

Federal Freight Efficiency Authority

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EXECUTIVE SUMMARY

Class-8 trucks with a gross vehicle weight rating (GVWR) of 33,001-80,000 lbs transport 69% of the domestic freight in the United States and are projected to travel 62.4% more miles in the next twenty years.¹ The majority of these Class 8 vehicles are registered to independent owner-operators or fleets with ten trucks or fewer. Our analysis shows that by easing this segments financing constraints, it is possible to increase truckers' profit margins and realize significant fuel savings.

According to the Department of Labor, there are over 300 thousand independent owner-operators, and the R.L. Polk & Co. Survey has calculated there are 1.1 million trucks owned by fleets with six vehicles or fewer (including independents).² In 2008 the *Owner-Operator Independent Driver's Profile* indicated the average trucker drives over 107,000 miles annually while the average Class-8 trucks' highway fuel economy between 1990 and 2007, was 5.63 mpg. This equates to an annual fuel consumption of 21 billion gallons by fleets with six vehicles or fewer, 87% of total Class-8 truck fuel use. Accordingly, a 32% reduction in fuel use by small-fleets would produce a 2.5% reduction in total oil consumption.

Our technology supply curve has indicated the potential to raise Class-8 trucks' miles per gallon of diesel fuel from 5.63 to 11.31 at minimal cost. However, the price differential between used and new trucks can only partially be attributed to new technology. The main impact on price is attributable to the age of the vehicle. There has been a high turnover rate on Class-8 trucks and as a result, the oversupply of used trucks has diminished the asset value considerably. In order to purchase a new vehicle, an operator would have to spend almost three times the amount he/she would spend on a used counterpart. However, even with this increase in price, the investment yields a net present return of \$93,186 over a ten-year period (discounted payback in year five).

If the opportunity is this blatant, why isn't anyone taking advantage of it? OEM's are not making trucks with the actual highest efficiency because they do not have a target market requiring it. Currently, independent-owner operators buy used trucks from fleets not OEMs. However, if independents' entrance into the OEM market depended on increased efficiency, that interest in efficiency could prompt revitalization of the sector.

Naturally the next question is, why don't independent's demand these changes? Independent owner-operators have a small profit margin, which gives them subprime status with lenders. An operator's main costs are fuel and upfront capital investments. These expenses can cut operators' earnings by so much that the majority can't afford medical insurance. Not surprisingly, the average independent operator can't afford a new vehicle and doesn't have an adequate

¹ 2010 EIA Projections

² Polk contact

credit score to secure a low-interest loan.

In recent years, a number of organizations have begun assisting independent operators with efficiency improvements. Cascade Sierra Solutions (CSS) is focused on finding financing for efficiency upgrades and California's CalCap program offers grants to cover defaulted payments to companies making loans to independent truckers. These organizations provide an important service; nevertheless, there is a need for a program that will encourage even greater efficiency standards and offer support for financing vehicles achieving those standards. CSS and Calcap have seen two important trends. One is the growing interest in these programs (above and beyond projections). The second is the low-loan payment default rates of independent owner-operators. In essence, we have an opportunity with high profit potential and low risk.

How do we capture it?

In the 1930's, following the Great Depression, the federal government established the Federal Housing Administration to stabilize the housing market by providing insurance on mortgage loans for homeowners with shaky credit. This program has insured over 34 million properties since then and continues to provide support for families with low credit scores. The presence of a federal agency that covers the default risk on Class-8 truck lease payments would incentivize OEM's to invest in efficiency improvements, increase independent truckers' profit margins, and reduce oil consumption by 55 billion gallons in ten years.

Assuming there is no risk of default, at a 5% discount rate, over ten years, leasing agents could offer an interest rate of 6-7%, which would yield them a 7.65% internal rate of return while the operator would net \$59,422. With a strong penetration rate, the agency could cover all its costs through insurance premiums- a mere 0.5% will suffice. The program could be designed to issue debt or use a subsidized loan to cover first-year costs, and then a portion of the insurance premiums could be reinvested for profit into market- and non-market-based securities. The additional revenue could then be directed toward the Highway Trust Fund to cover the decline in fuel tax collection as a result of fuel savings.

