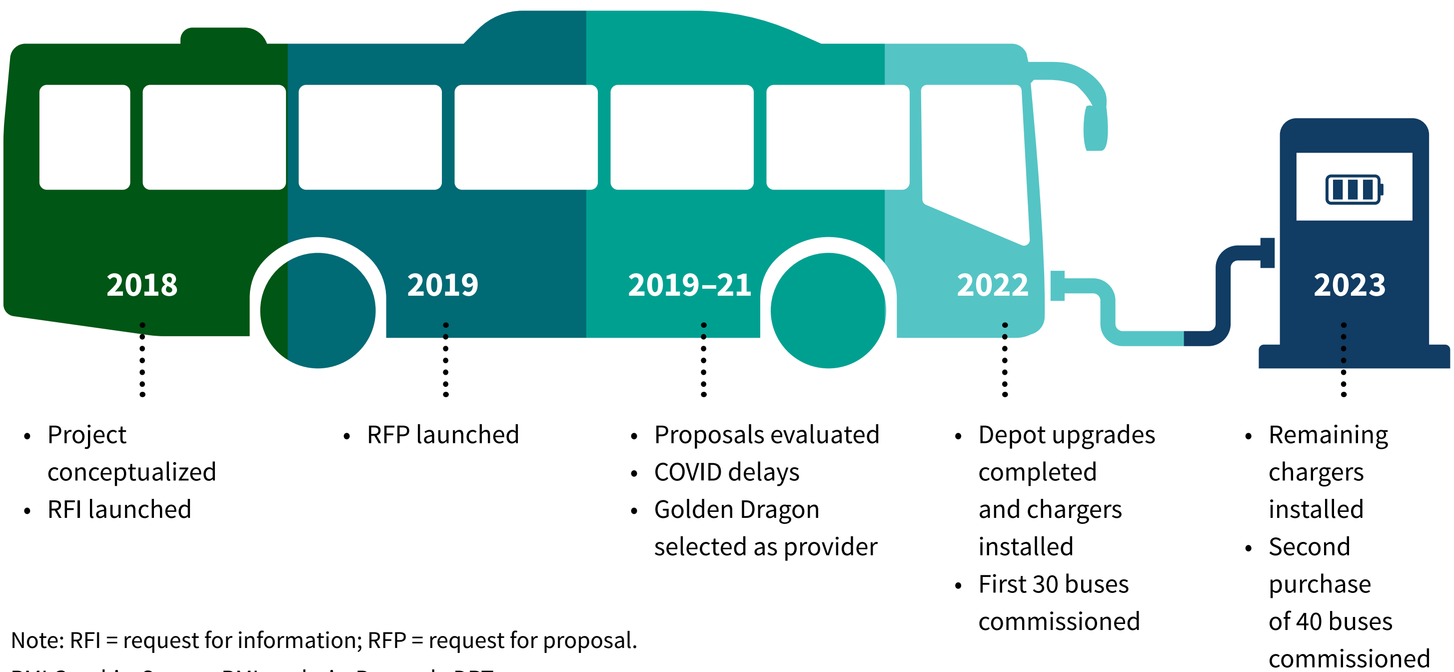
RMI Graphic. Source: RMI analysis, Bermuda DPT

The Road to 100% Electric Operations: Procurement and Charging Strategy

The success of transportation projects is often determined by activities that occur before the project is commissioned. DPT and RMI engaged in comprehensive technical research and analysis, a robust procurement process, and long-term infrastructure planning to support Bermuda in pioneering public transport electrification in the region (see Exhibit 4). This strategic process allowed each component of the project to be deployed intentionally, focusing on the local use case and working toward the goal of a completely electric bus fleet by 2030.

Setting Procurement Goals

Exhibit 4 **Bermuda's public bus electrification journey, from concept to implementation**



