

Chart 1 **Cost Analysis – Gas vs. Diesel**

2006 Medium-Duty Diesel Truck		2006 Gas Medium-Duty Truck	
Purchase price	\$55,000	Purchase price	\$50,000
Depreciation (84 mo.)	\$655	Depreciation (84 mo.)	\$595
Interest (10%)	\$262	Interest (10%)	\$238
Cost per month	\$917	Cost per month	\$833
Cost per year	\$11,004	Cost per year	\$9,996
Maintenance/year	\$1,600	Maintenance/year	\$3,000
Fuel/year (\$2.60/gal.) 15,000 miles, 6 mpg	\$6,500	Fuel/year (\$2.25/gal.) 15,000 miles, 3 mpg	\$11,250
Total cost, year 1	\$19,104	Total cost, year 1	\$24,246

Net Difference

- \$5,142/year (\$430/month) savings of diesel vs. gas
- 12 months to save \$5,000 initial purchase price difference
- 72 months @ \$430 savings per month = \$31,000 total savings of diesel vs. gas

2007 Diesel Engine Decision: Purchase or Rebuild?

The 2007 diesel emissions standards present a decision for managers whose fleets include medium- and heavy-duty trucks:

- Purchase a new 2007-standards-compliant truck or a used truck.
- Rebuild existing fleet vehicles scheduled for replacement.

Purchasing a new 2007 vehicle offers some disadvantages. To meet low-sulfur fuel requirements, a 2007 vehicle will feature the first generation of newly designed engines with advanced technologies. The vehicles will be more costly. The new technologies carry the risk of unknown design problems (latent defects) that can arise immediately, or within early life, e.g., 1-4 years or 100,000-plus miles.

Used vehicles, pur-

chased from a fleet that is downsizing or going out of business, also poses challenges. The used vehicles may have a spotty maintenance record. The previous owner may have only repaired parts that broke without performing scheduled maintenance, leading to higher unscheduled maintenance costs for the new owner.

The relative value of rebuilding an existing fleet vehicle depends on the cost. For example, if the expense totals half the cost of a new vehicle, while providing $\frac{3}{4}$ of the life of a new unit, then rebuilding is worth pursuing. The work can be done either in-house or outsourced, the latter offering the benefits of warranty without curtailing in-house shop space.

Lifecycle metrics can help quantify the decision to purchase a new vehicle or rebuild if a vehicle is due for replacement in 2007. Charts 2 and 3 detail the economic lifecycles of a \$70,000 dump truck and an \$18,500 pickup truck. Look at the cost per mile. A common practice is to replace an old unit when the old costs more to own and operate than a new vehicle.

The Year 1 cost per mile for the dump truck is \$1.50 per mile; Year 10 cost per mile is \$1.74. Nine years of life can be expected out of this vehicle. In Year 7, the maintenance cost is \$3,800 (parts and labor, scheduled and unscheduled), which is 30 percent of the vehicle's residual value, and overall cost per mile is \$0.49 because maintenance costs did not exceed the removed

principle and interest cost.

In Year 8, however, 44 percent of the residual value is maintenance cost; in Year 9, that cost is 103 percent of the residual value. Maintenance costs now total more than the vehicle's worth. In Year 10, 341 percent of the vehicle's worth is spent in maintenance costs, with a significant reliability loss. The point here is that if lifecycle Years 9 or 10 occur in 2007, a decision must be made now to replace the old with a used unit or excess the unit.

Do not go into 2007 without taking action. Inaction now is not cost-effective and is not in your fleet's best interest. The less the purchase price of the vehicle, the shorter threshold to make this decision. AF

Chart 2

Lifecycle Metrics: \$70,000 Chassis Vocation Truck

	Year 1	Year 7	Year 8	Year 9	Year 10
Principle	\$14,000	—	—	—	—
Interest	\$3,500	—	—	—	—
Maintenance	\$1,455	\$3,800	\$4,500	\$8,500	\$22,425
Fuel	\$3,600	\$3,600	\$3,600	\$3,600	\$3,600
Cost per mile, 15,000 miles	\$1.50	\$0.49	\$0.54	\$0.81	\$1.74
Residual Value	\$49,000	\$12,845	\$10,276	\$8,221	\$6,577
Percentage Maintenance/ Residual	3%	30%	44%	103%	341%

Chart 3

Lifecycle Metrics: \$18,500 Light Vehicle

	Year 1	Year 6	Year 7	Year 8
Principle	\$4,440	—	—	—
Interest	\$925	—	—	—
Maintenance	\$360	\$1,560	\$1,665	\$6,200
Fuel	\$480	\$500	\$500	\$500
Cost per mile, 15,000 miles	\$0.414	\$0.137	\$0.144	\$0.446
Residual Value	\$12,950	\$4,243	\$3,395	\$2,716
Percentage Maintenance/ Residual	3%	37%	49%	228%