The success of this program could influence the inventory of used trucks and at some point it might be beneficial for OEMs to implement scrappage programs as a means to collect on undervalued assets and compete for market share. The scrappage program could be tied to the lease agreement, allowing OEMs to compete for clients via truck-pricing offers.

To ensure truckers are using their fuel savings to cover lease payments and to protect them from fuel-price volatility, the federal government has the option of extending the fleet card, which is currently used to pay for fuel used by federal vehicles, to this agency. This would allow the agency to direct the savings accordingly, track the program's progress, lower default risk, and protect drivers

from price instability.

The success of this program will not only benefit truckers but by driving *kaizen*, it will contribute to national security and the economy.

INDUSTRY

Trucks transport 69% of the domestic freight in the United States and consume 11-12% of the nation's oil.³ Class-8 trucks are responsible for 1.57 million of the 2.35 million barrels consumed by trucks per day and therefore, responsible for the majority of CO₂ emissions produced by the trucking industry.⁴

TARGET MARKET

According to the Department of Labor, there are over three hundred thousand independent owner-operators.⁵ The average owner-operator is a truckload carrier, drives 107,526 miles per year, has been in the trucking industry for over 22 years, runs solo, buys a used truck, gets paid by the percentage of line hauled, earns \$159,000 a year, and pays \$118,00 in operating expense a year.⁶ The majority of independent owner-operators are unable to finance trucks with a suitable fuel economy due to budget constraints, increasing interest rates, escalating vehicle and fuel prices, and the tightening of available credit. Used trucks may be purchased at over a third of the price, easing trucker's financing constraints; however, the majority of these trucks have poor fuel economy and high CO₂ emissions.

PROGRAM

The Federal Freight Efficiency Authority (FFEA) is to be a United States government agency within the Department of Transportation, which will be established to increase heavy-duty vehicle efficiency as a means to reduce the U.S.'s dependence on oil. The goals of the FFEA are: to improve vehicle standards for heavy-duty trucks; provide adequate financing to truckers currently purchasing used and inefficient vehicles by buying default risk on their lease payments; and to provide incentives for OEM's to create resourceful components for trucks. The program will be self-funded through insurance premiums and will include a number of checks and balances to ensure taxpayers will not be subject to undue risk.

³ Aerodynamic Drag Reduction. FY 2009 Annual Progress Report.
www1.eere.energy.gov/vehiclesandfuels/pdfs/hvso.../02_mccallen.pdf

⁴ Reducing Heavy-Duty Long Haul Combination Truck Fuel Consumption and CO₂.

⁵ Bureau of Labor Statistics. Publications. Truck Drivers and Driver/Sales Workers.
[\[http://www.bls.gov/oco/ocos246.htm\]](http://www.bls.gov/oco/ocos246.htm)

⁶ Owner-Operator Independent Drivers Profile 2008. OOIDA.
[\[http://www.oida.com/OOIDA%20Foundation/Recent_Research/OOIDP-08.html\]](http://www.oida.com/OOIDA%20Foundation/Recent_Research/OOIDP-08.html)

PROCESS

- Borrower files an application with a private lending institution
- Private lender offers an application for FFEA insurance
- Borrower completes the application
- FFEA reviews the completed application
- If approved, the FFEA insures the borrower's principal
- Borrower pays an insurance premium of 0.5% on the declining balance
- Private lender offers an interest rate below the rate offered prior to protection
- If the loan defaults, the lender has 75 days to file a claim with the FFEA
- In the case of default, the FFEA pays the lender the unpaid principle balance

BORROWER REQUIREMENTS

- Adequate payment history
- Purchase of an efficient and new Class-8 truck (to be determined by FFEA)
- 5% down payment- flexible
- Purchase of comprehensive collision coverage and non-trucking liability insurance

FFEA STRUCTURE

The FFEA will not maintain a separate staff or facilities; its operations will be conducted along with other activities handled by the Department of Transportation. The FFEA will issue debt and / or take out a subsidized loan to finance the initial cost of the program and will use a percentage of the insurance premiums to reinvest in private and non-market based securities. Funding for operations will be housed in a revolving fund, which will be replenished with premiums and sale proceeds (defaulted vehicle sales).

