



Five Ways to Go Green with Fleet Management

Cadec Global

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Five Ways to Go Green with Fleet Management *Reducing costs, ensuring compliance, and improving productivity—while protecting the environment*

“Going green” is not only environmentally responsible; it also makes good business sense for transportation companies. While investments in technology such as hybrid vehicles requires an initial expense that pays back over time, today’s fleet management initiatives can have a dramatic impact on supply chain efficiencies that deliver immediate and significant cost savings while making a difference in the environment.

In this whitepaper, we’ll review some of the challenges facing transportation businesses today and discuss some of the ways in which fleet management strategies and technologies can help organizations meet those challenges. We’ll also provide information about SmartWay Transport Partnership, a collaboration between the freight industry and the U.S. Environmental Protection Agency.

A Route to Survival

While minimizing environmental impact is important, some transportation companies face a much more pressing concern—survival. For many, rising fuel cost have made implementing proven cost saving measures a business requirement.

Buddy Polovick, chief shipper coordinator with the Environmental Protection Agency’s Office of Transportation and Air Quality, says that the impact of an overall increase in fuel prices, combined with the volatility of the energy market, is causing significant challenges for the transportation industry.

“Historically we’ve seen that in the freight industry, it is truly ‘survival of the fittest.’ Only those firms with the most sustainable operations will remain viable and profitable over time,” Polovick says. “Any time there is a spike in fuel prices, we see an increase in bankruptcies, which points to the need for more sustainable business practices.”

Sustainable business practices and sound environmental policies cannot be mutually exclusive, however.

“Commercial truck and rail form the cornerstone of the U.S. economy, but with more than 200 billion miles travelled each year—and more than 55



billion gallons of fuel—they represent about 20 percent of transportation-related energy use,” Polovick adds. “They also produce nearly 350 million tons of CO₂, which has serious environmental implications.”

While the issues of climate change and global warming may still be a matter of debate for some, Polovick emphasizes that the contribution of transportation to the greenhouse gas inventory is well known, and he points to statistics that demonstrate that in the U.S., transportation accounts for more than 28 percent of total greenhouse gas emissions. According to Polovick’s research, freight trucks alone account for about 20 percent of this total.

Polovick also notes that greenhouse gasses related to transportation are accelerating faster than in any other sector, and the International Panel on Climate Change projects that the transportation industry will cause an increase in greenhouse gasses of about 80 percent from 2002 levels by the year 2030.

Reducing Environmental Impact

Not surprisingly, the percentage of greenhouse gas emissions attributable to the transportation industry is catching the attention of policy makers and regulators, who are also studying other emissions generated by the ground freight sector in the U.S. as well. For example, ground freight contributes more than half the nitrogen oxide or NO_x in the environment, which causes increasing ozone levels, and one-third of the particulate matter, a known carcinogen. Today, nearly half of the U.S. population lives in areas that do not meet standards for ambient air quality: 80 million people live in areas that do not meet particulate standards; 160 million people live in areas that do not meet ozone standards.

As a result, more and more state and local governments are taking steps to address climate change.

- The California Global Warming Act, passed this year, requires that greenhouse gas emissions levels are restored to 1990 levels by the year 2020.
- In March 2007, the U.S. Supreme Court ruled that CO₂ is a pollutant under the Clean Air Act and that the EPA has the authority to regulate CO₂ emissions.



- In May 2007, President Bush issued an executive order for regulations that would reduce gasoline consumption and greenhouse gasses by 20 percent in 10 years, called "20 in 10."
- Congress is now working on climate change initiatives by considering a wide range of energy bills, many of which include transportation as a key element.

To prepare to meet these regulations and others in the future, the Environmental Protection Agency and the transportation industry created "SmartWay Transport." SmartWay Transport is a voluntary partnership that establishes incentives for fuel efficiency improvements and greenhouse gas emissions reductions. Many of the regulations cited above incorporate SmartWay provisions. Today, the partnership has more than 640 partners, including some of the world's largest freight carriers, freight shippers, and logistics companies, as well as all seven Class I domestic rail companies, and many affiliate organizations, such as Cadec Global.

"To develop SmartWay, we worked with the American Trucking Association and other stakeholders to create a program that really made sense for the industry and that will provides them with opportunities to improve their overall freight operations and supply chains," Polovick says. "We have set ambitious emission reduction goals based on the projected adoption of new technologies and strategies. In fact, we're estimating that we can help the industry save more than 150 million barrels of oil each year by the year 2012, or the equivalent of taking 12 million cars off the road. That amounts to between 33 and 66 million metric tons of CO₂ as well as 200,000 tons of NO_x annually, plus particulate matter and air toxin reductions."



