

# Leveraging Unique Funding Sources for Sustainable Transit Projects



APTA Sustainability Conference 2018 - Vancouver

July 30, 2018



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1. Battery Electric Bus Costs – Why Financing Can Help
2. Municipal Bonds
3. Green Bonds
4. Volkswagen Settlement Funds
5. Capital Leasing for Buses
6. Battery Leasing/Service Agreements
7. Other Grants, Vouchers and Funding Sources
8. Combination Fund Sources

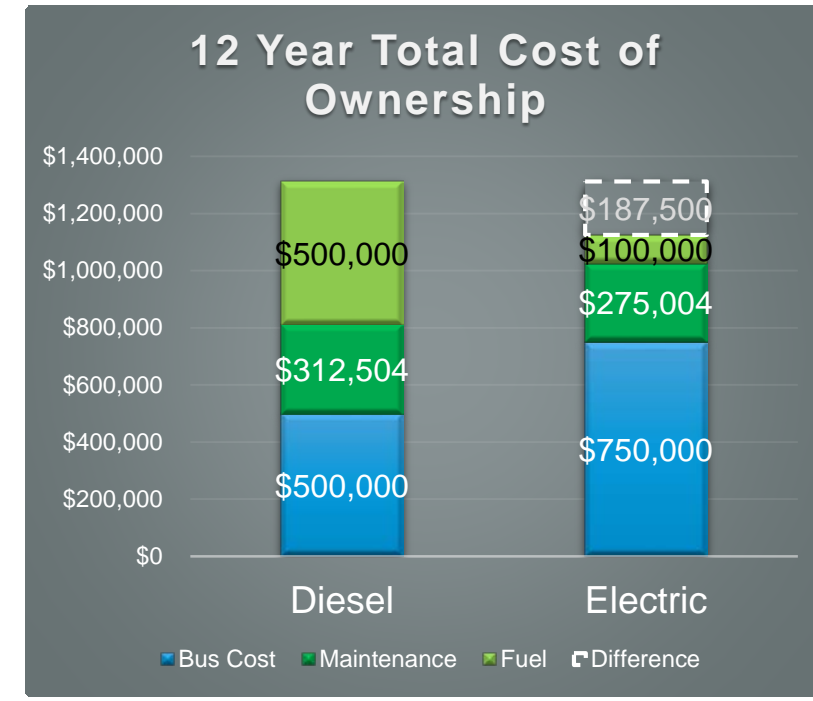
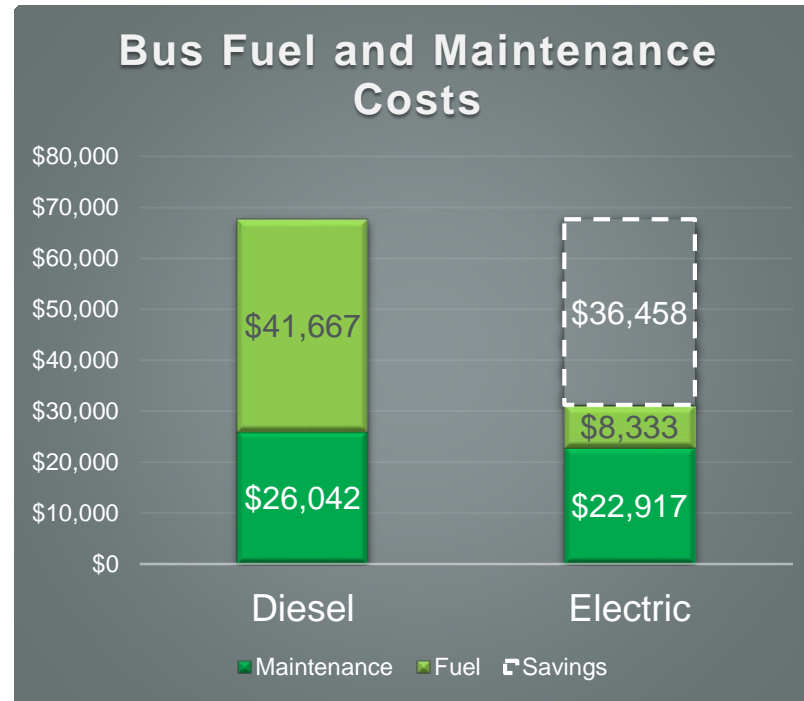
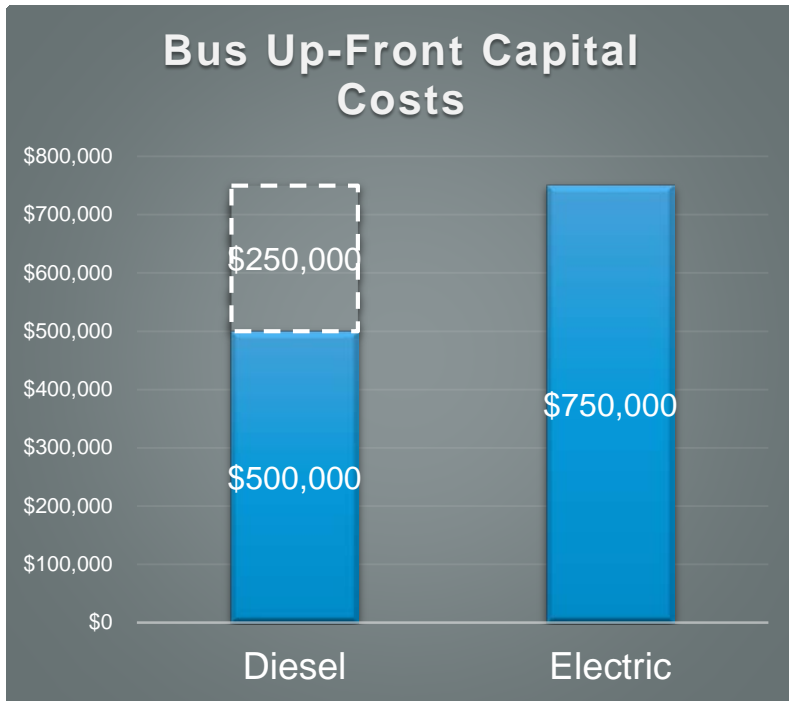
# OPERATING COST ASSUMPTIONS



