Electric-Hybrid Bus Transportation in Aruba
Austen Schmalz and Tracy Schmorleitz

Problem Statement
This project analyzes the economic and environmental costs and benefits of supporting the conversion of fuel oil operated buses to electric-hybrid buses.

Introduction
As of 2013, Aruba’s bus fleet is made up of 116 diesel buses. Aruba’s goal of 100% renewable energy by 2020 can be complemented by the goal to improve the operating performance of its future bus network and achieve a best practice bus fleet for the island of Aruba. A best practice fleet is a fleet that will deliver an efficient, cost-effective service that also meets the region’s environmental and social goals.

Route Mapping
While operating under the electric motor only, an average distance of 7 km can be traveled between charging, making the Volvo ideal for the small routes seen on the island of Aruba.

Volvo 7900 HE
The Volvo electric hybrid driveline can save up to 60% total energy savings and reduce up to 75% emissions and fuel consumption.

Charging System
Bus charging system can be completed in up to 6 minutes and will either finish when the 19 kWh capacity battery is full or when the driver prepares to depart.

Future Steps
Configuration of charging stations into a power grid?
Shipping in new vehicles/shipping out old?
Expanding similar vehicles into other means of transportation such as taxis and rental cars?

Special thanks to TNO, The University of Aruba, ASU, UWI, and BRIDGE for the opportunity to conduct and present this work!

Austen Schmalz: (austenschmalz@yahoo.com)
Tracy Schmorleitz (tracyschmorleitz@gmail.com)