



Idle Free Corridors

Implementation Meeting

April 24, 2004

New York, NY

Why Idling?

- Environmental benefits: reductions of NO_x, PM, CO, CO₂, and air toxics
- Economic benefits: savings on fuel, maintenance, engine life; decreased dependence on oil imports
- Cost/Benefit: \$1,500 (rail) to \$2,500 (truck) per NO_x ton reduced

Truck/Locomotive Idling



- Truck Top 3 Reasons:
 - Climate Control (AC, heat)
 - Power accessories (e.g., TV)
 - Protect engine in cold weather
- Locomotive Top 3 Reasons
 - Protect engine in cold weather
 - Readily available engine
 - Habit/custom

Idling Emission Impacts



- Long Haul Trucks:
 - NOx: 180,000 tons per year
 - PM: 5,000 tons per year
 - CO2: 11 million tons
 - Fuel: 1 billion gallons
- Switch Yard Locomotives
 - NOx: 13,000 tons per year
 - PM: 430 tons per year
 - CO2: .75 million tons
 - Fuel: 65 million gallons

Other Impacts



- Air toxics (formaldehyde and trace metals)
- Pollutants in environmental justice areas (inner-city rail yards)
- Noise pollution
- Increased maintenance on engines
- Decreased engine life

Alternatives

- **Change Behavior/Provide Incentives**
 - Difficult to change behavior when idling is necessary to provide heat or air conditioning to rest comfortably
- **State Anti-Idling Laws**
 - Difficult to enforce; unfair to impose when alternatives are unavailable
- **Idle Reduction Technologies**
 - Mobile & Stationary devices (see handout in folder)

Truck Idle Reduction Technologies



- Automatic engine shut-down systems
- Diesel Fuel Fired Heaters
- Auxiliary Power Units/Generator Sets
- Truck Stop Electrification (on-board HVAC + electrical connection)
- “Advanced” TSE (external unit only)

Auxiliary Power Units



- What is it?
 - Small diesel powered combustion engine, ~10 hp, EPA certified non-road engines
- What does it do?
 - AC, heat and power for auxiliaries
- Cost: \$5,000-\$7,000
- Issues:
 - Weight, maintenance, extra tax, costly

- Major manufacturers: include Pony Pack (see picture), Rig Master, and Teleflex

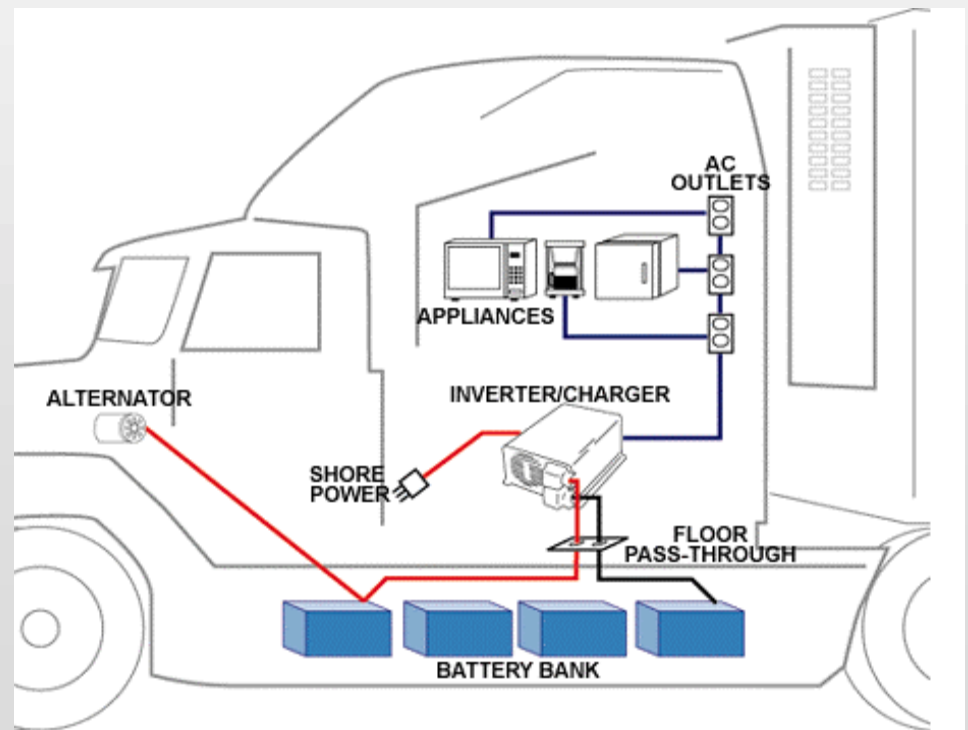


Truck Stop Electrification (Shore Power)