	Diesel	Proterra	
Bus Cost	\$500,000	\$750,000	
Annual Miles	41,667	41,667	
Fuel Cost (\$/gal, \$/kWh)	\$2.50	\$0.10	
Fuel Efficiency (miles/gal, DGE)	4	19	Annual
Parts, Mid-life Refurb, Maintenance (\$/mile)	\$1.00	\$0.55	Difference
<b>Total Annual Operating Costs</b>	<b>\$67,708</b>	<b>\$31,250</b>	<b>\$36,458</b>

# 1. BATTERY ELECTRIC BUS COSTS – WHY FINANCING CAN HELP

- Battery electric buses cost less than diesel buses over a lifetime

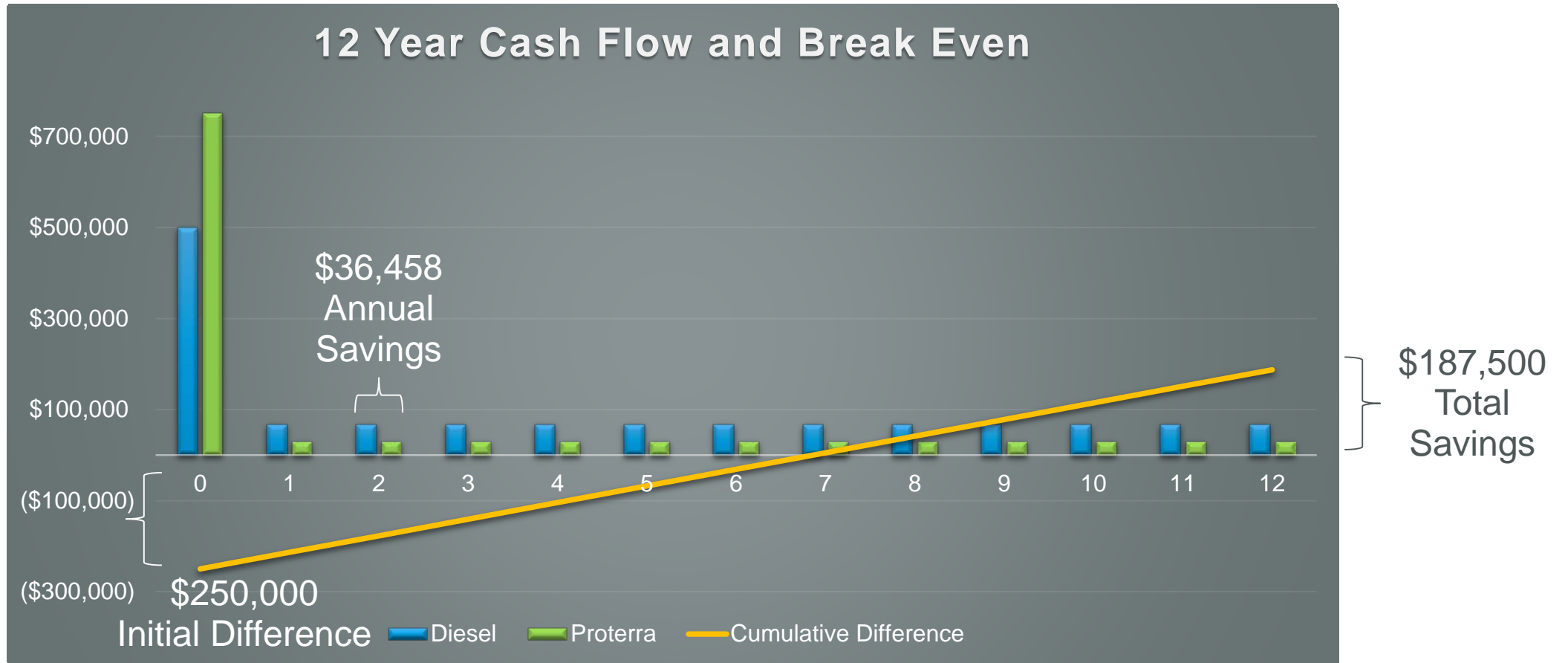


- Electric buses have higher upfront cost vs. Diesel buses

- Lower annual fuel and maintenance costs