Technologies to Increase Fuel Economy—and “Go Green”

Fleet management is one of the technologies Polovick cites, and leveraging fleet management technology to capture critical data about vehicle and driver performance is one of the easiest ways transportation companies can improve fuel economy and reduce their impact on the environment.

There are five key ways fleet management technology can help companies increase fuel economy and “go green”:

1. Reduce needless idling
2. Control RPMs
3. Minimize speeding events
4. Limit deadhead or nonproductive miles
5. Eliminate unnecessary driving miles

Consider the case of one construction company. Prior to implementing fleet management technology, they averaged four miles per gallon. After implementing strategies to reduce idling and over-revving, minimize speeding, and eliminate unnecessary and deadhead miles, the company increased their fuel efficiency by 25 percent.

Reduce needless idling

With twenty states and the District of Columbia now enforcing “No Idle” laws, reducing idling has become more than just a way to increase fuel efficiency. Many of these laws mandate idle times of less than 15 minutes to eliminate CO₂ and other emissions. Fines in the thousands of dollars provide a powerful incentive for transportation companies to comply.

How can you track idle time to ensure that your drivers are complying with regulations and your own standards? And then how can you use this data to train your drivers to be more productive?

Cadec’s PowerVue and Mobius advanced fleet management solutions provide real-time visibility that enables you to monitor excessive idle time.



Driver Performance Summary (Condensed)

From 01/02/2006 through 03/31/2006

Sorted By Excess Idle Pct

* Percent Excess Idle is a percentage of total engine time

Driver Name	Ex Idle Time	Percent Ex Idle	# of Decels	Speed Time	# Speed Events	Percent Speed	O/RPM Time	# O/RPM Events	Unknown Stop Time	# Unkn Events
Muser,	2:00	47.85	0	0:00	1	0.66	0:00	0	0:08	1
Darnett,	3:04	31.22					0:00	0	30:35	5
Andrews, Courtney	11:01	29.50					0:01	10	28:29	35
Elks,	0:41	12.24					0:00	0	0:00	0
Smith,	1:26	9.38					0:00	2	8:57	8
Brady,	1:02	9.27		2:00		47.85	0:00	0	38:01	8
Bergeron,	0:32	8.48					0:00	0	0:00	0
Jones,	1:29	8.40		3:04		31.22	0:00	1	7:52	8
Beckett,	0:42	7.88					0:00	0	5:22	5
Daniels, Andrew	0:00	0.00		11:01		29.50	0:00	0	0:28	1
Totals:	22:02			0:41		12.24	0:02	13	119:56	69
Averages:	2:12	18.84					0:00	1.3	11:59	6.9
				1:26		9.38				
				1:02		9.27				
				0:32		8.48				
				1:29		8.40				
				0:42		7.88				
				0:00		0.00				
	22:02									
	2:12	18.84								

Figure 1 shows a "Driver Performance Summary" report that highlights idle time.

Technology	Cost ¹	Benefits ² (Monthly Fuel Savings)	Monthly Loan Payment @ 9% for 48 months	Net Monthly Savings
Idle Reduction Device – Bunk Heater	\$1,500	\$215	\$37	\$178
Idle Reduction Device – Auxiliary Power Unit (APU)	\$8,500	\$330	\$212	\$118
Aluminum Wheels for Single Wide Tires	\$5,600	\$153	\$139	\$14
Trailer Aerodynamics	\$2,400	\$191	\$60	\$131
Exhaust Aftertreatment Device – Diesel Oxidation Catalyst (DOC)	\$1,200	\$0 (20-50% PM emission reduction)	\$30	--
Exhaust Aftertreatment Device – Particulate Matter (PM) Filter	\$6,000	\$0 (90% PM emission reduction)	\$149	--

Figure 2 shows a sample of idle time and other devices and technologies that may be implemented to reduce costs.

Control RPMs

Over-revving consumes fuel without delivering any benefits to the business or to the engine. Many drivers have been trained to shift their



vehicle according to the sound of the engine, but with newer engines, it is not always easy to time shifting. Fleet management technology can equip you and your drivers with data you need to eliminate engine over revs—increasing fuel efficiency and improving driver performance.

With Cadec, you can establish RPM parameters—by vehicle—and your drivers will be alerted immediately if the RPM guidelines have been exceeded, eliminating engine-damaging RPM events. In Figure 1, the “Driver Performance Summary” report also highlights “over rev” events. In this case, a driver over revved ten times within a particular timeframe. This doesn't mean that the driver was “bad”; it more likely points to the fact that the driver had limited experience with this particular vehicle.