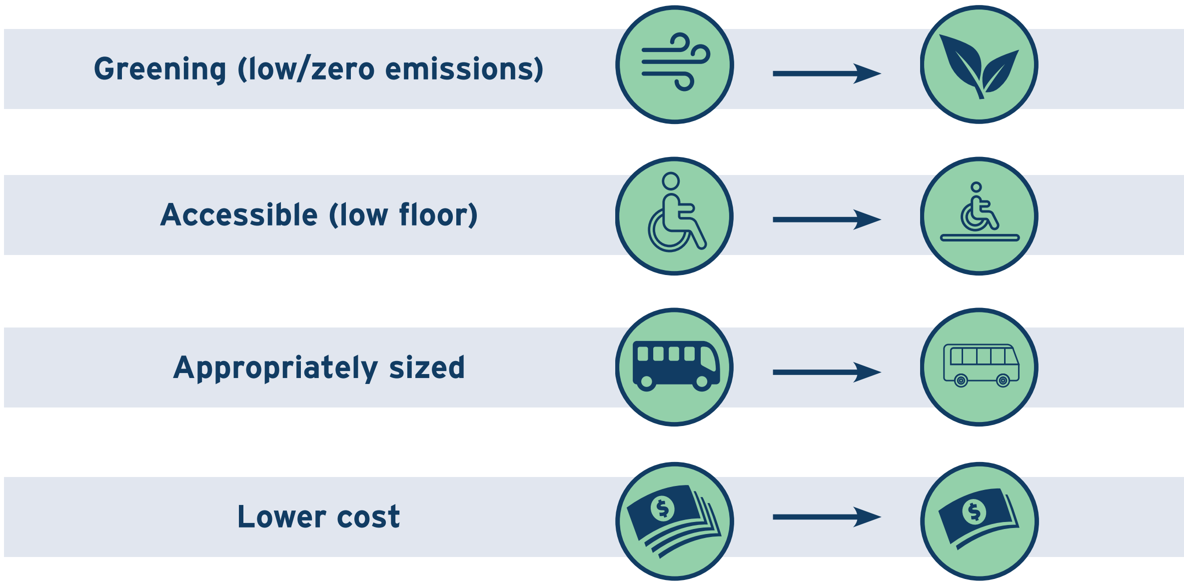
Note: RFI = request for information; RFP = request for proposal.

RMI Graphic. Source: RMI analysis, Bermuda DPT

To assess the availability of electric transit bus models, DPT commenced its search with a request for information (RFI) that sought details on appropriate vehicle models from global manufacturers. The results instilled confidence in the team to move ahead with a formal request for proposal (RFP), which was answered by eight e-bus manufacturers. These proposals were evaluated against the RFP's goals and selection criteria (see Exhibit 5).

DPT sought buses that were right-side drive, low cost, low emissions, and accessible (low floor), that had sufficient seating capacity, and that fit within Bermuda's vehicle size requirements. Vehicles imported to Bermuda must meet width and length requirements that are often narrower and shorter than comparable models. Although the global standard width of city buses is 2.5 meters (m), DPT needed to stay close to 2.3 m, which greatly limited qualifying models.

Exhibit 5 Proposal selection criteria included in Bermuda's RFP process



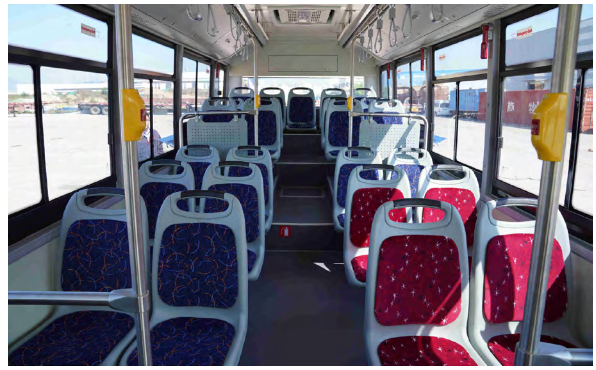
RMI Graphic. Source: RMI analysis

In April 2022, DPT chose Golden Dragon as the vendor for the initial deployment of 30 e-buses, each running on 180 kilowatt-hour (kWh) batteries. Golden Dragon was selected as the supplier due to the company's experience, production time, economics, and ability to provide a product that met Bermuda's requirements.

Golden Dragon is one of the largest bus makers in the world and is an established e-bus manufacturer based in Xiamen, China. It used an existing chassis to develop a model within Bermuda's size requirements without compromising on cost or delivery timelines (see Exhibit 6). Unlike what is often the case with e-buses, these vehicles were offered at a lower cost compared with market competitors and comparable diesel buses, including those operating in Bermuda. Golden Dragon also provided a quick manufacturing and delivery timeframe compared with other original equipment manufacturers (OEMs). The manufacturer provided operator training when the buses were introduced and continues to provide operational and maintenance support on the island.

To combat continuing challenges due to aging diesel buses, DPT received approval to purchase an additional 40 buses in 2024. These buses are equipped with larger 255 kWh batteries and built-in telematics systems, increasing driving range and providing insight into driving trends and battery usage. With telematics systems now installed on all 70 buses, DPT can easily access data on kilometers driven, battery consumption, and efficiency for further operations planning.