- 12 year combined Total Cost of Ownership is lower

# 1. BATTERY ELECTRIC BUS COSTS – WHY FINANCING CAN HELP

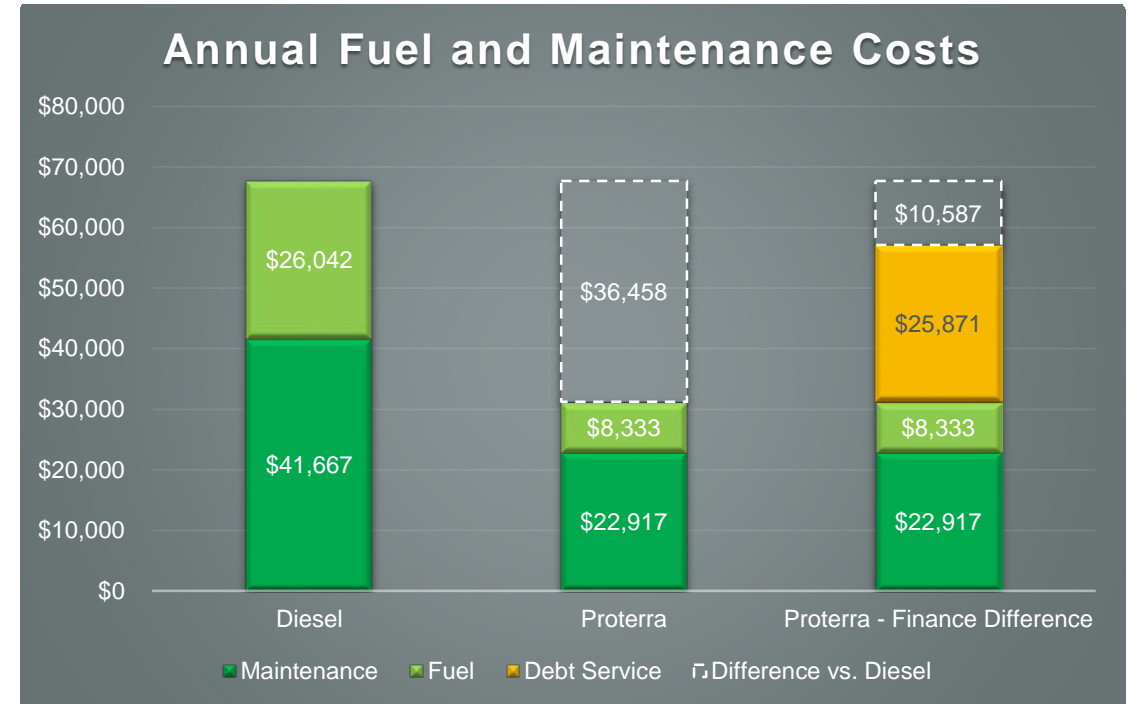
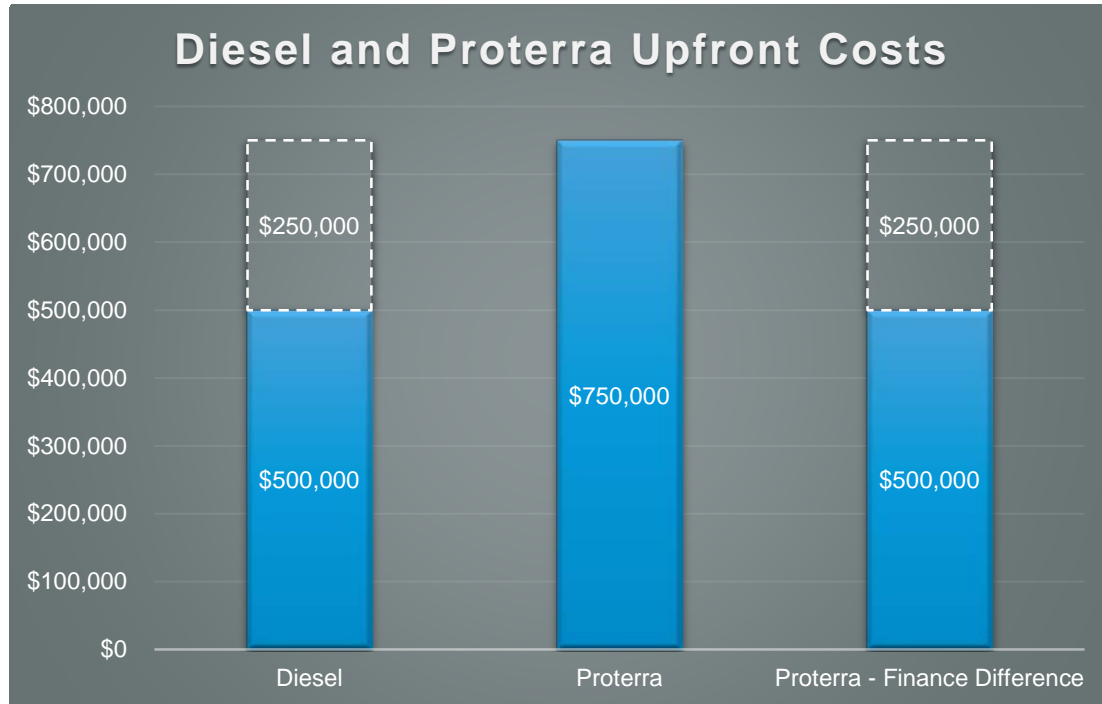


## 2. TAX-EXEMPT MUNICIPAL BONDS - OVERVIEW

- Financial instrument issued by local governments to finance capital intensive projects today, repay over time as project is used
- Low interest rates
  - Tax-exempt interest
  - Strong municipal credits
- Collateral
  - Sales tax
  - Property tax, etc.
- Source of Repayment
  - Operating funds or savings
  - Dedicated taxes/revenue sources



