



A **stronger** economy.

A **healthier** environment.

SmartWay
Transport Partners
DELIVER.



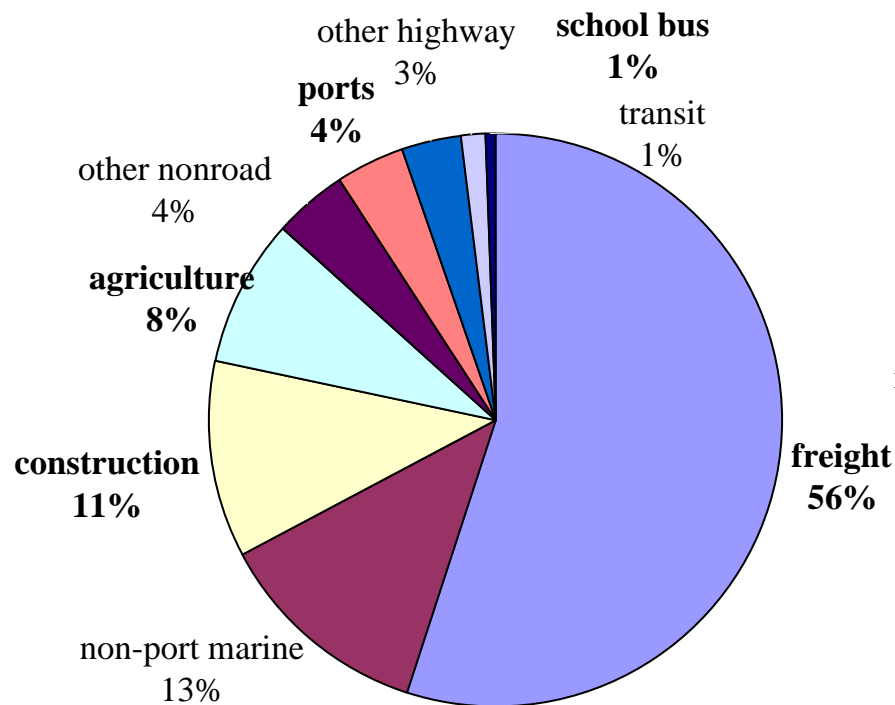
Improving Efficiency of Freight Movement with
EPA's SmartWay[®] Transport Partnership

National Clean Diesel Campaign

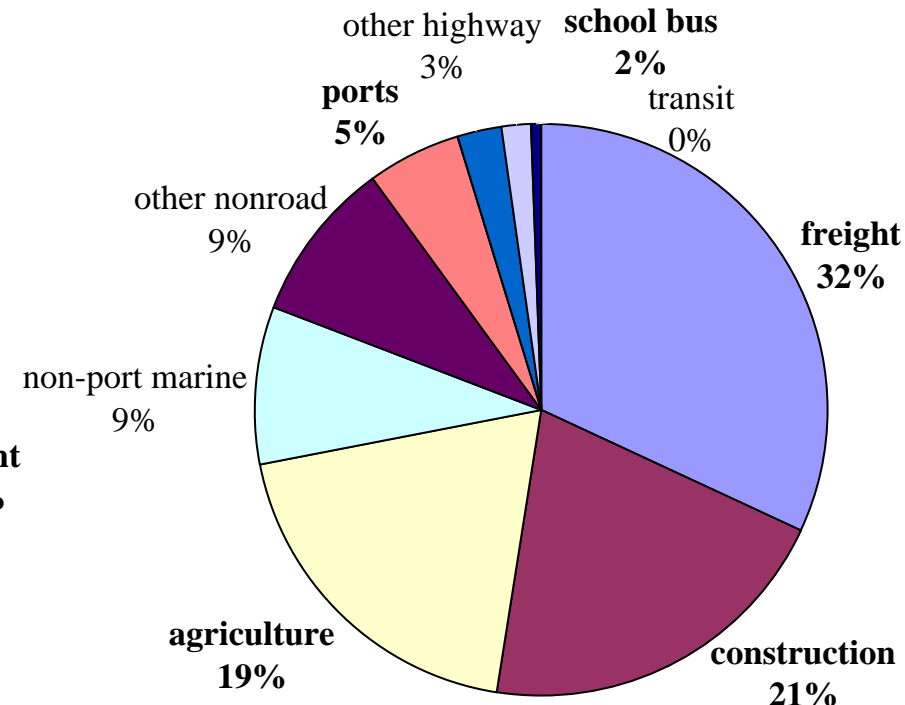
- NCDC is working to reduce the pollution emitted from diesel engines across the country through the implementation of regulatory and voluntary strategies.
- Regulations: 2007 Heavy Duty Highway Rule; Clean Air Nonroad Diesel Rule; new emission requirements for locomotives and marine diesel
- Voluntary Programs
 - Clean School Bus USA
 - Clean Ports USA
 - Clean Construction USA
 - Clean Agriculture USA
 - **SmartWay Transport Partnership**