Exhibit 6 Handover of the first 30 buses at Golden Dragon's facility in Xiamen, China

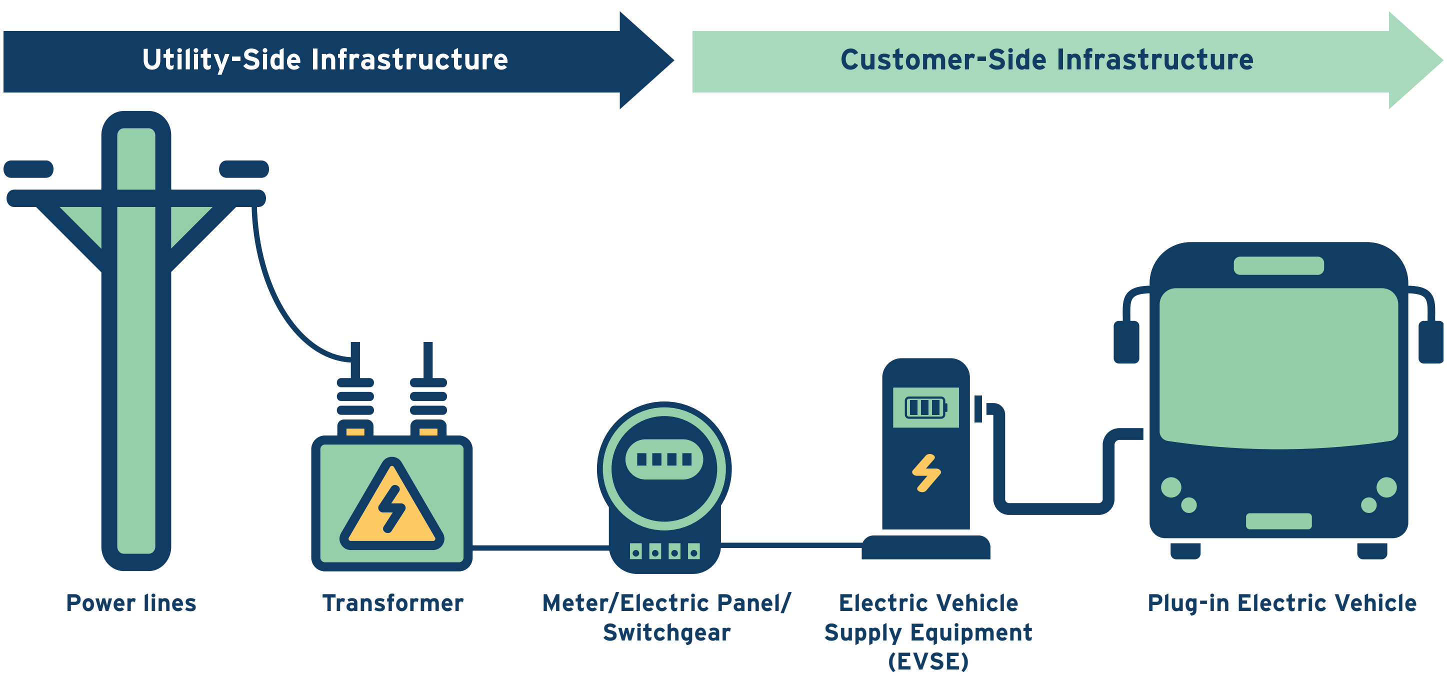


Photos are courtesy of Golden Dragon

Implementing a Long-Term Charging Strategy

Charging infrastructure is an equally important component of electrifying Bermuda's public bus fleet. Although the buses are expected to reach the end of their useful life in 10 to 15 years, much of the infrastructure installed today will be in use for much longer. Two components of charging infrastructure must be planned for: customer-side charging equipment and utility-side supporting electric infrastructure (see Exhibit 7).

