

Fleet Emission Reduction Analysis

Status Update: Sedans & Idle Reduction

Presented to Energy and Environment Committee
March 6, 2019

Background/Next Steps

- May 2018 – F&A committee directed staff to research ways to reduce county fleet emissions
- October 2018 – County Board approved new program request to fund idle reduction technology
- March 2019 (today) – staff is sharing progress update and seeking feedback from Energy and Environment committee

Idle Reduction Technology - Update

- Software licenses for 72 vehicles have been secured by LCDOT
- Installation planned for:
 - 48 SUVs
 - 17 Light Trucks
 - 7 Vans
- All installs scheduled to be complete by fall 2019
 - Installs completed at time of scheduled routine maintenance
 - 6% fuel & emission savings projected

Sedan Class (81 vehicles in fleet)

Vehicle Comparisons

Gasoline Options

- Ford Fiesta

Low-e Replacement Options

- **Hybrid**
 - Toyota Prius
- **Electric**
 - Chevrolet Bolt

Note: All vehicles included on cooperative bids

Current vs Replacement Options

| | Current Vehicle | Replacement Options | | |
|------------------------------------|------------------|---------------------|-------------------|-----------------|
| | 2008 Ford Taurus | 2019 Ford Fiesta | 2019 Toyota Prius | 2019 Chevy Bolt |
| Purchase price ¹ | | \$17,000 | \$25,000 | \$33,000 |
| MPG/MPGe | 19 | 31 | 52 | 119 |
| Miles/yr | 8,000 | 8,000 | 8,000 | 8,000 |
| Fuel/yr (gas gal or kWh) | 421 | 258 | 154 | 2240 |
| Fuel cost (per gal or kWh) | \$2.5 | \$2.5 | \$2.5 | 0.08 |
| Fuel cost/yr | \$1,053 | \$645 | \$385 | \$179 |
| Maintenance cost ² | | \$435 | \$435 | \$331 |
| Tailpipe emissions/yr ³ | 3.7 | 2.3 | 1.4 | 0 |
| Emissions reduced (%) | | 38% | 62% | 100% |
| Fuel savings (\$) | | \$407 | \$668 | \$873 |

Annual Cost Per Vehicle

| | 2019 Ford Fiesta | 2019 Toyota Prius | 2019 Chevy Bolt |
|--------------------------------|------------------|-------------------|-----------------|
| Purchase price/10 years | \$1,700 | \$2,500 | \$3,300 |
| Annual maintenance | \$435 | \$435 | \$331 |
| Annual fuel | \$645 | \$385 | \$179 |
| EV charging station (pro rata) | | | \$400 |
| Total cost/year | \$2,780 | \$3,320 | \$4,210 |
| Low-e premium (\$) | | \$539 | \$1,430 |
| Low-e premium (%) | | 19% | 51% |
| Emissions reduced (%) | 38% | 62% | 100% |