Mobile Source Diesel Emissions Inventory by Sector (2004)

NO_x
(6.3 million tons)



PM 2.5
(305,000 tons)



SmartWay Transport Partnership

**CALCULATE YOUR SAVINGS
TO THE ENVIRONMENT. TO YOUR BOTTOM LINE.**



**For logistics managers, SmartWay[™]
can add up to 7% in fuel savings.**

SmartWay[™]Transport helps shippers and for-hire carriers lower greenhouse gases and other emissions, while at the same time giving the average truck a fuel savings of \$2,000 per year.

To find out more about this new partnership, call for your info kit at **1-734-214-4767** or log onto **www.epa.gov/smartway**.



A new voluntary program from the
U.S. Environmental Protection Agency

SmartWay Transport History

- EPA developed SmartWay cooperatively with industry
- Charter Partnership group worked directly with EPA to finalize details

Carriers

FedEx

UPS

Schneider National

Roadway Express

Yellow Transportation

Swift Transport

Coca Cola

CSX

Shippers

Canon USA

IKEA

Nike

Interface

The Home Depot

Norm Thompson Outfitters

HEB Grocery

Associations

American Trucking Associations

Business for Social Responsibility

- Partnership opened for business February 2004 at ATA's Winter Leadership Conference in Washington, DC
 - EPA welcomed 50 companies into the Partnership
- SmartWay is designed to create a market demand throughout the freight industry for cleaner more efficient freight transportation

SmartWay Transport Progress

- **300 companies and organizations have joined**

- 217 Trucking Carriers, 24 Shippers, 14 Shipper/Carriers, 8 Railroads, 3 Affiliates

	Industry Totals	SmartWay Carriers	% Industry
Total No. of Companies	525,000	300	< 1%
# of Trucks (Heavy and Medium)	5,400,000	300,000	5.00%
Gallons Consumed	35 billion	2.27 billion	6.70%
Tons CO₂	385,000,000	25,800,000	6.70%
Tons NO_x	2,800,000	229,000	8.00%
Tons PM	90,000	5,400	5.87%

- **53 Idling Reduction projects in the US either active or developing**
- **International agreement with Canada; working on international expansion (for example, Mexico border issues and training)**

