

Electric Buses



Current Top Manufacturers

- Proterra
- BYD
- New Flyer
- Complete Coachworks



Proterra

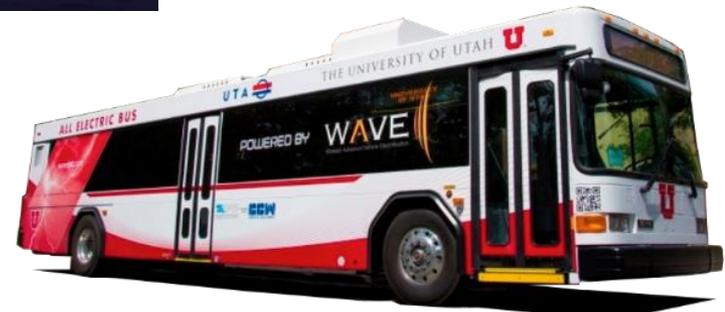


BYD

Complete Coach Works



New Flyer



Electric Buses



BYD Demo April 2015

THE **WORLD'S LARGEST** BATTERY ELECTRIC VEHICLE



BYD MOTORS IS A CALIFORNIA MANUFACTURER OF ZERO EMISSIONS VEHICLES.

Electric Buses



BYD Demo April 2015

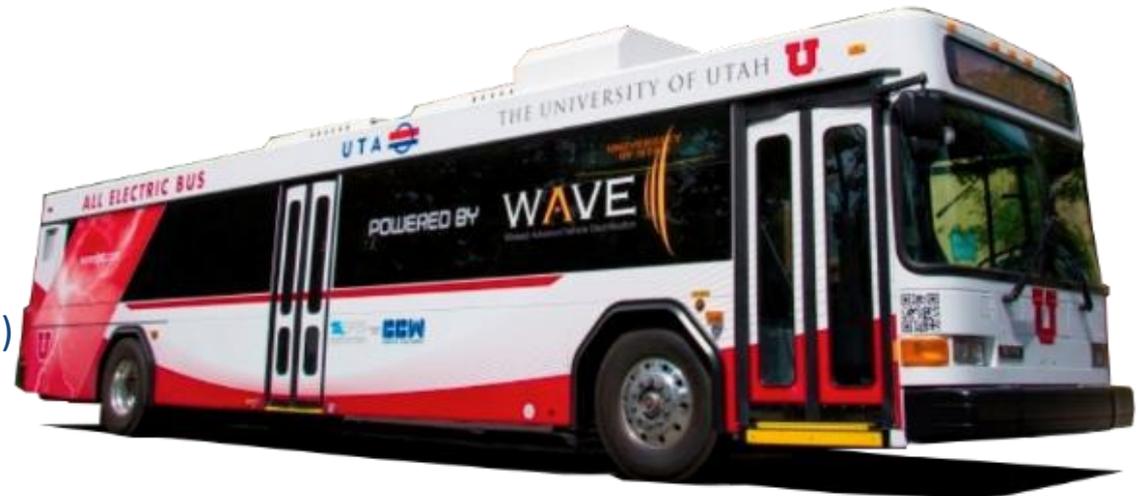


Electric Buses



Charging Technologies

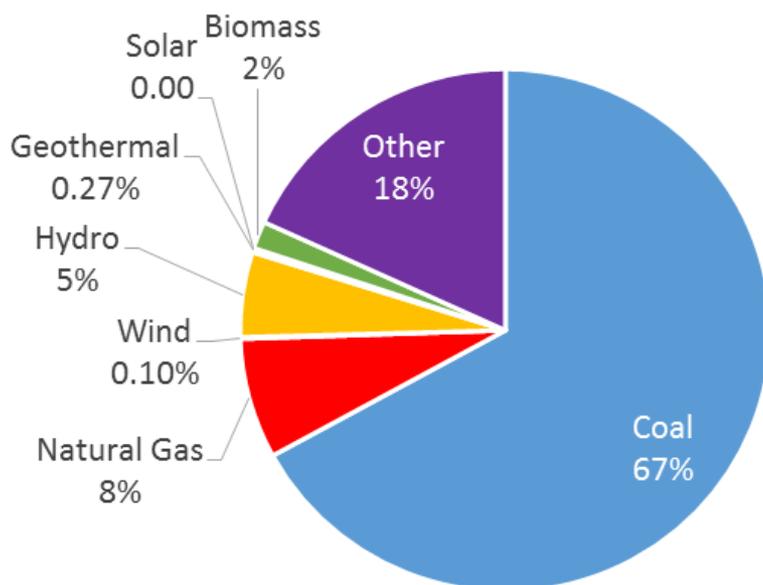
- Conduction
 - Overhead (Proterra)
 - Overnight or Plug in (BYD)
- Induction (contactless)
 - Ground Embedded (WAVE)