## 2. TAX-EXEMPT MUNICIPAL BONDS – FINANCING THE DIFFERENCE



Bond payment costs assume \$250,000 financed over 12 years with 3.5% rate



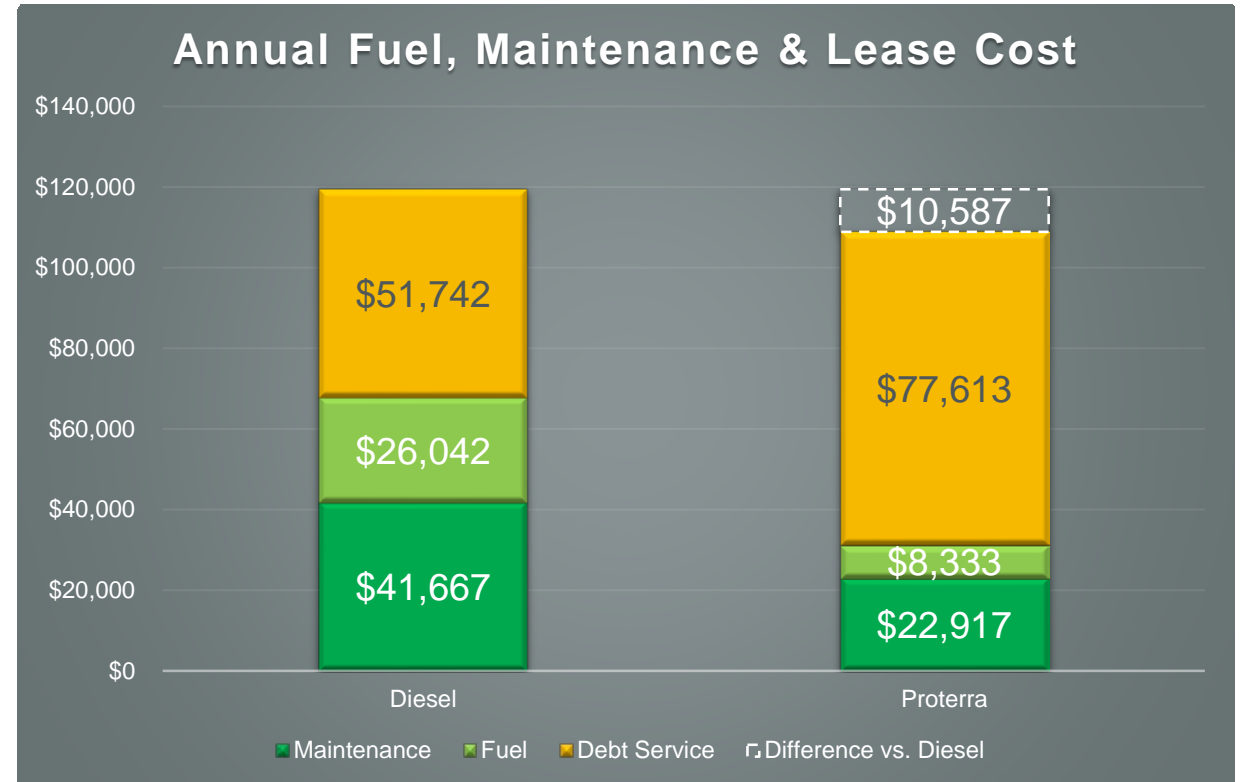
## 2. TAX-EXEMPT MUNICIPAL BONDS – FINANCING 100% OF PROJECT

### 100% Project Finance Calculations

	Diesel	Proterra
Financed Amount	\$500,000	\$750,000
Interest rate	3.50%	3.50%
Term	12	12
Annual Payment	\$51,742	\$77,613

Total annual savings of  
\$10,587 X's 12 years =  
total savings of \$127,044

### Annual Fuel, Maintenance & Lease Cost



### 3. GREEN BONDS

- A green bond is one whose issuer commits to using 100 percent of bond proceeds for environmentally friendly purposes.
- “Financing the Response to Climate Change: The Pricing and Ownership of U.S. Green Bonds,” 2018 Municipal Finance Conference July 16-17, 2018
- 2,083 Green Bonds and 643,299 ordinary municipal bonds issued between 2010-2016 were analyzed
- Findings - green municipal bonds are on average 0.06 percentage points below yields paid on otherwise equivalent bonds.
  - A subset of investors may be willing to give up returns in order to hold green bonds, and that municipalities could save money by issuing green rather than ordinary bonds



# GREEN BONDS

Volume of Issuance of Green and Ordinary Bonds by Use of Proceeds, 2010-2016		
Use of proceeds	Green (\$ M)	Ordinary (\$ M)
Mass/Rapid Transit	1,480	27,100
Pollution Control	19	10,200
Land Preservation	0	505
Water and Sewer	5,210	170,000
Other	5,928	1,618,355
<b>Total</b>	<b>12,637</b>	<b>1,826,160</b>

# 4. VOLKSWAGEN SETTLEMENT OVERVIEW

- \$2.9 billion nationwide in Trust to invest in technologies that reduce harmful emissions
- September 19, 2017 – Trust Effective Date Declared
- Beneficiary Mitigation Plans (BMP) prepared by each state
- Funds could be available in 2018

