

METHODS FOR REDUCING CARBON OUTPUT IN THE TRUCKING INDUSTRY

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Introduction

For the past 20 years, the impact of industrial activity on the environment has been a growing concern. The public is becoming more and more aware of environmental issues, increasingly calling on businesses to improve their environmental practices – and businesses are more and more frequently responding. Nowhere has this become more apparent than in the trucking industry. Unlike some sectors, “Going Green” in the trucking industry can also entail a significant financial benefit via saving on fuel expense. This is especially true in North America - where an increased demand for Just-In-Time deliveries¹ (to urban centers that are separated by vast distances) has given rise to a 278% increase in Canadian heavy truck activity, and a 200% increase in greenhouse gas emissions from heavy trucks in Canada.² These numbers present a clear opportunity for the industry to improve environmental practices across the board. Companies that do this well will not only receive a clear financial return, but will also increase the social responsibility and long-term sustainability of their organizations. This paper reviews a number of technological implementations and management practices that will help us reduce our carbon footprint, and be one of those companies.

Reducing Fuel Consumption

When we analyze the economic gains associated with ‘Going Green’ we are trying to identify opportunities to increase the aggregate fuel

economy of our fleet – or increase our miles per gallon (mpg). In 2005, fuel costs made up 24% of the total spend toward intra-provincial trucking and 26% for inter-provincial (in Canada).³ Fuel costs are also likely to increase in the long-term, since they are directly related to oil prices. The most obvious fuel saving option would seem to be purchasing hybrid trucks. This technology is relatively new to class 6 and up trucks (around 2007-2008)⁴, however large organizations are beginning to implement hybrids into their fleets. Wal-Mart for example, intends to phase this technology into their entire fleet over time. An independent study suggested that Wal-Mart would save approximately 25% total fuel costs (about \$10,000 US per truck, per year).⁵ The worldwide demand for greener production methods will lead to a dynamic supply environment (for trucks and related equipment) - with the newest products carrying a very high price (new conventional trucks with sleepers routinely sell for upwards of \$100,000 US).⁶ ‘Wal-mart-sized’ organizations may have the resources to consistently upgrade their vehicles to the greenest option, but midsize and smaller companies may struggle to do so. While the gradual replacement of old (less fuel efficient) vehicles with new (more fuel efficient) vehicles bears further investigation, there are a number of products/technologies available that can increase the fuel efficiency of the vehicles currently in our fleet for a much lower cost.

There are numerous products designed to increase the aerodynamics of semi trucks – thus enhancing fuel efficiency. According to Transport Canada, using a combination of integrated aerodynamic products can increase fuel efficiency by 10-15%.⁷ These products include wheel covers, trailer skirts and drag reduction devices that can be installed either at the front or rear of a truck. Another more affordable fuel saving technology is the Auxiliary Power Unit (APU) which reduces idle times for both long-haul and shorter trips. Engine idling causes fuel to be consumed, while no distance is travelled. This often happens during rest periods - when drivers use the heater/air conditioner, or power any other electrical devices using the trucks engine. To conserve fuel, an APU can be installed to power several functions that traditionally required the engine to idle. Transport Canada states that installing APUs can equate to a fuel

savings that can exceed 8%.⁸ There are a variety of suppliers for these innovative products, and the pricing is typically dependent on the size of fleet being outfitted (which also effect the time required to regain the purchase/installation costs through fuel savings)⁹. Finally, there are options available that allow the speed, distance travelled, idle time etc. to be recoded via electronic data tracking software. By implementing on-board monitoring technology, we will be able to assess whether our drivers are maintaining speeds that produce the highest fuel efficiency. Transport Canada found that this technology can reduce fuel costs by between 3% and 20%.¹⁰ Whether a higher or lower savings will be realized however, is directly tied into a company's policies and management practices.

Management's Role

Top management must fully support these green measures for middle management to incent drivers to get the most fuel savings from our new (and old) technology. For example, offering incentives to drivers who maintain optimal fuel saving speeds have proven to be successful at Bison Transportation.¹¹ In fact, Bison Transportation lowered its corporate speed limit to 100km/hour in 2008¹² due to fuel savings at this speed. There are other aspects of driver training that can lead to reduced fuel costs. For example, proper training on APU may be required, as well as training regarding using the onboard monitoring technologies. Some of this training can even be outsourced through Natural Resource Canada's "Smart Driver Training Program" – which covers such fuel saving issues as proper engine maintenance and routinely checking for correct tire pressures.¹³ As mentioned however, the key to saving on fuel from the people (behavioral, not technological) side lies in buy-in and leadership from top management trickling down the corporate structure all the way to our drivers.

Taking steps to reduce our GHG emissions will also yield savings in unexpected ways. For instance, numerous government incentive programs exists designed to reward "Green" companies (i.e. Fleetsmart is a free program, which can save costs on in-house training).¹⁴ The freight trucking industry has a huge opportunity to

not only reduce fuel costs, but to also enhance the public image of the industry as a whole in the process – it really is a win-win scenario. Another such program is the Canadian Safety Association’s (CSA) Clean Project Registry, which allows ‘Greener’ companies to sell their Carbon Credits to other organizations. In Canada, Bison Transportation was the first freight trucking company to do so when they sold 10,737 tons equivalent in carbon credits to L21 Financial Solutions in 2011.¹⁵ Lastly, fuel saving techniques will carry indirect savings through reduced engine and tire wear, as well as fewer repairs due to improper maintenance.

Conclusion

Since fuel expenses make up such a significant portion of our total spend, it is in our best interest from a financial and sustainability point of view to constantly be aware of ways to reduce this cost. Whether our methods include long-term (more expensive) equipment replacement, modifying existing equipment or adjusting our management practices, any ‘Green’ initiative will require the continued support of top management to maximize savings. Short-term steps should be taken to negotiate pricing for the small ticket improvements to our fleet (APU, trailer skirts etc), and further investigation should be conducted into the feasibility of replacing older trucks with cleaner burning hybrid models. Furthermore, by examining the best in class practices of industry leaders like Bison Transportation, we can align our management practices and employee behavior with fuel saving goals. These steps are the first to not only increase bottom line business results, but also to become a more socially responsible company with an excellent environmental track record.

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Endnotes

- ¹ Sparling, Steenhof and Woudsma (2006), Pp 1, Para 1
- ² Sparling, Steenhof and Woudsma (2006), Pp 1, Para 3
- ³ Transport Canada. Operating Cost of Trucks 2005 Section 2.3
- ⁴ Hybrid Semi Trucks (2007), Pp 1, Para 2
- ⁵ Hybrid Semi Trucks (2007), Pp 1, Para 2
- ⁶ CommercialTruckTrade.com (2011)
- ⁷ Transport Canada. Aerodynamic Technologies paragraph 2
- ⁸ Transport Canada. Idle Reduction Technologies para 3
- ⁹ Transport Canada. Aerodynamic Technologies, Para 3
- ¹⁰ Transport Canada. fuel and Logistics Management Programs” Para 2
- ¹¹ Natural Resources Canada (2010). Fleetsmart Profiles... Para 15
- ¹² Marketwire.com (2011)
- ¹³ Natural Resources Canada (2010) *Benefits of Fuel Economy*. Para 4
- ¹⁴ Natural Resources Canada (2010). *Welcome to Fleetsmart*
- ¹⁵ Marketwire.com (2011)