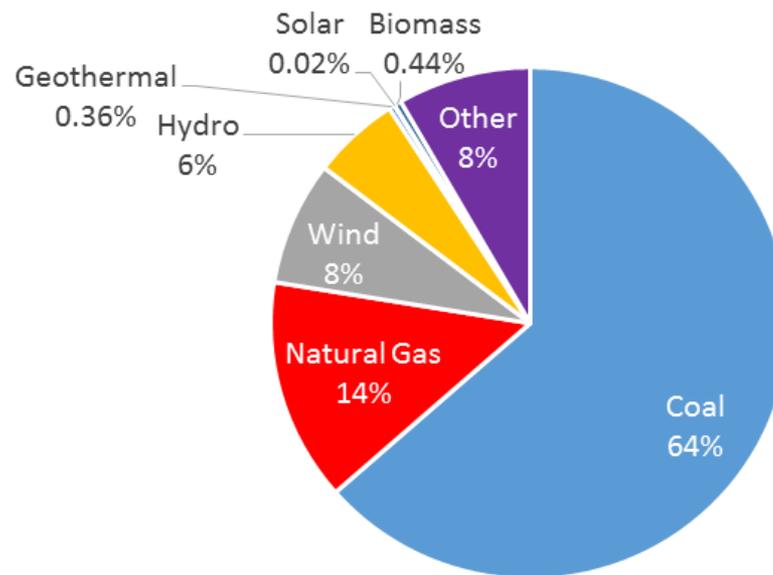
Electric and CNG Buses...the Perfect Utah Fleet?



2005



2013



Rocky Mountain Power: Energy Generation in Utah

Paratransit Applications

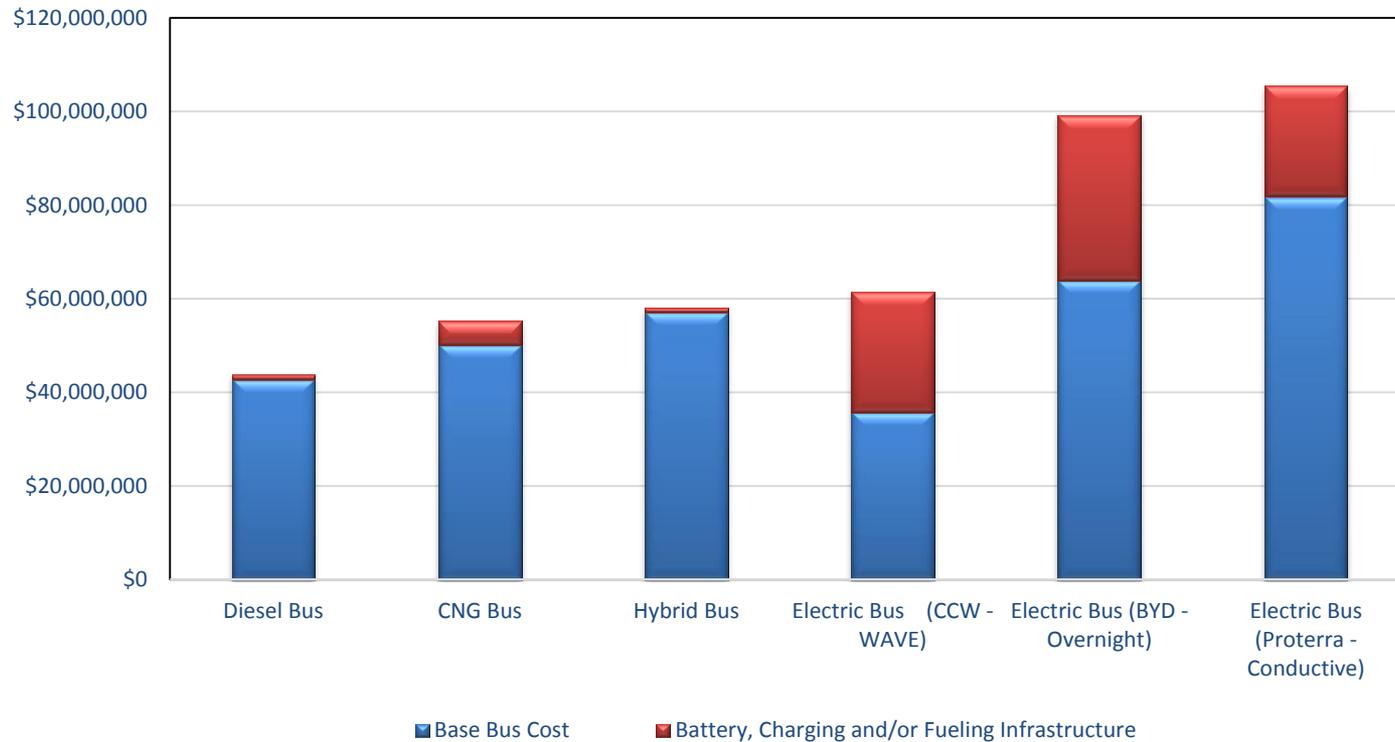


- UTA paratransit vehicles (diesel) spend roughly 30% of their time idling (which takes as much fuel as operating at full speed)
- In 2015, awarded a \$700,000 FTA grant to outfit 2 paratransit vehicles with hybrid-drive systems