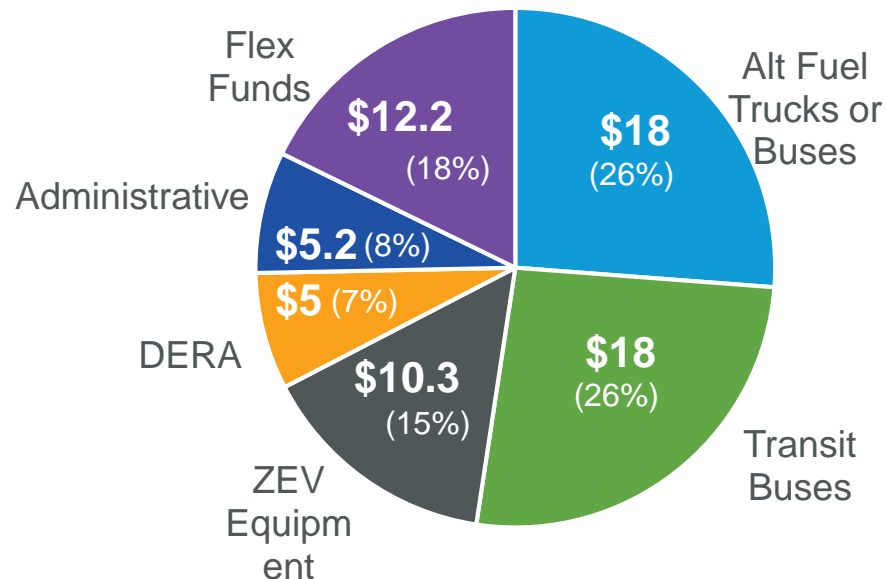


**Volkswagen Settlement**

BMP Example:



Colorado \$68.7 M Proposed Spending Plan (\$ millions)



## Final BMP Issued (7/25/18)

State Beneficiary	Allocations (\$)
Arizona	\$56,660,077
Arkansas	\$14,647,708
California	\$422,636,320
Colorado	\$68,739,918
Connecticut	\$55,721,169
Georgia	\$63,624,725
Idaho	\$17,349,037
Maine	\$20,453,064
Minnesota	\$37,001,660
Nebraska	\$12,248,347
Nevada	\$24,874,023
New Mexico	\$17,982,660
Ohio	\$75,302,522
Oklahoma	\$20,922,485
Oregon	\$72,967,517
Pennsylvania	\$118,569,538
Rhode Island	\$14,368,857
Utah	\$35,177,506
Vermont	\$18,692,230
Washington D.C.	\$8,120,000
Wisconsin	\$67,077,457
Wyoming	\$8,120,000

# 5. FEDERAL GOVERNMENT CAPITAL LEASING CHANGES



## FTA Guidance on Leasing Has Changed

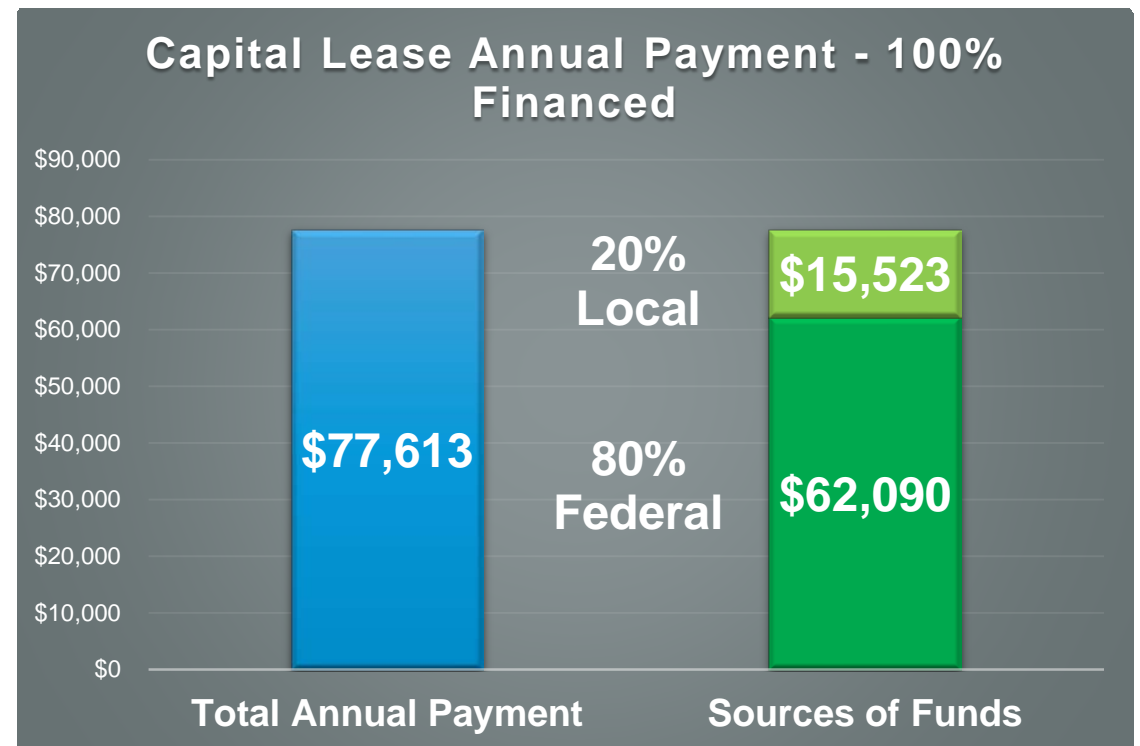
OLD	NEW
<p><b>TEA-21</b> <b>49 CFR 639 Capital Leases</b></p>	<p><b>FAST Act 3019 (c )</b> <b>Leasing Arrangements</b></p>
<p>Limiting the leasing arrangements to those that are <b>more cost-effective than purchase</b> or construction</p>	<p>Remove the limitation of leases to those that are more cost effective than purchase or construction</p>