Opportunities for Increased Efficiency

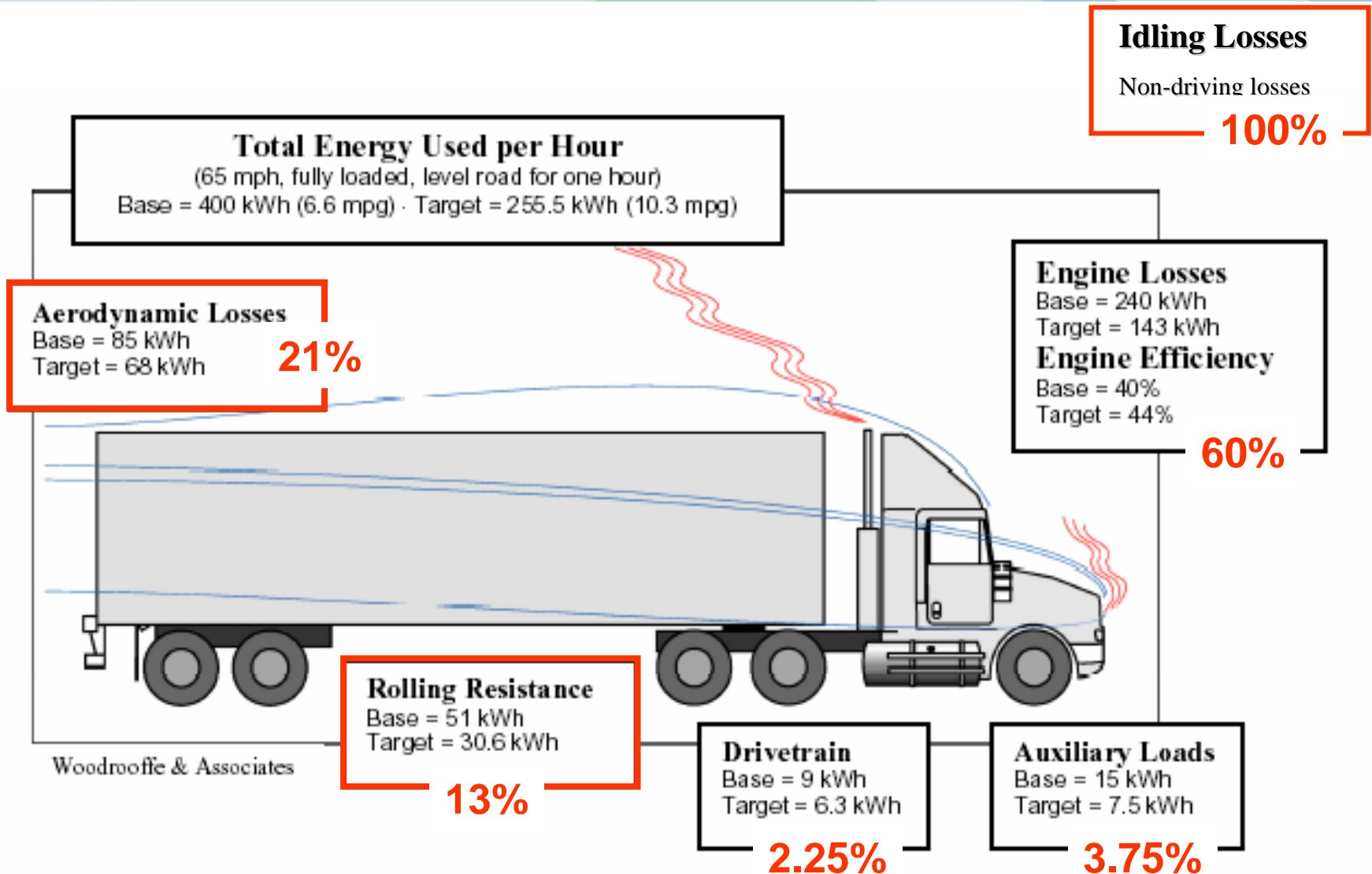


Fig. 4.1. Class 8 truck energy audit.

What is Needed to Improve FE: SmartWay Upgrade Kit

A Quick Look at Class 8 Long Haul Tractor-Trailers

	Today's Typical Technology	Near-term Goals (OTAQ Perspective)	21 st Century Truck Goals
FE full load @ SS 65 mph: <i>Typical Overall FE:</i>	6.6 mpg 6.0 mpg	7.7 – 8.6 mpg 7.0 – 7.9 mpg	10.3 mpg 9.4 mpg
Components	% improvements needed to achieve goals		
Engine	--	0% until post-2010	37%
Aerodynamics	--	5 – 7%	7 – 10%
Tires	--	5 – 10% (inc. weight)	8 - 10% (inc. weight)
Auxiliary	--	.5 – 1%	2%
Drive Train	--	.5 – 1%	2%
Idle Reduction	--	5 – 12%	n/a
Total	--	16 – 31%	56%



Capitalization & Innovative Deployment Strategies:

- **Creation of SmartWay Upgrade Kits:**
 - Technology bundle of idling control, wide base tires, trailer aerodynamics, and PM control device (Diesel oxidation catalyst)
 - Capital needed for Upgrade Kit is offered to owner and re-paid over time
 - **Monthly Fuel savings exceed the monthly loan payment**
- **Capitalization Programs:**
 - Arkansas and Minnesota (other states will follow shortly)
 - EPA is currently creating a national capitalization program
 - Could expand to private lending institutions
 - Could begin to evolve into Energy Service Companies (ESCOs) contracts
- **Potential DOT Financing:**
 - State Infrastructure Banks (SIBs)
 - SIBs as innovative loan structure well suited to finance SmartWay Upgrade Kits
 - For example, Oregon's Lane Regional Air Pollution Authority

Capitalization & Innovative Deployment Strategies:

The Business Case for SmartWay Upgrade Kits

1. High FE Truck w/ Oxidation Catalyst:

Device	Cost/Unit (Retrofit)*	PM Reduction	NOx Reduction	FE Change
Direct Fired Heater	\$1,000	5%	7%	7%
Super Single Tires w/ alum. wheels	\$3,500	--	5%	5%
Trailer Aero Kit	\$2,400	--	5%	5%
Oxidation Catalyst	\$1,000	25%	--	--
Totals:	\$7,900	30%	17%	17%

For a truck traveling 100,000 miles/year @ 6 mpg (16,667 gallons /year)

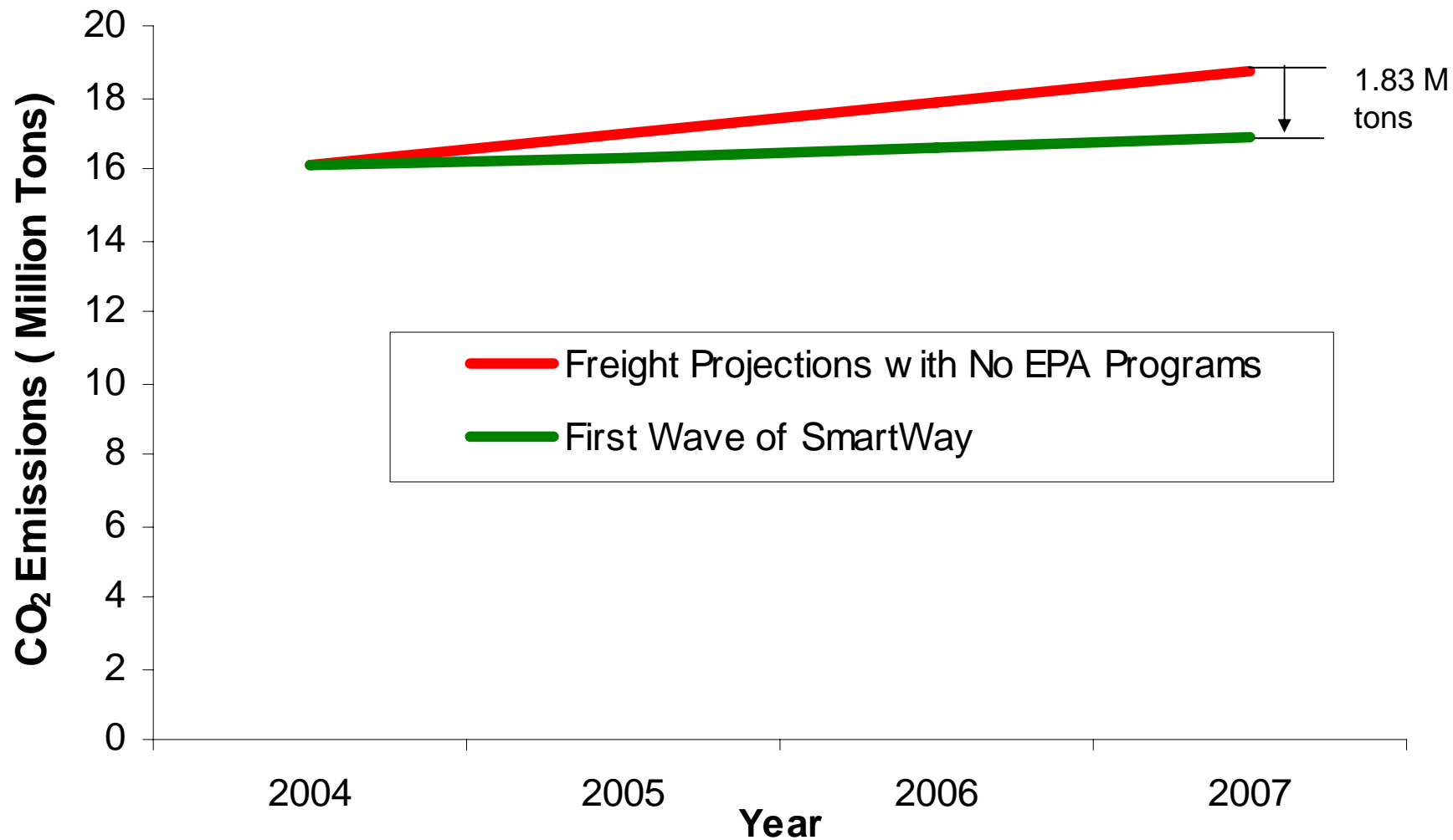
- Fuel savings: 2,833 gallons @ \$2.50/gallon → **\$7,083/year**
- Payback period: \$7,900 / \$7,083 → **~1.1 year**
- or a 3 year loan @ 4.8% APR:

Monthly Fuel Savings: \$590

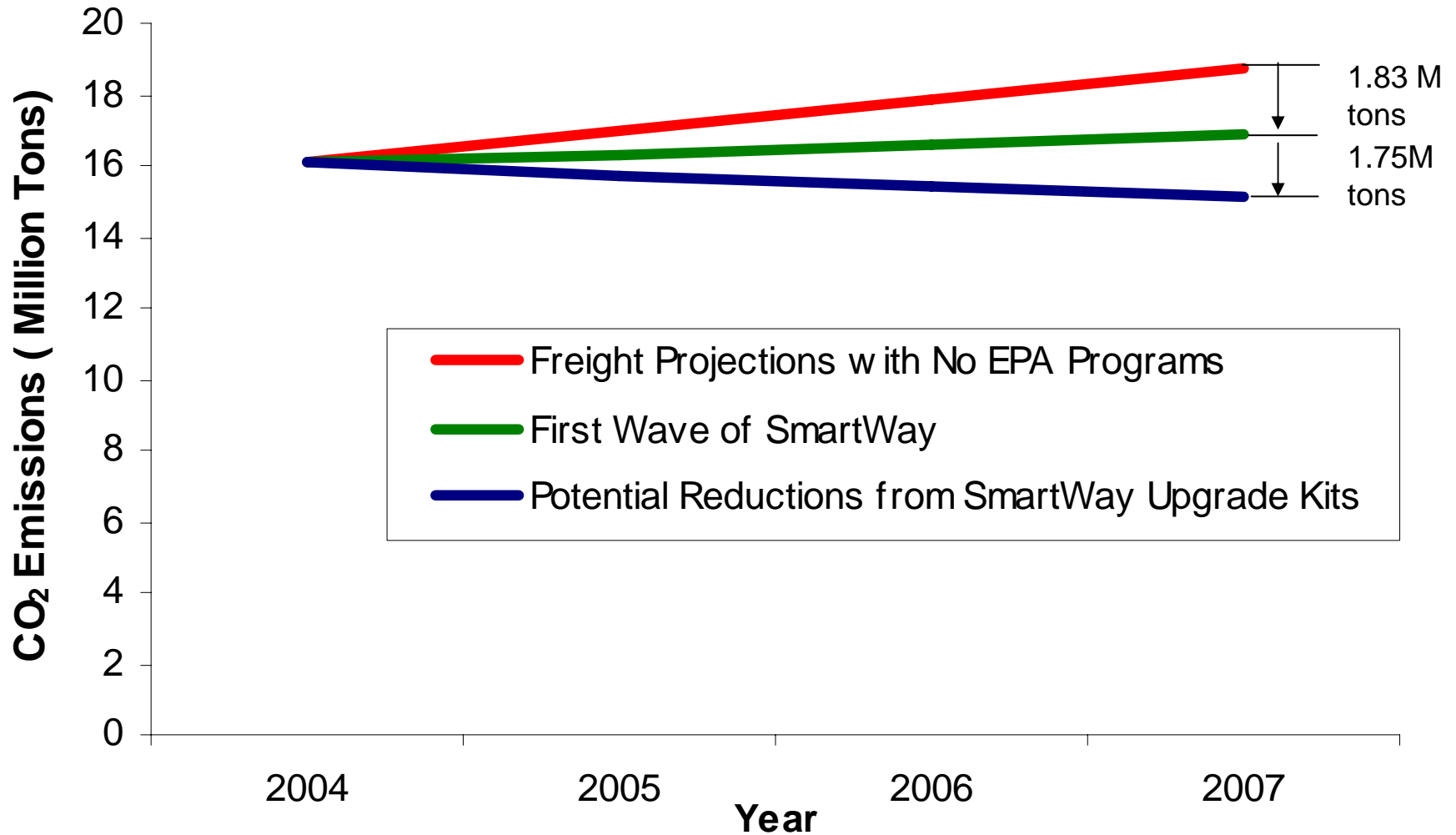
Monthly Loan payment: (\$236)