Exhibit 7 Components of e-bus charging infrastructure



RMI Graphic. Source: San Diego Gas & Electric

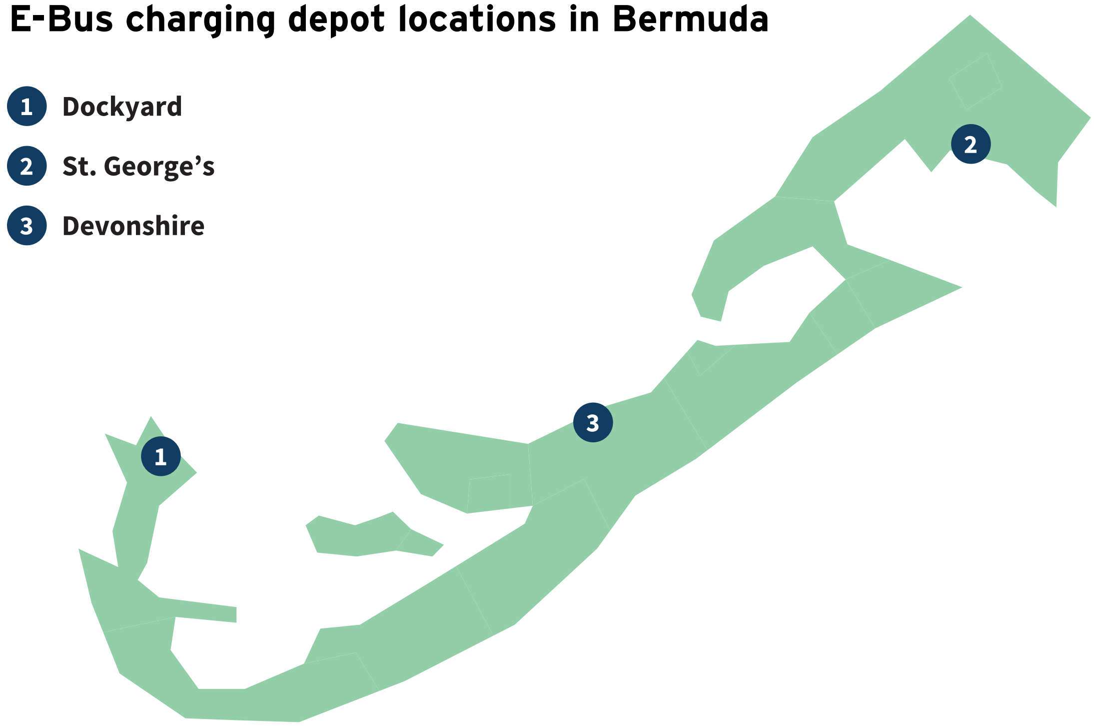
Optimizing Charging Locations for Operation

Bermuda uses three depots for transit bus parking. The main depot located at Devonshire is the central hub and includes refueling, maintenance and servicing, and dispatching. Two depots exist at either end of the island: the Dockyard at the western end and St. George's at the eastern end (see Exhibit 8). Both locations are close to tourist and business centers.

DPT developed a robust charger deployment strategy that utilized this existing structure and optimized for bus operations. Of the 49 dual port 50-kW chargers installed, 30 are concentrated at the central depot. With the end goal of 100 e-buses, this provides one port per bus, solving a complex piece of the planning puzzle by building at a large scale from the start.

Exhibit 8

E-Bus charging depot locations in Bermuda



RMI Graphic. Source: RMI analysis

Charger Specifications for the Local Context

Technical specifications are a key consideration when selecting charging equipment to ensure it can provide power efficiently and reliably. Chargers must be compatible with local voltage requirements and international standards, such as ISO standards for charging protocols and the SAE J1772 North American connector standard. An important requirement for these pedestals was their ability to withstand local weather conditions. Bermuda experiences high humidity and salt spray throughout the year, along with sun exposure and occasional tropical storms that can bring heavy rain and winds. The two charging depots at each end of the island are in weather-beaten locations, with the Dockyard on a narrow piece of land with 360-degree exposure, requiring robust equipment that can withstand wind, water, salt, and sun. Accordingly, IP54-rated chargers were procured from Surpass Sun Electric Co. to ensure protection from the elements.

Planning for Electrical and Civil Upgrades

Major electrical and civil upgrades were required at the sites to support the charging equipment (see Exhibit 9). A key step was to engage with the electric utility to estimate the extent and cost of service connection upgrades. The utility and DPT worked with the Bermuda Department of Planning for permission to carry out these upgrades.

The central depot required 1.8 megawatts to serve 30 chargers, which far exceeded the present capacity at the site. DPT worked with the utility to install an underground 4 kilovolt line connecting two new 800 kilovolt-ampere transformers to supply the chargers. This high-capacity underground cabling created weather resiliency and can support future expansions. For additional resilience, in case of a blackout, the charging depots are assigned Priority 1 by the utility for a safe and prompt return of power.

Exhibit 9 E-buses and charging infrastructure at DPT depots in Bermuda

Photos courtesy of RMI

Charger installation also provided an opportunity to assess the physical design of the charging locations and to optimize them for safe maneuvering and parking of the new buses. Guiding bollards were installed, cable management practices were employed, and the height of some concrete curbs was lowered to safely accommodate the buses. These practices, among others, will help reduce the risk of operator error, minimize damage to charging infrastructure and vehicles, and increase operator safety.

Local Workforce Development

Golden Dragon offered bus and charging equipment training for drivers and DPT staff with the first e-bus order. The government also supported 13 of its technicians in obtaining the Institute of Motor Industry’s Level 3 EV System Repair and Level 4 Diagnosis, Testing, and Repair of Electric/Hybrid Vehicles and

Components certifications to build in-house servicing capacity. Alongside maintenance, EV-specific safety training for the fire department and first responders was critical. Emergency services must be familiar with safe procedures to handle EV systems in case of accidents or fire or if a malfunctioning bus needs to be recovered. The government recommended training programs for first responders to get them up to speed on the technology and ensure safe and effective responses.

