What Fleet Electrification Means for Bus HVAC
Craig Norris
Western Region Sales Manager at Mobile Climate Control

Machinery Technician, U.S. Coast Guard

Maintenance Manager, Laidlaw Transit Services

"A" Technician, Motor Coach Industries

UC Irvine, BA Philosophy

Fleet Maintenance Consultant, Vehicle Technical Consultants, Inc.
Context

Why do we have HVAC on buses?

Comfort → Increase Ridership
Context

Refrigeration Cycle
Most Notable Difference:

A/C Compressor Driven by Internal Combustion Engine

A/C Compressor Driven by High Voltage Alternating Current Electric Motor Located in the HVAC Unit
Similarities

Refrigeration Cycle

Refrigerants Will Remain the Same (for now)

HVAC Unit Location and Configuration

Driver Controls

HVAC’s Purpose
Differences

What Drives the Compressor

Heating

Btu/hr Output

Internal Electronics

Price
Pros

Amount of Refrigerant Needed for Proper Charge – Much Less!

Electronics

Self-contained Unit

Compressor Output Options

Reduced Maintenance
Cons

Managing Efficiency and Battery Draw

Real Estate on the Roof

Adjusting to New Technology

Price
Managing Efficiency

Monitoring/Restricting HVAC Usage

Using Lower Pressure Refrigerants

Using the Heater More Intentionally

Spec the Right HVAC System for Your Climate

Demand More From the OEM
Emerging HVAC Technology

Alternative Heating Methods

New, More Environmentally Friendly Refrigerants

Remote Software Updates

Telematics and A.I./Machine Learning
Questions?

Craig Norris
Western Region Sales Manager
Mobile Climate Control
Mobile: 574-349-1066
Email: Craig.Norris@mcc-hvac.com