Monthly cash for driver: \$354

What have These Companies Done?



What Could These Companies Do?



How do Partners Measure Progress?

- **Freight Logistics Environmental and Energy Tracking Performance Model:**
- Carriers:
 - Calculate tons of CO₂, NO_x, and PM
 - Determine effectiveness of strategies used in the fleet (e.g., aerodynamics, idling reduction)
 - Project the effectiveness of strategies a fleet could add in the future.
 - Estimate cost savings and payback period for strategies
- Shippers:
 - Track percentage of freight shipped with SmartWay Transport Carrier Partners
 - Measure their environmental footprint

National Idling Program

Counter

- **Goal: To eliminate all unnecessary diesel engine idling**
 - Truck stops, travel centers, borders, ports, rail yards, loading docks, markets, roadside, etc.
- **2004: \$1 Million grant program for 9 TSE locations**
- **2005: \$5 Million grant program for stationary and mobile deployment**
- **2005: \$95 million authorized in Energy bill**
- **2005/2006: Hosted workshops to create model idling law**
 - Create consistency among the various state and local idling laws
 - Baltimore (May 6th), Atlanta (June 16th, 17th), Chicago (June 28th), San Francisco (July 14th), Connecticut (July 27th)
 - Draft state model idling law will be issued this month!
- **2006: IdleAire poised to deploy at over 200 truck stops with private capital**

Applying SmartWay Concept to Ports

- SmartWay Upgrade Kits for port drayage operations
 - Developing suite of technologies and strategies to be applied toward drayage trucks at ports
 - Technologies will be tested for fuel efficiency through technology verification program
 - Looking for CMAQ and SIB opportunities at ports to support Upgrade Kits
- Ocean-going vessels
 - Large pollution source at ports, difficult to target
 - Several SmartWay shipper partners (for example, Wal-Mart, Ikea) have expressed interest in working with us to reduce emissions from ocean-going vessels through expanded partnership agreement and goals
 - SmartWay shippers would ship more freight using lower-emitting and more efficient ocean-going vessels (e.g., cleaner marine fuels, ship emissions controls, speed control, etc.).

Applying SmartWay Concept to Border Trucks

- SmartWay Upgrade Kits for dedicated border trucks
 - Developing suite of technologies and strategies to be applied toward border trucks
 - Technologies: wide-based tires; lubricants; engine replacements
 - Strategies: Free and Secure Trade; e-manifests
 - Technologies will be tested for fuel efficiency through technology verification program
 - Looking for international assistance (NadBank, World Bank GEF) to support Upgrade Kits

For More Information

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