THE BARBADOS LIGHT & POWER COMPANY LIMITED

Barbados Transport Board E-Bus Project

CCREEE Regional Electric Vehicle Strategy Seminar

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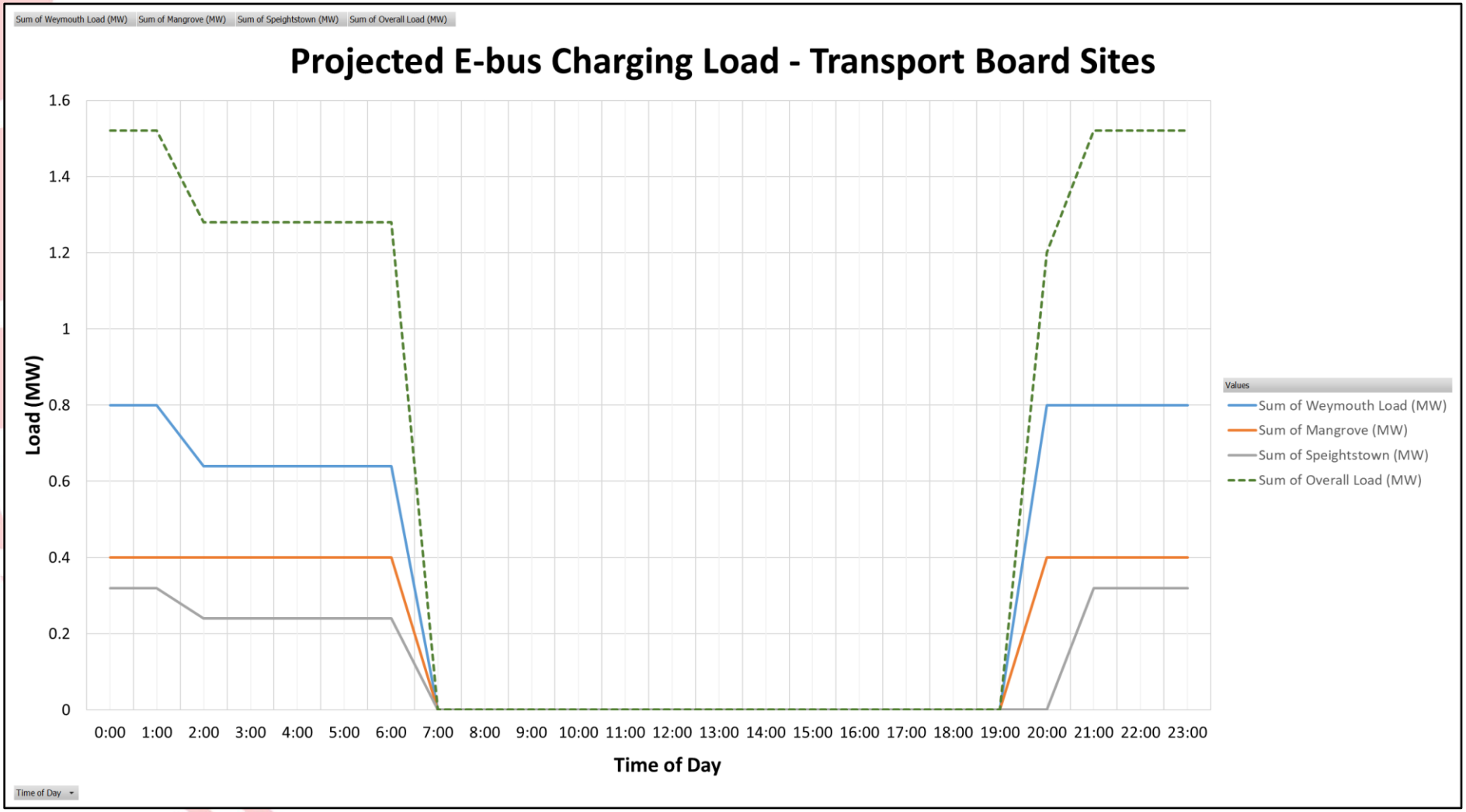
Summary of Project

- **Biggest Public Transit Electric Bus Project in Caribbean**
- **33 x BYD K8 Electric Buses** (+ 2 Buses from MEWR Smart Energy Fund)
- **3 x Electric Depots**
  - 18 Buses
  - 10 Buses
  - 5 Buses (+ 2 buses)
- **Driving Range: ≈ 240 km (with AC)**
- **Charging Philosophy**
  - Overnight Charging Only
  - No Opportunity Charging
  - Power Capacity to charge 50% of buses at each depot simultaneously
  - 80 KW chargers per bus (≈ 3 hours for a full charge)
- **Electronic Load Management System**
- **Fleet Management and Monitoring**
- **Electric Vehicle Training**
- ***Solar PV***

Proposed E-bus Charging Profile

High Demand, Low Load Factor Energy Consumption!!



Improving the Transport Sector Through Electrifying Public Transportation

1. **Reduced Operational Costs**
   - Fueling Costs
     - $0.78/km to $0.96/km in electricity for Electric Buses
     - $1.41/km to $1.80/km in Diesel for ICE Buses *(very conservative)*
     - *Savings of $2M+/year for 33 Buses*
   - Maintenance Costs
     - Much reduced maintenance costs expected
     - Increased bus availability expected
2. **Improved Comfort and Commuter Experience**
   - Air Conditioning
   - USB Charging Ports
   - Wi-Fi
   - Wheel Chair Access Ramps
3. **Improve Environmental Impact**
   - Reduction in CO_2 and particulate emissions
4. **Improved Air Quality**
5. **Reduction in Noise**

Leveraging Technology to Improve Transportation Planning and Operation

1. **Load Management and "Smart Charging"**
   - Fully maximize the variation in costs of electricity at different times of the day
     - i.e. Charging during off-peak period and maximizing lower electricity rates
   - Further optimize and reduce charging costs by managing the number of buses simultaneously charging and hence Demand Charges

2. **Investment in Solar PV to further offset expenses**
   - Transit Authorities can invest in renewable energy to further offset their fueling costs

3. **Fleet Management and Tracking**
   - Understanding how driver styles, routes, passenger loading, environmental conditions and other variables affect your costs for providing transportation service
   - With the additional data you can effectively plan how you dispatch buses for continuous improvement