Reducing Air Emissions the Smart Way – An Introduction to Railroad Participation in EPA's SmartWay® Transport Partnership

Why Do Companies Join the SmartWay Transport Partnership?

Business case + environmental case =

- **Save fuel**
- **Save $**
- **Breathe cleaner air**
- **Get recognition**

What is the SmartWay Transport Partnership?

- **Launched February 2004**
- **3 Major Components:**
  - **Corporate Partnerships** – carriers and shippers working to reduce fuel consumption and emissions.
  - **National Idle-Free Corridors** – eliminate unnecessary idling along major transportation routes.
  - **Intermodal Shipping** –
    - recruit rail partners
    - encourage use of intermodal shipping as a SmartWay strategy
    - provide innovative financial opportunities for the purchase of SmartWay technologies for trucks and locomotives.

What is the SmartWay Transport Partnership?

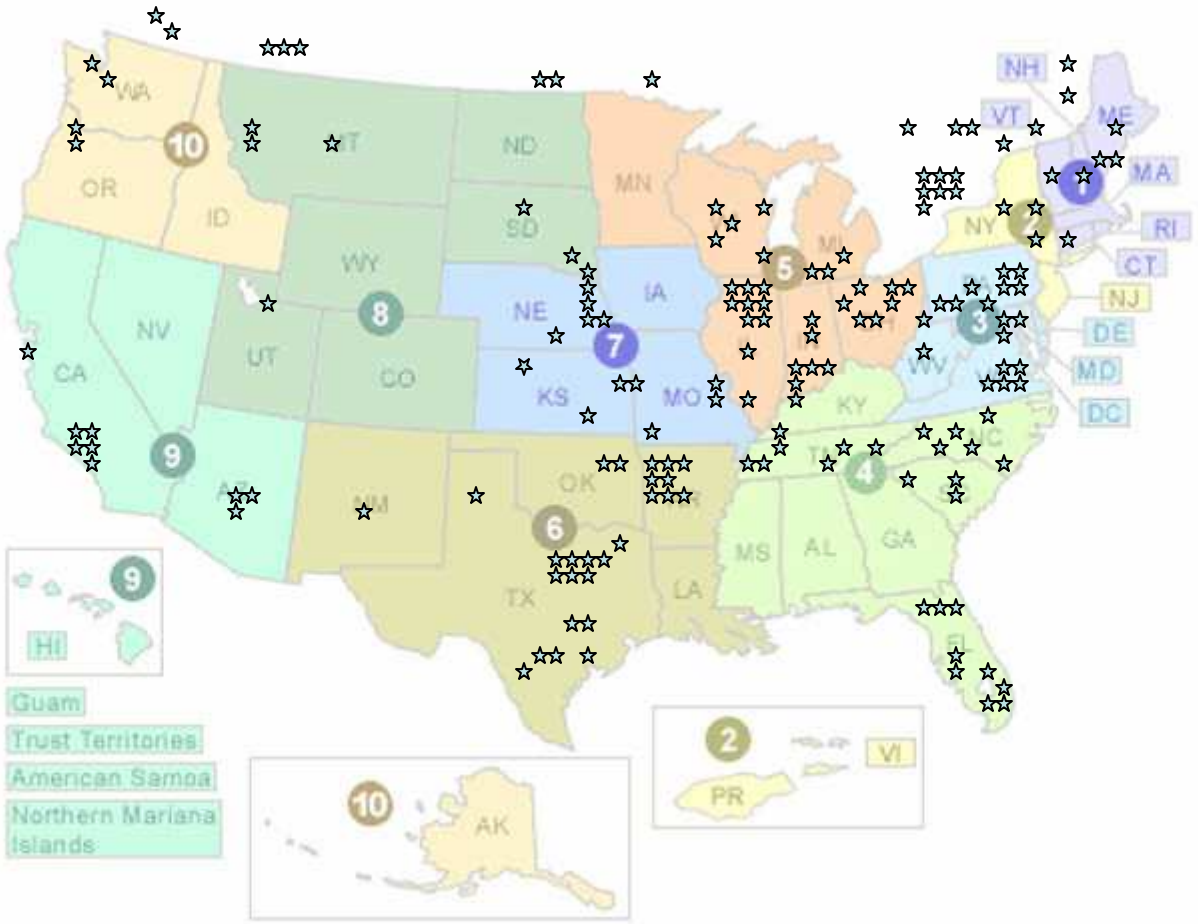
A voluntary partnership between EPA and the freight industry.

- Developed jointly by EPA and 15 Charter Partners. CSX was the charter rail partner, and AAR helped shape the program.
- Freight industry interests: reduce fuel consumption, public recognition, improved public image.
- EPA interests: reduced emissions (CO2, NOx, PM) and improved energy security.