- **FTA Eligible Lease Costs Include:**
  - Equipment
  - Interest
  - Maintenance
- **Historically, only 7%, or 12,234 of 174,422 vehicles have been leased**

### Capital Lease - 100% Financed

	Assumptions
Bus Cost	\$750,000
Amount Financed	\$750,000
Assumed Interest Rate	3.50%
Term (Years)	12
Annual Payment	\$77,613

### Capital Lease Annual Payment - 100% Financed



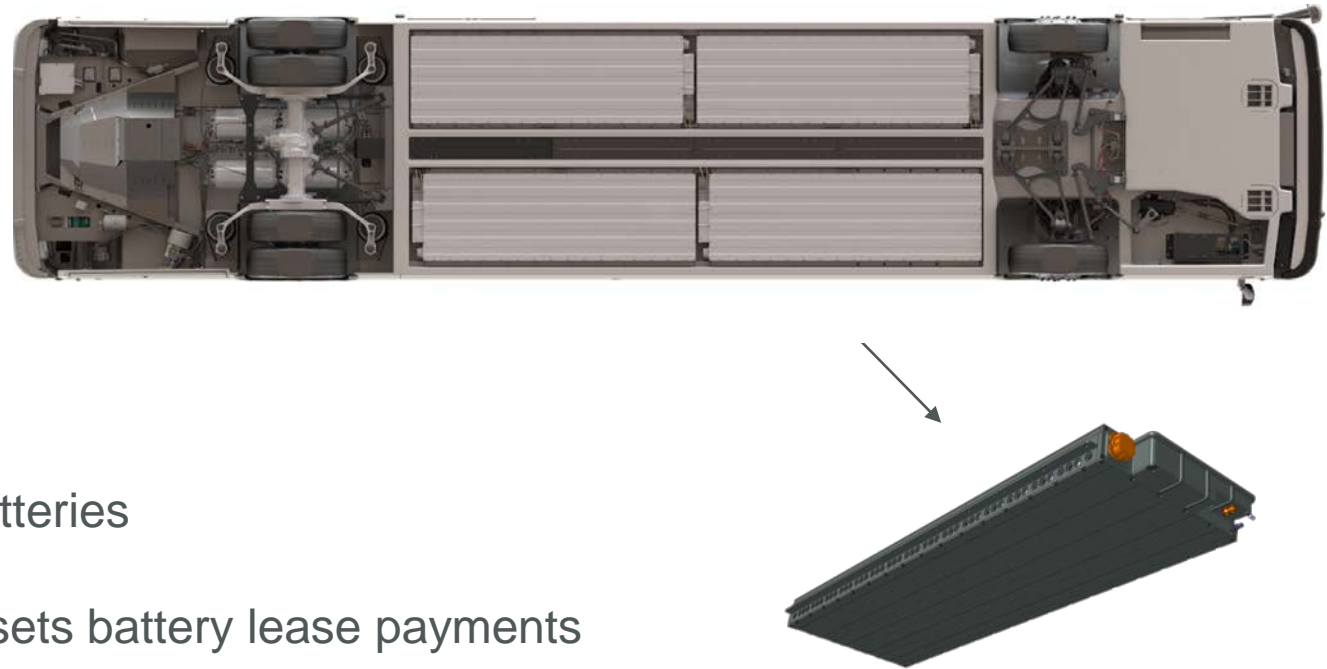
## 6. BATTERY LEASE OVERVIEW

Fast Act authorized leasing *“a power source that is separately installed in, and removable from, a zero-emission vehicle; . . . may include a battery”*

Low-No eligible projects include *“acquiring low- or no-emission buses with a leased power source.”*

### WHY LEASE BATTERIES?

1. Purchase electric bus WITHOUT battery
2. Pricing parity with fossil fuel bus
3. Manage midlife battery replacement cost
4. Eliminate risk of owning, fixing and replacing batteries
5. Savings from lower fuel and operating costs offsets battery lease payments
6. Faster full conversion to electric bus fleet