OPERATING COST EFFICIENCIES

Standardized application process. Key attributes to be identified by processing system prior to agents involvement with loan.

SIMILAR MODELS:

- 1) Federal Housing Administration (FHA): The FHA emerged out of the National Housing Act of 1934, which was established to assist low-income families with home purchases. The FHA offers insurance on mortgage loans and as a result, eliminates lenders default risk. The administration sits within the U.S Department of Housing and Urban Development (HUD) and together with the HUD; it has insured over 34 million mortgages for single-family households and 5.7 million units for multifamily projects

- since the programs commencement.⁷ The organization is self-funded through premiums and investments.
- 2) CARB's Heavy-Duty Vehicle Air Quality Loan Program through CalCap: The ARB has developed a loan program to assist truckers with purchasing vehicles compliant with the Proposed Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure. Assembly Bill 118 allows for the program to be funded through an appropriation from the state. The program will be implemented via the State Treasury Office's California Capital Access Program (CalCap)- since 1994, CalCap has been funding small-business loans in California. The state contributes a percentage of the loan into a reserve account to be used by lenders in case of default.⁸ Criteria are based on small business size requirements and qualifying vehicles rather than credit or income. The program does not work on leasing though the ARB is lobbying for legislation that will allow leasing in the future
- 3) Cascade Sierra Solutions (CSS): CSS is a non-profit offering independent owner-operators assistance with financing efficiency upgrades. The program began in 2006 after the *Everybody Wins* Lease Program run by the Lane Regional Protection Agency (LRAPA) provided assistance to truckers financing auxiliary power units (APUs) and as a result, reduced fuel use by 700,000 gallons. CSS assisted 2,000 truckers in the first year and like LRAPA had an exceptionally low default rate (LRAPA < 1%).⁹

ADVANTAGES OVER SIMILAR PROGRAMS:

The FFEA is comparable to the Federal Housing Administration (FHA), which has been offering insurance on mortgage loans to low-income families since the Great Depression. However, unlike the FHA, which is unable to correlate a borrower's house purchase with an increase in profits, the FFEA would be able to link the trucker's vehicle purchase with his/her growth in earnings due to guaranteed fuel savings. This increased growth will lower the FFEA's default risk on lease payments and protect the taxpayer's interests. Furthermore, unlike the CalCap program, which pulls funds from the state of California, the FFEA will be self-funded through insurance premiums and investments.

RESULTS

In the current market, an independent owner-operator is unable to secure adequate financing on heavy-duty vehicles (Class-8 trucks). If an operator is able to secure a contract, the provisions are often unfavorable due to high interest rates and short terms. As a result, an operator buys a used and inefficient Class-8 truck from a fleet and drives the vehicle till it hits approximately one million miles (on average takes 5-7 years). Due to inefficiencies, the operator spends

⁷ The Federal Housing Administration. U.S Department of Housing and Urban Development. 2006. URL[<http://www.hud.gov/offices/hsg/fhahistory.cfm>]

⁸ ARB's Heavy-Duty Vehicle Air Quality Loan Program. 2008. URL[www.arb.ca.gov/ba/loan/on-road/documents/hdvlloanprogram.pdf]

⁹ Cascade Sierra Solutions. URL[<https://secure.cascadesierrasolutions.org/about/>]

unnecessarily on fuel and maintenance expenses and then repeats the cycle with a different truck.

The FFEA will allow independent operators to finance new and efficient trucks and as a result, incentivize OEM's to create resourceful vehicles with the entry of a new target market. The proliferation of efficient Class-8 trucks will reduce CO₂ emissions and lower fuel consumption.

