



HEAD-TO-HEAD: PROPANE. DIESEL AND AN ENVIRONMENTAL BONUS

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Between 2015 and 2020, the Propane Education and Research Council studied an interesting question: What is the financial outcome when a propane autogas vehicle and diesel vehicle — nearly identical in every way except for fuel — are tracked for cost-of-ownership over their life cycles?

THE TEST BENCH

To make an objective evaluation, four Ford F-550 trucks similarly equipped in almost every way were compared. Two of the F-550s operated on propane autogas, two operated on diesel. All four models were equipped with the same body, the same affixed payload, and were within just one-model year of each other.

THE METHODOLOGY

Data collected in the 5-year testing timeframe:

1. The amount of fuel the vehicles consumed
2. The number of miles traveled
3. The preventative maintenance and repairs of the engines and fuel systems in order to factor maintenance costs into the equation.

THE PERFORMANCE RESULTS

After 5 years of tracking, the results were unequivocal. Across the board, the propane autogas trucks delivered bottom-line results the diesel engines couldn't match.

COST AVERAGES – PROPANE VS. DIESEL

| Fuel | Maintenance Cost/Mile | Fuel Cost/Mile | Total Cost/Mile |
|-----------------|-----------------------|----------------|-----------------|
| Propane Autogas | \$0.06 | \$0.18 | \$0.24 |
| Diesel | \$0.24 | \$0.28 | \$0.53 |

These numbers validate the savings fleets can achieve by choosing propane autogas.

THE ENVIRONMENTAL BONUS

Performance metrics provide a gold standard for fleet managers as they assess the return-on-investment of their purchase decisions. Today, a green standard -- environmental protection -- is just as important. It changes the game when it comes to assessing ROI, but it doesn't change the results of this head-to-head comparison. Propane wins by an even larger margin. Here are just a few of the stats:

ENVIRONMENTAL ATTRIBUTES – PROPANE VS. DIESEL

| Attribute | Propane | Diesel |
|--|-----------------------|--------------------|
| Carbon Intensity ↗ ¹ | 83 | 101 |
| Pounds of CO2 emitted ↗ per million BTUs of energy ² | 139.1 | 161.3 |
| NOx Emissions ↗ ³ | 96% less than diesel | |
| Habitat Safety | Vaporizes if released | Spills if released |

| | | |
|-------------------------|------------|----------------|
| Emission Health Effects | Negligible | Carcinogenic |
| Shelf Life ⁴ | Indefinite | 6 to 12 months |

¹ CARB standard

² Source: https://www.eia.gov/environment/emissions/co2_vol_mass.php

³ Source: <https://stnonline.com/industry-releases/real-world-testing-claims-propane-autogas-school-bus-emissions-are-significantly-lower-than-diesel/>

⁴ Source: <https://www.wpowerproducts.com/news/how-long-can-you-store-diesel/>

Any conversation with fleet managers about their vehicle choices starts with performance because cost of ownership is essential to generating a positive R.O.I. That won't change, but the push for low carbon and low criteria pollutant vehicles is only going to grow as regulatory changes match social interests in climate change.

The bottom line? Propane's positive environmental attributes are a green bonus when matched with the performance advantages it has over diesel.

See a full downloadable fact sheet of the performance study by visiting:

<https://propane.com/for-my-business/fleet-vehicles/superior-plus-propane-case-study/>

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