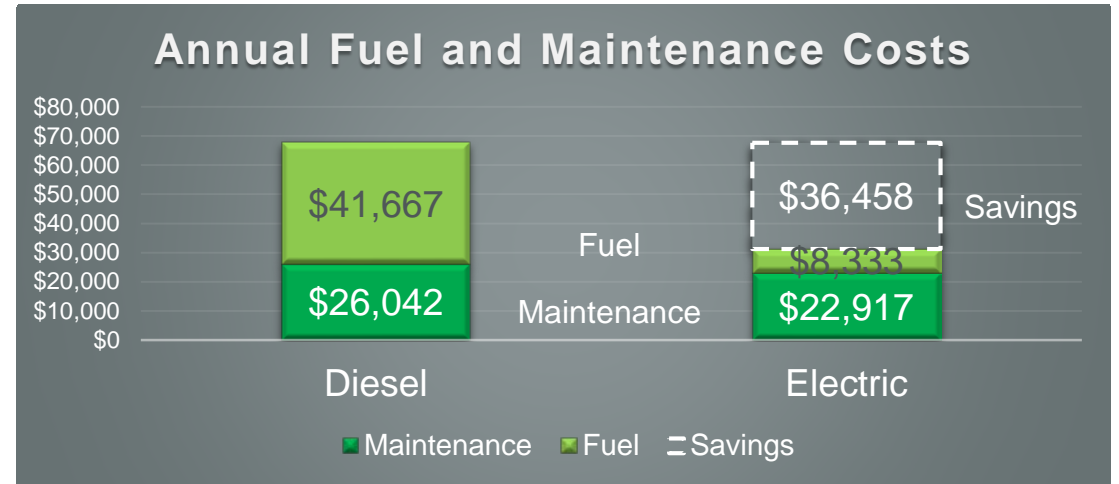
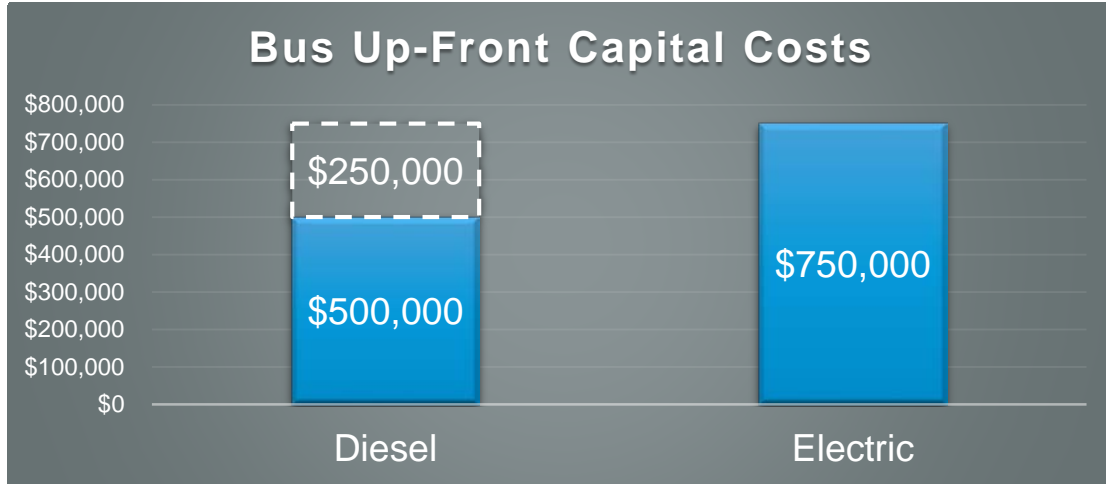
# BATTERY LEASING EXAMPLE

## Reduced BEB Operating Costs Offset Battery Lease Payment

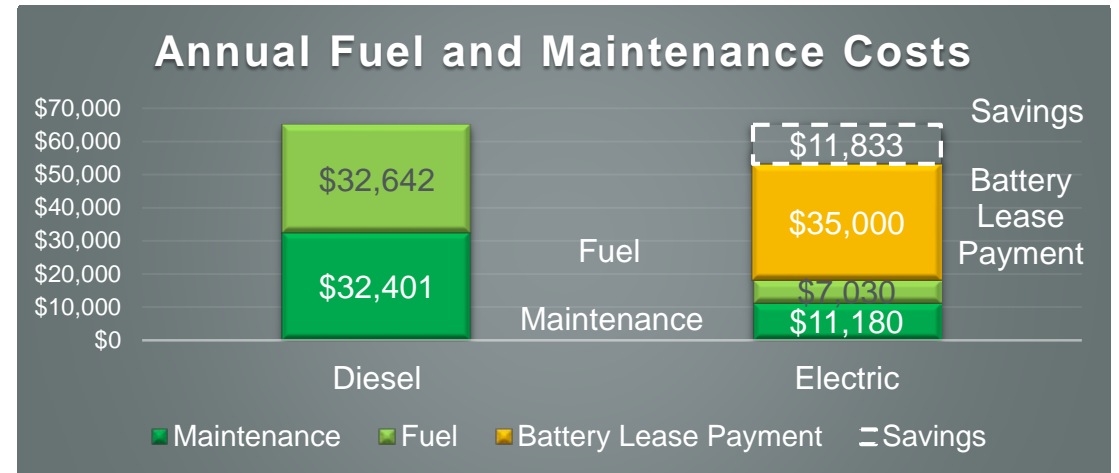
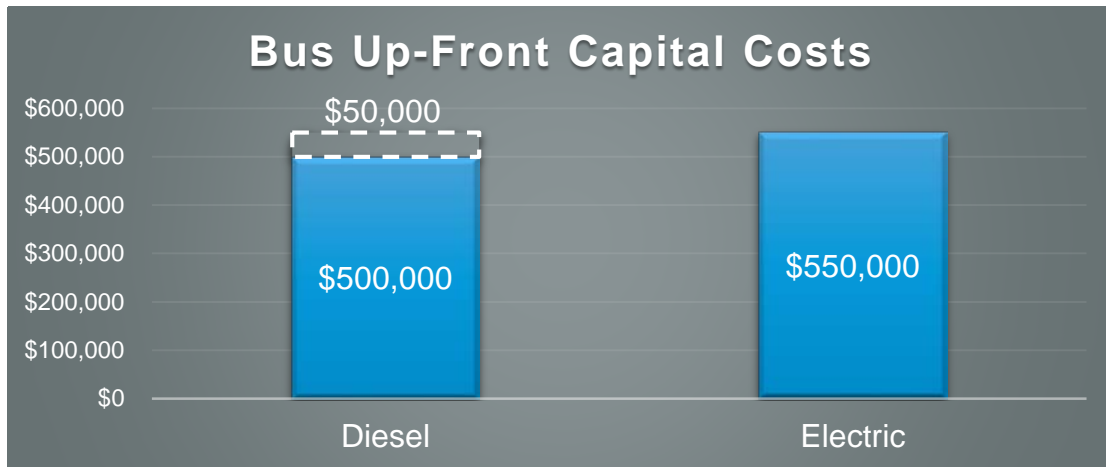