When embarking on electrification, the training of operators, maintenance staff, and emergency services is crucial to ensure a smooth transition and maximize the benefits of the investment. Proper training equips staff with the knowledge to operate, maintain, and troubleshoot e-buses effectively, minimizing downtime and repair costs. It also fosters confidence in managing new technologies, enhancing safety and efficiency in operations. Moreover, trained personnel can communicate the advantages of e-buses to the community, promoting public acceptance and encouraging sustainable practices.

Overcoming Barriers to Meet Electrification Goals

Bermuda's journey to an electric transit system faced many challenges, some similar to those experienced in other regions and some unique to the island due to its location, geography, and local requirements. Identifying and overcoming these challenges helped the country meet its electrification goals, presenting a set of best practices that could supply relevant lessons for other transit electrification projects around the world (see Exhibit 10).

Exhibit 10

Solutions implemented in Bermuda to overcome barriers to electrification

Barrier	Context	Implemented Solution
High up-front purchase price of EVs presents an initial obstacle to project financing	A common challenge with electrification projects is the comparatively higher purchase cost of the electric alternative vehicle. Many of the proposals presented options at a higher cost than the previous diesel MAN buses, leading to the need to look beyond up-front costs.	**Drive purchase decisions using long-term project economics:** A total cost of ownership (TCO) analysis enabled DPT to evaluate options based on their total operating cost over the vehicle's lifetime rather than just the up-front cost. Recognizing the value of these long-term savings and utilizing these insights to inform the procurement process greatly affected the perceived economic viability of the project. Golden Dragon offered a bus model at the lowest up-front cost compared with other electric proposals and MAN diesel buses, as well as providing overall TCO savings.
Local vehicle size regulations limit qualifying vehicle models for importation	Bermuda's regulations require that buses brought onto the island be right-side drive and meet specific maximum length, width, and power-to-weight specifications to ensure safety on its narrow, hilly roads. The width limit for buses is 2.3 m while the global standard is 2.5 m, thus eliminating most widely available city transit bus models.	**Prioritize local requirements to choose a suitable vehicle model:** Bermuda included these criteria clearly in its RFI and RFP to prioritize bus models that met the size criteria while also being low emissions, high capacity, and low cost. The Golden Dragon bus was constructed on a preexisting electric midibus platform that met the size requirements while offering sufficient seating capacity.

Continued, next page

Exhibit 10

Solutions implemented in Bermuda to overcome barriers to electrification, *continued*

Barrier	Context	Implemented Solution
Comparatively smaller purchase volumes may not attract OEM interest in regional markets	Although 30 buses represent one-third of Bermuda's bus fleet, transit purchases in many parts of the world often occur at much larger scale. Along with Bermuda's need for a uniquely sized vehicle, most manufacturers would expect a larger procurement to make it worth their resource investment.	**Go beyond a pilot to attract OEM interest:** Bermuda attracted interest from notable global manufacturers by committing beyond a pilot at the very beginning and committing to full-scale electrification soon. Golden Dragon, located quite far from Bermuda, also strengthened its position as it was the company's first deployment in the Central and South American regions.
The need for vehicle replacements and the addition of new technology need to be balanced	The operational capacity of the diesel fleet was critically diminished, significantly affecting the DPT's ability to deliver seamless transportation services. Significant investments were required for engine and transmission replacements, chassis and frame refurbishments and to employ overseas technicians to maintain the aging diesel fleet and keep these depreciating assets in service.	**Employ new technology to improve and modernize operations:** The government recognized the impact of the failing older diesel buses, and that urgent action was needed to bolster the fleet to provide reliable public transportation services. This presented an ideal opportunity to invest in modern technology that would replenish the fleet economically while adding co-benefits.
Extreme weather and other emergencies can pose logistical challenges for e-bus operations	Given Bermuda's location in the North Atlantic, planning for responses to tropical storms and hurricanes must be an integral part of any operational strategy.	**Incorporate storm resilience and emergency response:** Emergency response protocols were updated to consider electric fleet charging schedules and requirements. Protection from the elements was offered by installing underground cables at charging depots and choosing IP54-rated equipment. Charging was also coupled with on-site rooftop solar at the central depot to increase resilience to power outages, with the potential to add on-site battery storage in the future.
Equipment delays can lengthen project timelines and slow deployment	This project was deployed during the global COVID-19 pandemic, which aside from other complexities, presented long lead times for equipment sourcing and delivery such as for transformers, switchgear, and the buses and chargers themselves. The impacts of these disruptions are still being felt globally and are causing delays in electric transportation projects everywhere.	**Plan ahead for supply chain delays:** Although DPT still experienced these impacts, it aligned expectations to account for expected delays — particularly in transformer delivery — and planned operations around them. It was important to plan for known equipment requests ahead of time and consider backup or alternate equipment for vital applications.