The **Charter** Partners

Partners as of our 2nd Anniversary

Headquarters locations of over **300** SmartWay Transport Partners



SmartWay Progress to Date with Rail Carriers

- **Rail partnership unveiled May 25, 2005 at AAR's John H. Chafee Environmental Excellence Awards Ceremony- all Class 1 freight railroads joined as SmartWay Partners.**
  - Held at the U.S. Capitol and attended by railroad executives, Senators, and Members of Congress.
- **AAR has joined as a SmartWay Affiliate.**
- **First short-line railroad joined SmartWay in Sept. 2005 – Pacific Harbor Line, Inc.**
- **Class 1 partners have developed action plans for meeting environmental performance goals.**

SmartWay Rail Partners

- **BNSF Railway Company**
- **Canadian National Railway Company**
- **Canadian Pacific Railway**
- **CSX Transportation *(Charter Partner)***
- **Kansas City Railway Company**
- **Norfolk Southern Corporation**
- **Pacific Harbor Line, Inc.**
- **Union Pacific Railroad**

How Does the Partnership Work?

- **Carriers (Rail and Truck):**
  - Join the Partnership and agree to work toward improved efficiency and reduced emissions over a 3 year period.
- **Shippers:**
  - Join the Partnership and agree to work toward shipping more product with SmartWay Carrier Partners, as well as improving facility operations over a 3 year period.
- **Logistics:**
  - Join the Partnership and agree to work toward shipping more freight with SmartWay Carrier Partners, as well as bringing more of their contracted carriers into the Partnership.

Why is Rail Important to SmartWay?

- **Rail generates significantly fewer emissions than trucking per ton of freight moved.**
- **SmartWay is promoting intermodal shipping as a method of achieving emission reductions.**
- **Some shippers and logistics companies have a choice of truck or rail to transport goods.**
- **SmartWay is initiating activity at marine terminals, and aims to shift freight from truck to rail at ports.**
- **Effective intermodal shipping is critical to handling port capacity and emissions issues.**

SmartWay Truck vs. Rail Case Study

The Companies

- The Retailer: The Home Depot (SmartWay Charter Partner)
- The Logistics company: Hub Group (SmartWay Partner)
- The Manufacturer: Mills Pride Cabinets

The Change

- Home Depot joined SmartWay. Said to Hub: you have to join too to help us meet our goal or lose our business.
- Hub joined, and decided to increase use of rail to meet its own goals.
- Hub helped Mills Pride switch from truck shipments to custom 60-foot railcars.
- Cabinets are shipped from a Midwest plant to a rail-served warehouse in Los Angeles. Hub's proprietary load designs can load more than three truckloads into each rail car.

The Results: Through the use of intermodal shipping, Hub Group delivers cabinetry products on-time and intact, eliminated capacity constraints, reduced emissions, and reduced costs.

Annual Reductions and Savings Estimates

- 1 million gallons of diesel
- 11,000 tons CO2, 263 tons NOx, and 8 tons PM (equivalent to adding a PM filter on 400 Class 8B trucks or 1,600 buses)

Innovative Financing

- Working with partners to secure innovative financial opportunities, such as:
  - Low interest loans
  - Revolving loans
  - Energy Service Company agreements
  - Private financial institution investments
- Switcher locomotive upgrades should be an easier sell because gains more predictable
  - Permanency (stay & emit in one location)
  - Consistency (amount of idling is predictable)

How Can Rail Carriers Achieve Savings and Meet Partnership Goals?

- **Idle reduction (automatic start/stop systems or auxiliary power units)**
  - **Cost Range: $7,000-$40,000**
- **Low-emission switchers (hybrid, gen-sets)**
- **Improved aerodynamics for rail cars (cover empty cars with tarps on return trip)***
- **Improved wheel/rail interaction (lubricate surfaces)***
- **Others?**

***needs study/quantification**

List of SmartWay Idle Reduction Technologies

- **ZTR Control Systems**

  Manufacturers the SmartStart system, a microprocessor that automatically manages the shutdown and restart of locomotives while parked idling. It continually monitors existing conditions against a preprogrammed set of values. This system monitors the following operating conditions: reverser and throttle position, air brake cylinder pressure, engine coolant and ambient air temperature, and battery voltage and charging amperage. Cost: $7,500

- **EcoTrans Technologies**

  CSX Transportation and International Road and Rail formed this joint venture to manufacture and sell an APU, as the K-9. The APU automatically shuts down the main locomotive engine idle while maintaining all vital main engine systems (e.g., engine coolant water and lubricating oil temperatures). In cold weather it will maintain engine fluids at the proper temperature to prevent engine freeze-ups. It also provides 110/220 house current, which allows for locomotive cab heating and air conditioning (requires additional products). Consumes 0.70 gph. Cost: $35,000-$40,000

- **Kim Hotstart Manufacturing Company**

  A diesel driven heating system that allows an idling locomotive to be shutdown by heating and circulating the coolant and oil, charging the batteries and powering the cab heaters. The compact system can be mounted on the walkway or inside the car body where space allows. The system can also be linked to the ZTR SmartStart system for additional capabilities. The company also manufactures electric powered heating systems and battery chargers. Cost: $27,000-$29,000 (not including SmartStart).

See www.epa.gov/otaq/smartway/idlingtechnologies.htm

Use the form on the website to submit YOUR technology!

The SmartWay PSA Campaign:
PSAs in Trade & Business Magazines

SmartWay Next Steps with Rail Carriers

- **Finalize partner goals and action plans.**
- **Partners gather baseline data.**
- **Reach out to Class 2 and 3 railroads to encourage their participation in SmartWay.**
- **See progress!**

For More Information . . .

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