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### Cash



### Battery Lease



## 7. OTHER FUNDING SOURCES

- Vouchers

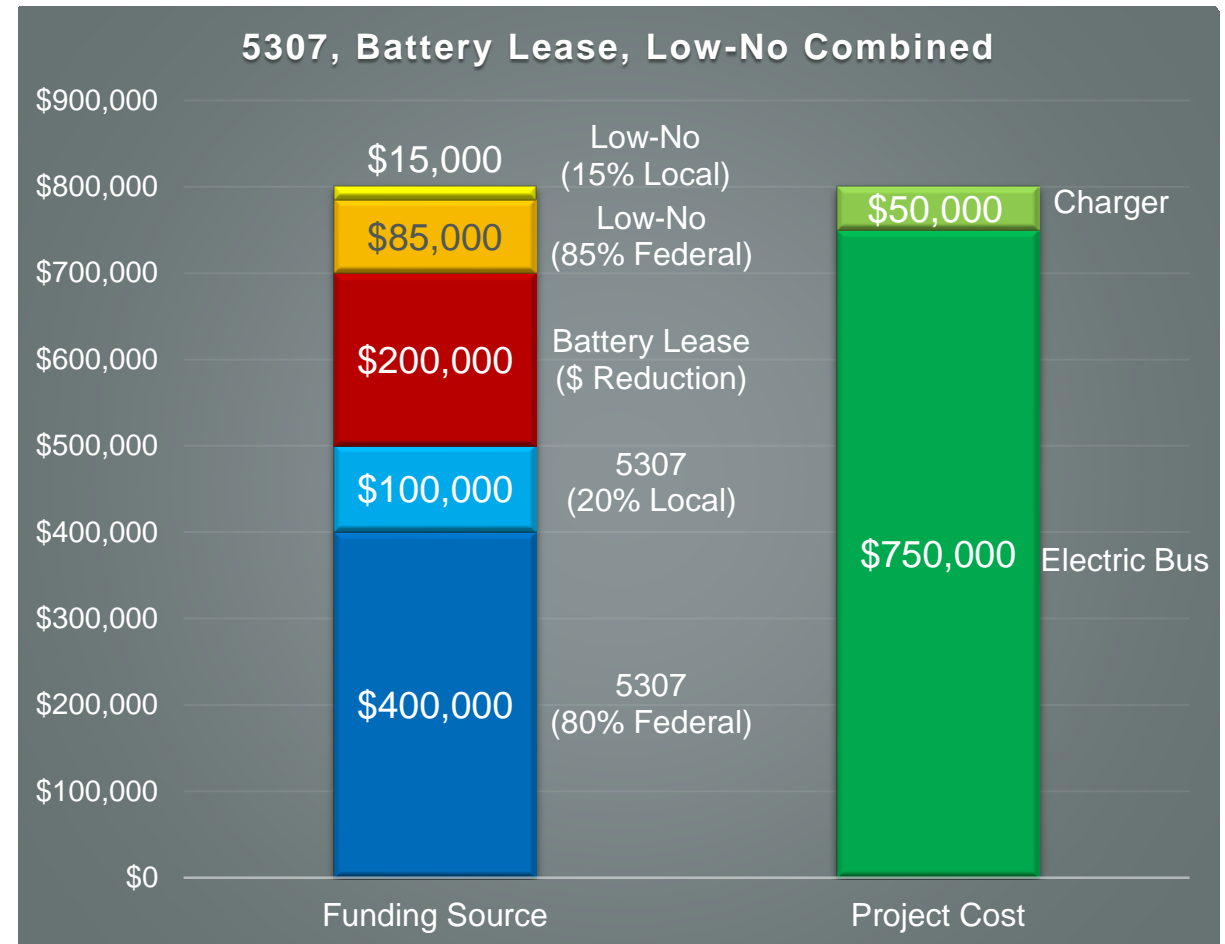
STATE/CITY	VOUCHER AMOUNT
California	\$95,000 to \$165,000
New York	\$150,000
Chicago	\$150,000
Colorado	\$35,000
Maryland	\$20,000



- Can be used for leasing buses and batteries
- NO federal tax credits – unlike passenger vehicles
- FAA Airport Zero Emission Vehicle grants – up to 50% of cost paid for
- Other FTA programs
  - 5339 (b) Bus and Bus Facilities
  - TIGER grant

## 8. COMBINING FUNDING SOURCES

- Leverage small discretionary grant (Low-No, VW, etc) to purchase many electric buses
- Reduce up-front capital cost by leasing battery
- Use funds budgeted for replacement fossil fuel bus for electric bus







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## **Contact Us**

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THANK YOU.



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