RMI Graphic. Source: RMI analysis

Driving the Environmental and Economic Case for E-Buses

Exhibit 11 **Emissions and economic savings from e-bus operations in Bermuda**

Every year, the 70 e-buses will save Bermuda:

Over **$400,000** in fuel costs or funding to purchase **two e-buses**

1,200 tons of carbon dioxide emissions or annual emissions from **600 cars**

800,000 liters of diesel fuel or jet fuel used in **12 transatlantic flights**

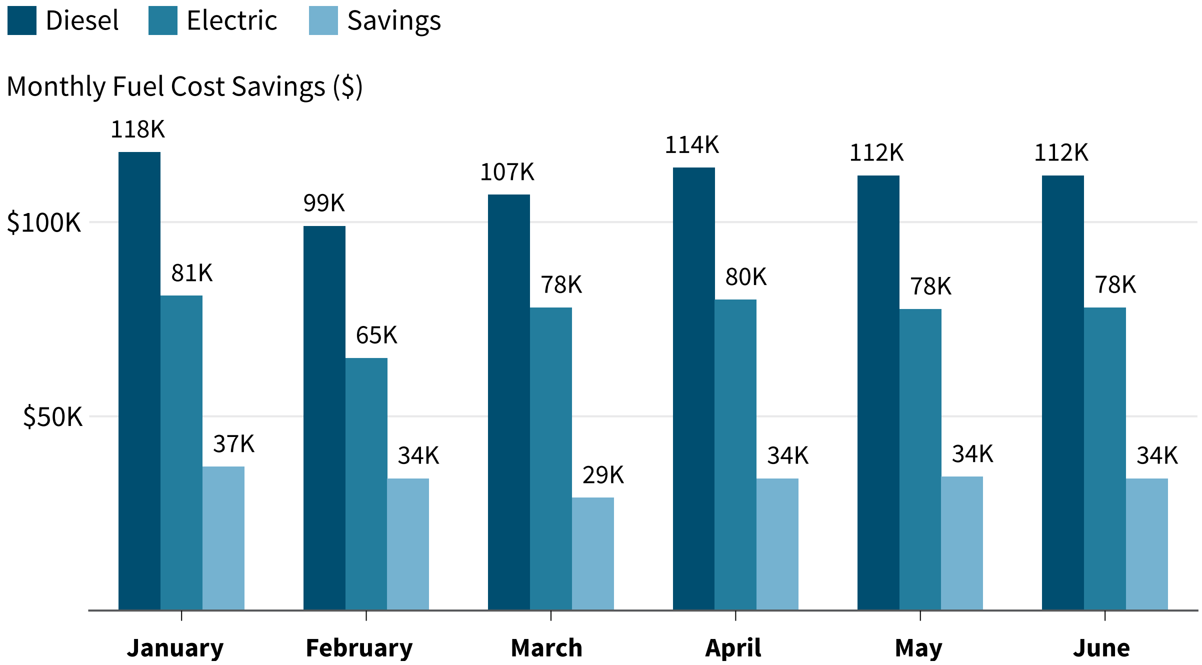
RMI Graphic. Source: RMI analysis, Bermuda DPT

Lower Fuel and Maintenance Costs

Aside from their modern technology, ease of operation, and reduced noise on roads, the 70-bus electric fleet saves the Government of Bermuda over $400,000 in fuel costs every year (see Exhibit 11). These numbers are calculated using charging data, utility bills at each depot location, and bus telematics. DPT is seeing the economic benefits of these vehicles in real-time, along with further savings in parts costs and labor hours due to the lower maintenance required by these buses compared with diesel buses (see Exhibit 12). These savings are sufficient to cover the purchase of at least two new buses each year, aiding DPT in its objective to replace and electrify its fleet economically and efficiently.

Exhibit 12

Monthly fuel cost savings from e-buses ($)