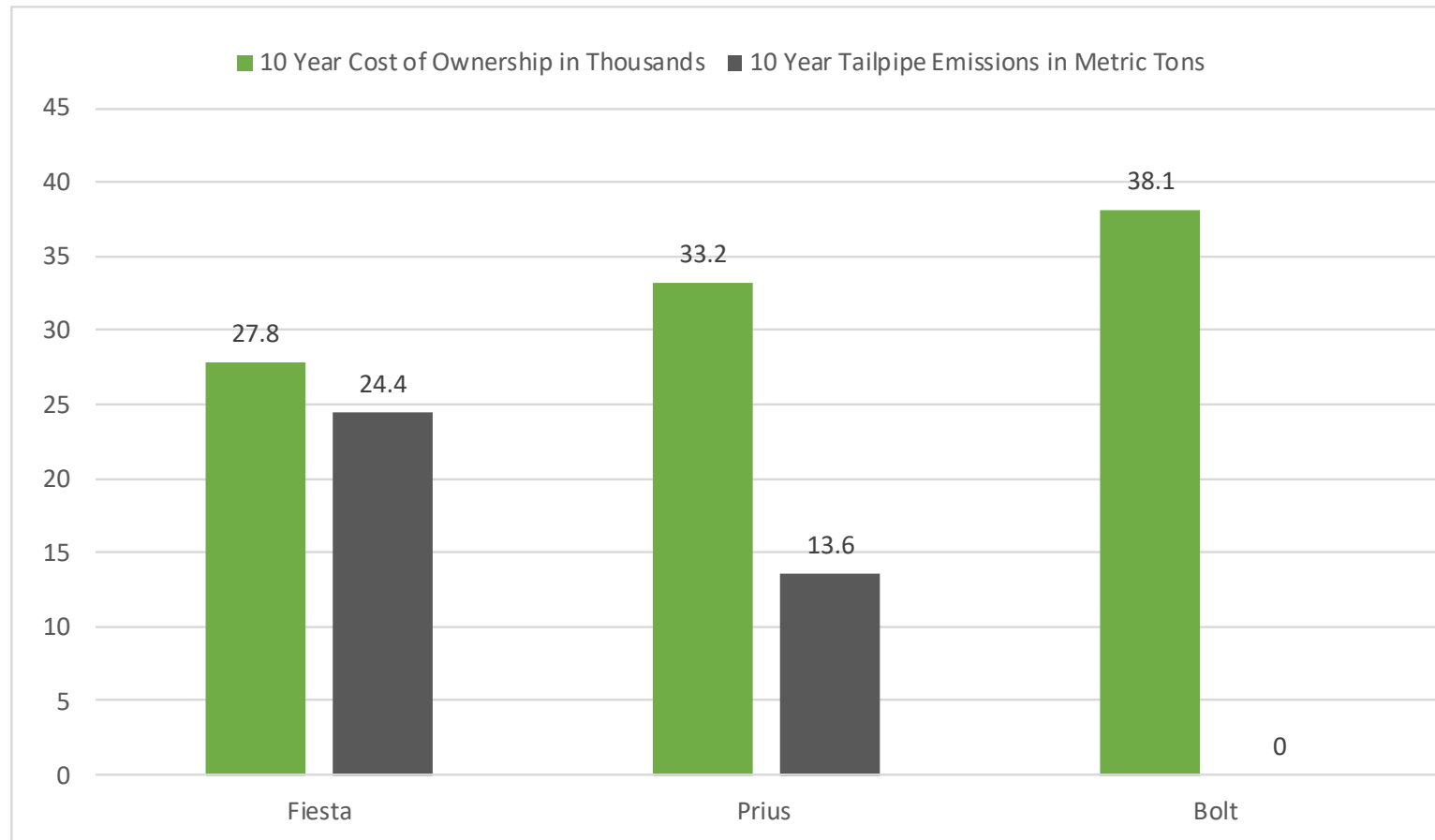
Example Option – For Discussion

Impact of Replacing 10 Sedans in 2020

| | 2019 Ford Fiesta | 2019 Toyota Prius | 2019 Chevy Bolt |
|--|------------------|-------------------|------------------|
| Purchase price | \$170,000 | \$250,000 | \$330,000 |
| Maintenance/yr | \$4,350 | \$4,350 | \$3,310 |
| Fuel/yr | \$6,452 | \$3,846 | \$1,792 |
| EV charging stations - per year ⁶ | | | \$4,000 |
| Total Year 1 Cost | \$180,802 | \$258,196 | \$339,102 |
| Low-e premium | | \$77,395 | \$158,300 |
| Emissions reduced ⁴ | 14% | 48% | 100% |

10 Year Cost of Ownership in Thousands

10 Year Tailpipe Emissions in Metric Tons



Sources

1. Fiesta, Prius, and Bolt purchase prices are with the County's group buying discount.
2. Maintenance cost estimates from US DOE: https://afdc.energy.gov/calc/cost_calculator_methodology.html
3. Source: US EPA GHG Calculator [Link](#)
4. The % emissions reduced are only for the vehicles being replaced, not for the fleet as a whole.
5. The fuel savings is based on the 10 existing vehicles, therefore it is not simply 10x the fuel savings in Table 1.
6. This estimate is the full cost to purchase and install EVSE and does not account for any grants or rebates that might be available.
7. Source: W407 - FuelUsageDetailReport LD1_edited