Capital Cost Comparisons



Bus Capital Costs*



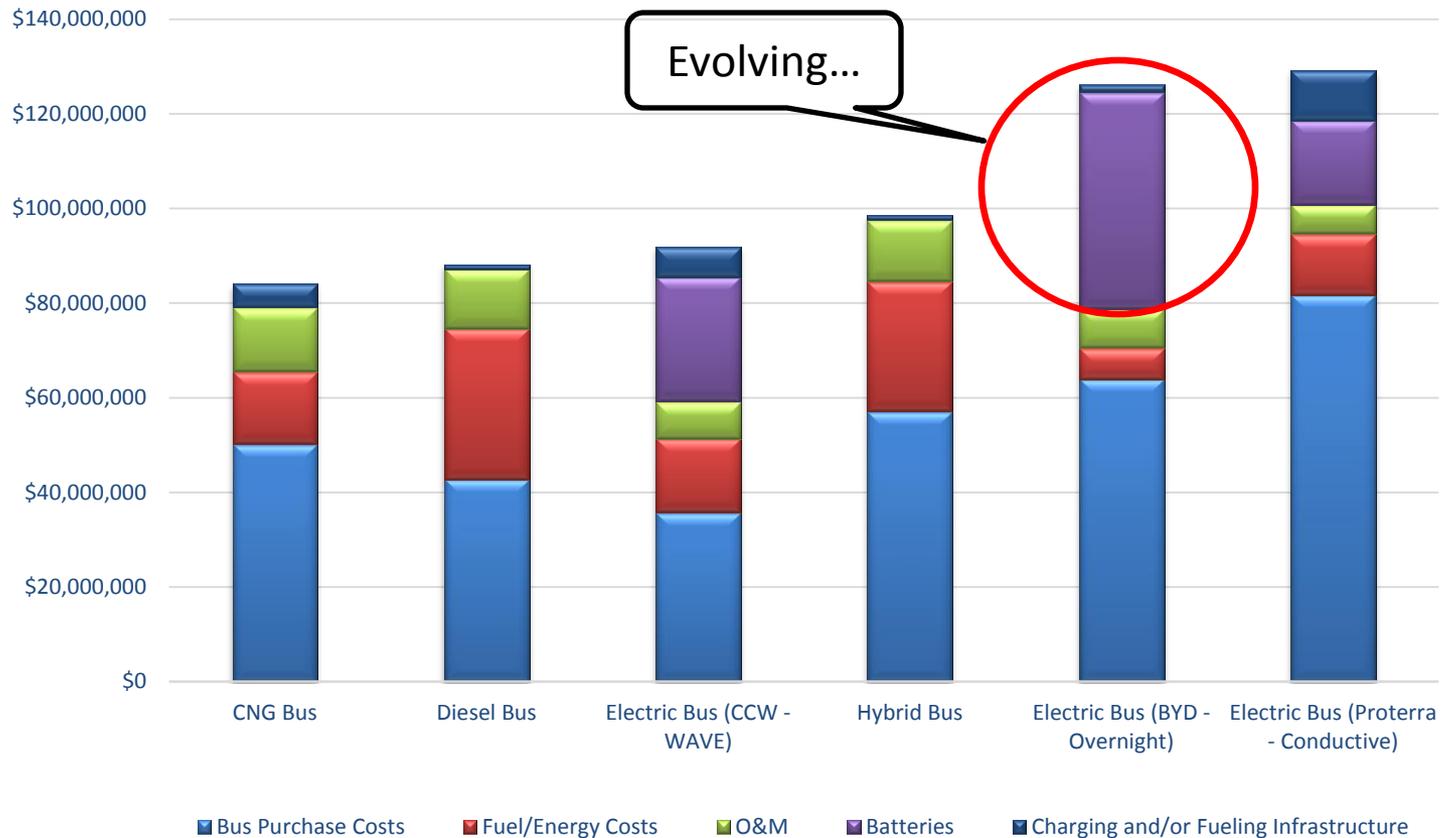
*Assumptions:

- Fleet size = 100 buses
- Electric charging infrastructure per five (5) buses
- \$5 million for new CNG fueling facility for one hundred (100) buses
- \$1 million for new diesel fueling facility for one hundred (100) buses

Projected Lifecycle Cost Comparisons



Lifecycle Costs*



***Assumptions:**

- Fleet size = 100 buses
- Electric charging infrastructure per five (5) buses
- \$5 million for new CNG fueling facility for one hundred (100) buses
- \$1 million for new diesel fueling facility for one hundred (100) buses
- 3% annual electricity cost increase
- 7% annual fuel price increase
- 34,000 annual miles (UTA average)
- Twelve (12) year vehicle life
- At least one (1) battery replacement for electric vehicles
- Numbers shown are in Net Present Value (NPV)

Beyond Buses



Thank You



Matt Sibul
Chief Planning Officer
Utah Transit Authority
msibul@rideuta.com
801.649.7308