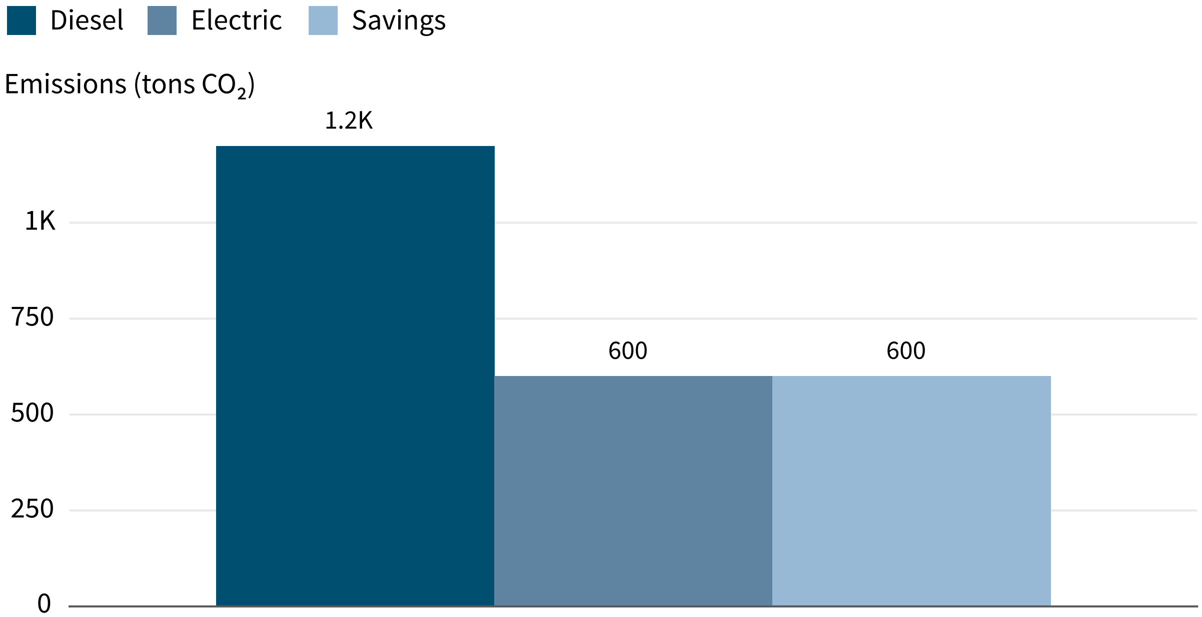
RMI Graphic. Source: RMI analysis, Bermuda DPT

Reducing Emissions and Improving Air Quality

The World Health Organization classifies diesel exhaust as a carcinogen, and research has demonstrated that its constituent emissions, particulate matter ($PM_{2.5}$) and nitrous oxide (NOx), are harmful to humans, even at low concentrations. In 2021, 87% of all reported environmentally related diseases in Bermuda were respiratory in nature, linking them to air pollution.[3] E-buses avoid roadside exhaust completely, improving air quality and reducing public health concerns for Bermuda's residents.

Even using Bermuda's current oil-fueled electricity supply, the e-buses emit 46% less CO_2 emissions per kilometer than comparable diesel buses (see Exhibit 13). The greater efficiency of the e-buses compared with similar diesel buses translates to overall savings in energy, fuel, and emissions. From January to June 2024, the 70 buses saved approximately 600 tons of CO_2 — equivalent to the annual emissions from 300 personal cars in Bermuda. Additionally, the fleet avoids 350 kilograms (kg) of NOx and 4 kg of $PM_{2.5}$ through zero tailpipe emissions every month.

Exhibit 13 Six-month emissions savings from e-buses



RMI Graphic. Source: RMI analysis, Bermuda DPT

In addition to emissions reductions, the fleet has avoided the consumption of 400,000 liters of diesel in six months — equivalent to the jet fuel burned in approximately six 7-hour transatlantic flights. Though the energy used to power these buses is not yet zero carbon, with more renewable generation coming online, electric transportation will only continue to reduce Bermuda's dependence on imported fossil fuels and associated emissions even further.

Continuing Progress and Next Steps

DPT continues to improve and optimize its e-bus operations, expanding its fleet and learning along the way. From educating and training local staff and first responders to tackling the challenges brought by weather and long-distance shipping for replacement parts, DPT has resolved the initial problems of electrification and is on its way to becoming a mature, experienced player in the electric transportation sector.

Expanding the Electric Fleet

As of September 2024, Bermuda's transit fleet includes 70 e-buses and 40 diesel buses. Of the 40 diesel buses, only 30% (9 to 12, on average) are operational; this is approximately 80 total vehicles operating at any time — well short of the 90 needed for optimal service. Although the current fleet maintains consistent operations, to prevent service interruptions and ensure reliable public transit more of the aging diesel buses must be repaired or replaced, which is becoming increasingly unsustainable due to high costs. As an added barrier, DPT faces limited support from its diesel bus manufacturer due to its shift to e-buses and ending diesel bus purchases.

Recognizing the crucial role public transportation plays in mobility and connectivity on the island, DPT is committed to providing access to reliable, efficient, and sustainable transportation options. Therefore, its next objective is to procure 30 additional e-buses to fully electrify the fleet and bring operations to full capacity. This addition would complete the fleet, create necessary redundancies for smooth operation, and position Bermuda well ahead of its goal for complete electrification by 2030.