- What is it?
 - Inverter/charger & electric HVAC; connection to external electrical grid
- What does it do?
 - Provides power for HVAC and auxiliaries
- **Cost:** Inverter/Charge + electric HVAC (\$4,000); external connection (\$2,500/space)
- **Issues**
 - Requires modifications to truck, external connection not readily available

- Major manufacturers:
Xantrex (see picture below),
Dometic/Cab Comfort, Taylor, Phillips,
Antares



Advanced TSE



- What is it?
 - Electric HVAC system suspended above trucks
- What does it do?
 - Provides power for HVAC and auxiliaries; cable, telephone
- Cost: \$10,000 per space (50 space min); \$1.25-\$1.50 hourly charge
- Issues:
 - Costly; available in only a few locations

- Major Manufacturer: IdleAire Technologies, Inc.



Locomotive Idle Reduction Technologies



- Automatic Shut Down/Start Up System
 - Maintains all vital engine systems by turning engine on and off based on temperature and/or time
 - ZTR Control Systems
 - \$7,500
- APU
 - Maintains all vital engine systems
 - CSXT
 - \$35,000-\$40,000
- Diesel Driven Heating System
 - Maintains all vital engine systems
 - Kim Hotstart Manufacturing
 - \$27,000-\$29,000

Barriers

- Weight of APUs (250-500 lbs)
- Tax on APUs (FET 12%)
- Maintenance of APUs
- APUs too expensive
- TSE not readily available
- TSE too expensive



EPA-DOT-DOE Response

- Weight waiver of 250 lbs in Energy Bill
- TSE projects eligible for CMAAQ funds
- Grant program to assist truck fleets in purchase of mobile idle reduction technology
- Demonstration projects for locomotives
- Demonstration projects for TSE

State Wide Truck Parking



STATE	TOTAL TRUCK PARKING SPACES (public & private)
New York	8,227
New Jersey	4,397

State Wide Truck Impacts: Fuel



STATE (if 50% of all parking spaces had idling trucks)	FUEL (million gal/yr)
New York	10 M
New Jersey	5 M

State Wide Truck Impacts: NOx



STATE (if 50% of all parking spaces had idling trucks)	NOx (tpy)
New York	1,800
New Jersey	950

State Wide Truck Impacts: PM



STATE (if 50% of all parking spaces had idling trucks)	PM (tpy)
New York	50
New Jersey	26

Railroad Mileage per State



STATE	Mileage
New York	3,788
New Jersey	922

East Coast Railroads



RAILROAD	# LOCOMOTIVES
Norfolk Southern	3,455
CSX Transportation	3,360
Canadian National/Illinois Central	296
Canadian National/Grand Trunk Western	109

Switch Yard Locomotives (CSXT Only)



STATE	# SWITCHERS
New York	79
New Jersey	9

Switcher NOx Impact (CSXT Only)



State	Fuel (gal/yr)
New York	948,000
New Jersey	108,000

Switcher NOx Impact (CSXT Only)



STATE	NOx tpy
New York	205
New Jersey	23

Switcher PM Impact (CSXT Only)



STATE	PM tpy
New York	7
New Jersey	.7

Potential Truck Stop Projects



- Selection Criteria:
 - Site Density: number of other truck stops nearby
 - Usage: current demand/supply ratio
 - Growth: estimated annual % increase in demand
 - Capacity: <25, 25-50, 51-99, 100-199, 200+)
 - Ozone and PM Status: attainment, maintenance, non-attainment
 - Census: population density within 0.5 mile radius
 - Regulation: presence/absence of state or local anti-idling law
- Priority Areas
 - See handout in folder

Objective

- Build idle reduction projects at key locations along major transportation routes
 - Bring together a team to get this done: EPA, DOT, DOE, state/local government, energy provider, technology manufacturer, truck/rail companies, truck stops, community groups, others.