PROGRAM COST

SCENARIO 1: *Post vehicle default, the FHEA covers the lease payments till the vehicles are sold.*

Annual Salary and Administration (S&A) Expense: \$23.55M –In 2007 FHA insured 3M homes and paid \$473M in S&A (percentage applied assuming 150K truckers)

Annual Imputed Costs: \$1.8M. Costs assumed on the agencies behalf such as, pension costs, employee health benefits, and life insurance costs. (S&A methodology applied).

Default Payments: Assuming an annual repossession rate of 0.3% (over ten years equates to a 2% default rate –growth and decline due to defaults is accounted for).

Pre-Credit Reform Liability: Selling and maintenance costs for defaulted vehicles-assumption is 0.1% of truck value.

Annual Interest Expense: \$150K- Bi-monthly payable for issued debt. Assumed the issue of 10K notes, each at a \$960 discount value with a 3% interest.

Payable Debt Obligations: To be paid in the tenth year when principle reaches maturity.

Subsidized Loan: Loan obligation to be paid off in year ten.

SCENARIO 2: *Post vehicle default, the FFEA coordinates with trucking companies to transfer the lease payments and vehicle.*

Annual Salary and Administration (S&A) Expense: \$23.55M –In 2007 FHA insured 3M homes and paid \$473M in S&A (percentage applied assuming 150K truckers)

Annual Imputed Costs: \$1.8M. Costs assumed on the agencies behalf such as, pension costs, employee health benefits and life insurance costs. (S&A methodology applied).

Default Payments: Assuming an annual repossession rate of 0.3%. Default payments need only to be covered in first year. According to Cascade Sierra Solutions, there is only a short lag between the default and the transfer of vehicle to a new operator.

Annual Interest Expense: \$150K- Bi-monthly payable for issued debt. Assumed the issue of 10K notes, each at a \$960 discount value with a 3% interest.

Payable Debt Obligations: To be paid in the tenth year when principle reaches maturity.

Subsidized Loan: Loan obligation to be paid off in year ten.

VEHICLE TURNOVER CONCERN

One concern with putting a number of new vehicles on the road is the oversupply of older vehicles. The increase in inventory of Class-8 trucks will cause a burden on operators seeking to transition to vehicles with greater efficiency and diminish the value of the aged asset. However, independent owner operators purchase trucks from fleets not from OEMs; therefore, the entrance of a new target market will incentivize OEMs to implement scrappage programs.

In May 2010, Ford of Canada announced it would be launching a car scrappage program because the program will boost Fords' bottom line. This program is a mock of a previous project, which recently ended. The goal is to bring the project back on a grander scale. To quote Ford Canada's president of marketing, "Cars are highly recyclable, and over 80% (of the parts) will be reused in all sorts of different applications... the previous program generated incremental sales for us."¹⁰ Ford Canada's model can work just as well for Class-8 OEMs looking to increase profits while adding value to their brand name.

To ensure an incremental sales increase, the scrappage program should be tied to new purchases. The operator will scrap with the OEM he/she will purchase the new vehicle(s) from. This will incentivize OEM's to improve their recyclables process as the OEM offering the best scrappage value will pocket the new sale.

IMPACT

The Owner-Operator Independent Driver's Association (OOIDA) conducted a survey in 2008, which indicated that half of independents have their trucks paid off in full. Considering these are operators that are not tied into a lease, they will be open to financing a new truck through the FFEA. There are 300 thousand independent operators with a single vehicle and approximately 1.1 million trucks

¹⁰ "Ford of Canada Relaunches Scrappage Program to Help Environment, Drive Sales". Pope, Byron. Wardsauto.com. 2010. URL[http://wardsauto.com/ar/ford_canada_scrappage_100504/]

owned by small fleets with six Class-8 trucks or fewer.¹¹ Assuming, half of the sole operators are able to finance in the first year and an additional 10% of the remaining sole operators will finance each year after, there would be a savings of 6 billion gallons at 17% efficiency, 14 billion gallons at 50% efficiency, or 21 billion gallons at 101% efficiency over 10 years (9% savings in class-8 truck fuel consumption).¹²