Maximizing Cost Savings Potential

Although the e-bus fleet is already proving cost-effective for the government, several opportunities exist to maximize fuel cost savings even further. The following levers can result in lower charging costs and optimized usage of available infrastructure.

Demand-Based Billing and Charge Management

The bus fleet currently charges according to the operating schedule and is billed on the electric utility's Small Commercial electricity tariff. As this tariff is based on the total kilowatt-hours used at each location, charge management practices that reduce the hourly peak load do not have a cost-reduction benefit because the charging cost is not dependent on the peak demand. Additionally, the high energy cost within this tariff means the average cost is $0.52 to $0.56 per kWh, among the most expensive electricity rates in the world.[4] Switching to the Class A Demand tariff can reduce charging costs by **20%–40%**, depending on the extent of charging spread across the day and whether a charge management system is implemented.

On-Site Distributed Energy Generation

As of September 2024, the central depot at Devonshire is ready to commission a 427 kW rooftop solar system on its premises. This system will export energy to the grid and achieve savings through a feed-in-tariff, reducing the depot's energy costs by an estimated monthly average of **$6,000**. This will increase total fuel cost savings for DPT to **$500,000** per year. The central depot is also located close to the Tyne's Bay waste-to-energy facility, which exports energy generated from waste combustion to the grid. DPT has explored the feasibility of connecting this generation to the bus depot and, if implemented, could present another opportunity to reduce grid energy, further lowering net charging costs.

Conclusion: Electric Buses are a Proof Point for Island-Wide Electrification

Bermuda's public bus electrification project has been a resounding success (see Exhibit 14) while bringing challenges and learning opportunities for the government. Opportunities exist for further improvement, but there is no doubt that this project has demonstrated significant cost savings, increased the quality and reliability of public transport service, and improved air quality for the residents of Bermuda. Learning from the successes of this deployment and keeping up with global advancements, Bermuda can evaluate its transportation system and develop a nationwide strategy to ensure access to modern, low-emissions vehicles for all its residents.

Building on the success of the bus electrification project and using it as a proof point for other island electrification efforts, the government has undertaken the following:

- Conducted a public consultation process to identify the needs of residents and local stakeholders.
- Proposed a set of policy initiatives for the island to encourage the adoption of low-emissions vehicle technologies.
- Obtained 13 EVs to replace aging government fleet vehicles and conducted electric pilots for other fleet segments.
- Begun developing an early-stage analysis for battery disposal and recycling and a second-life market to determine the best end-of-life strategy for Bermuda's EV batteries.

Additionally, the Regulatory Authority of Bermuda and the electric utility are developing an integrated resource plan that could move Bermuda's grid away from fossil fuel generation and toward cleaner energy resources.

RMI continues to support the Government of Bermuda in its nationwide vehicle electrification initiatives, including analyzing operational data from the e-buses, supporting other government fleet electrification efforts, and helping inform policy development to support local EV adoption. Bermuda's leadership has demonstrated significant progress, but the challenge is far from solved. A suite of decisive policy measures and market interventions is necessary to build momentum and move Bermuda — and all islands — toward a low-carbon, sustainable transportation future.

Endnotes

1 Alva Solomon, "MPs Approve Legislation for Larger Electric and Hybrid Cars," *Royal Gazette*, July 2, 2024, **https://www.royalgazette.com/transport/news/article/20240702/mps-approve-legislation-for-larger-electric-and-hybrid-cars/**.

2 Sekou Hendrickson, "Electric Vehicles Unveiled for Health Teams," *Royal Gazette*, May 30, 2024, **https://www.royalgazette.com/health/news/article/20240531/electric-vehicles-unveiled-for-health-teams/**; and Alva Solomon, "Government Replaces Ministerial Fleet with 13 New EVs," *Royal Gazette*, September 14, 2024, **https://www.royalgazette.com/politics/news/article/20240913/government-replaces-ministerial-fleet-with-13-new-evs/**.

3 Government of Bermuda, *Environmental Statistics Compendium, Department of Statistics*, 2022, **https://www.gov.bm/sites/default/files/2022%20Environmental%20Statistics%20Compendium.pdf**.

4 "Cost of Electricity by Country," World Population Review, 2024, **https://worldpopulationreview.com/country-rankings/cost-of-electricity-by-country**.

Aradhana Gahlaut, *Energizing Public Transit for Islands: Lessons from Bermuda's Electric Bus Initiative*, RMI, 2024, **https://rmi.org/insight/energizing-public-transit-for-islands-lessons-from-bermudas-electric-bus-initiative/**.

RMI Innovation Center
22830 Two Rivers Road
Basalt, CO 81621

www.rmi.org