Minimize speed events

The goal of fleet management technology is to help organizations control costs and limit environmental impact by achieving peak vehicle performance. By finding the engine “sweet spot,” for example, and then coaching drivers to stay at or below that speed, companies can maximize fuel economy and reduce CO₂ emissions.

It is easy for a driver to move with traffic and not realize when they've exceeded the “sweet spot.” Cadec solutions can help reduce the number of speed events by alerting drivers when they have exceeded MPH guidelines. And because each vehicle may have a different “sweet spot”—one may have a maximum MPH of 62 while another may be 67—the technology can be tailored to meet the specific requirements of each vehicle. Figure 1 also shows portions of the “Driver Performance Summary” that identify speed time and speed events.

Limit deadhead miles

Optimizing routes traveled is one of the most efficient ways to decrease fuel consumption. Cadec's reporting enables you to track the load a vehicle is carrying throughout a route, and to determine if the distance traveled unladen is within parameters you've established.

Eliminate Unnecessary Driving Miles

Strict routing parameters enable you to improve performance and control costs. Cadec's PowerVue and Mobius technologies can track and report on out-of-route variances based on the routing technology you have in place. If, for example, a route was 32.7 miles but a driver traveled 49 miles, Cadec can track and then report on that 16.3 mile variance. With a



vehicle that gets five miles to the gallon, this variation means that more than three gallons of fuel were wasted traveling out of route.

Additional Cadec “green” benefits

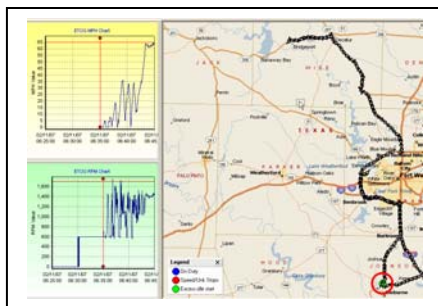


Figure 3 – ETOG Report

Vehicle Distance Report	
From 03/01/2007 through 04/30/2007	
Sorted By Distance	
Vehicle ID	Miles
9555	4,325.82
PACIFIC A	2,525.37
9554	1,619.51
525	1,152.40
9445	21.11

Figure 4 – Vehicle Distance Report

- **Leverage comprehensive reporting.** Cadec provides comprehensive reporting. For example, the “Electronic Tachograph (ETOG) Report” allows you to track a number of key parameters—including vehicle speed, RPMs, idling, and route—in a single report. In addition, the data is presented in real time, so that you can “follow” the route live. Figure 3 shows a sample of the “ETOG Report.”
- **Maximize vehicle utilization.** You can also look to Cadec’s reporting to maximize vehicle utilization and reduce fleet expenses. Figure 4, the “Vehicle Distance Report,” shows the total miles traveled by each fleet vehicle, allowing you to identify whether some vehicles are being over- or under-utilized to improve vehicle maintenance.
- **Reduce paperwork.** With Cadec, data is stored electronically, so you can “go green” by eliminating DOT “Hours of Service” logs and IFTA paper reporting.
- **Meet WEEE and RoHS directives.** Cadec complies with the Waste Electrical and Electronic Equipment or WEEE directive—which sets collection, recycling, and recovery targets for all types of electrical goods, and requires equipment manufacturers to dispose of WEEE when such products become obsolete or non-functional. Customers can return such materials to CADEC for disposal.

Cadec also complies with the Restriction of Hazardous Substances or RoHS directive, which restricts the use of six hazardous materials in the manufacture of electronic and electrical equipment: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, and polybrominated diphenyl ether. Cadec does not use these hazardous materials in our assembly.



Why Cadec?

For more than 30 years Cadec has set the standard for fleet management solutions. Cadec's Mobius TTS has a longstanding leadership position as the fleet management system of choice for improving safety, customer service and cost savings.

Our continued innovation and use of advanced technologies makes PowerVue the most flexible, customizable, and scalable system available to meet the needs of large, medium, and small fleets. PowerVue couples Cadec's decades of experience providing business process automation and telematics to the transportation industry with a new scalable and open standards-based architecture. The result is a single integrated software solution that unifies systems and streamlines processes to drive better business performance at a lower cost of ownership.

Cadec customers benefit from lower transportation costs, improved customer service and optimized asset utilization. No other fleet management vendor provides the flexibility and customization needed to address the business challenges faced by today's leading transportation companies.

To Learn More

To find out how Cadec's PowerVue and Mobius TTS solutions can help you reduce costs while protecting the environment, please call **1.800.252.2332**, email **sales@cadec.com**, or visit us on the web at **www.cadec.com**.