SCENARIO

An independent owner-operator wishes to purchase an efficient Class-8 truck to minimize on fuel and increase profits. An assessment of his/her purchasing options concludes that if the operator seeks to purchase the Maximum Package (tractor and trailer), he/she would be able to yield a 17.79% internal rate of return on his/her investment over ten years. However, the trucker is not able to pay the capital cost (\$202K) up front and instead decides to lease the package. The operator locates a leasing agent and requests to fill out an FFEA application. Once the application is approved, the operator is able to extend the term on his payments at a lower interest rate. On average, the operator would keep the truck for approximately five years; however, since there are no miles on the new truck he/she will be able to extend its useful life to ten years. At a 6.5% interest rate over a ten-year period with a 5% discount rate, the operator will yield a \$59,422 profit after lease and insurance premium payments.

GROWTH

Once the program has gained ground, it will be able to infiltrate the small-fleet market. Small-fleets share many of the same constraints as independent operators and as a result, able to benefit from similar incentives. According to R.L Polk & Co., there are approximately one million trucks that are part of fleets with six vehicles or fewer. If we were able to gather 50% of these vehicles in the 11th year and 5% every year after, we would have a savings of 55 billion gallons in ten years- 32% reduction in Class-8 consumption and a 2.5% reduction in total oil consumption.

ADVANTAGE OF FEDERAL PROGRAM OVER PRIVATE INVESTMENT

- Private sector involvement may undercut truck drivers as premiums may be raised to ensure profit margins match market returns
- Additional regulation ensuring the absence of another subprime loan crisis
- Pressure to pay lease payments due to involvement with federal agency
- Profits from the program may be used to supplement the Highway Trust fund. This additional allocation will compensate for the loss in revenue due to a decline in fuel tax collection as a result of fuel savings.

¹¹ Research and Development Opportunities for Heavy Trucks. US Department of Energy. 2009.
URL[www1.eere.energy.gov/.../pdfs/truck_efficiency_paper_v2.pdf]

¹² Calculations in Excel Summary

HEDGED FUEL PURCHASE OPTION

In an effort to reduce default risk and hedge customers' fuel purchases, FFEA may enroll itself in the U.S General Services Administrations' SmartPay program (GSA's SmartPay). The GSA manages contracts with a number of banks to provide charge card products and services to governmental agencies. One such product is the DoD fleet card, which allows fuel purchases for military/DoD owned or leased vehicles to be centrally billed. Each fleet card is assigned to a vehicle rather than an individual minimizing fraudulent activity.¹³

Process Option 1: The card may be used to purchase fuel at a set rate. The difference between the set rate and the rate at the pump is forwarded to the lender by the FFEA, which will use a monitoring system for all transactions. If the difference does not cover the full payment, the customer will be billed the remaining balance at the end of the month through the lenders processing system.

Process Option 2: In order to minimize on costs and fraud risk, a non-fleet government card will be issued to the individual and paid for by the individual on a monthly basis. At the end of the year, if all lease payments are paid off, the customer will collect points on his/her card, which may be used on future fuel purchases.

Note: Currently the fleet card bills all payments to the government and is fully paid for by the government; therefore, process 1 and 2 would require a change in methodology.

TAXPAYER RISK

- Apprehension due to connection to Fannie Mae, Freddie Mac, and PACE Bonds
- Differences:
 - Fannie Mae & Freddie Mac- are investors in the secondary market and have a significant influence on the sector. There are no guarantees on the mortgage payments the agencies securitize and the securitization process ties the faith of a few homeowners with a number of key players in the market.
 - PACE bonds- Repayment on efficiency takes priority over mortgage loans- increased risk for mortgage-backed security bondholders.
 - FFEA- buys out default risk on lease payments taken out by truckers with subprime statuses. The subprime status is often due to low income rather than poor credit. Strict application and communication procedures will ensure credibility.

¹³ GSA SmartPay, U.S. General Services Administration.

URL[http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_OVERVIEW&contentId=10141]