



# Don't Idle Your Profits Away!

Impacts of Idling, and How to Reduce Them



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Mid-America Truck Show  
March 2003

# Truckers give many reasons for idling

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TRANSPORTATION RESEARCH

- To keep driver comfortable
- To mask out noises and smells
- To keep the fuel and engine warm
- Because the other drivers do it
- Safety

Locomotives idle for similar reasons.

But idling overnight

- wastes money
- uses excess petroleum
- causes more air pollution
- makes extra noise



Modern sleeper



# 840 million gal/y of diesel fuel consumed by idling long-haul trucks

- 458,000 combination trucks travel >500 miles/day in US
  - Only about 210,000 parking spaces
- Industry source estimates typical idling 1830 h/y
  - May be more with hours-of-service rules in place
- Actual practice varies
  - from 1-2 night/week (<1000 h/y)
  - to never turning off (>5000 h/y)
- Good statistics not available

# Tankers carrying wasted fuel would cover I-95

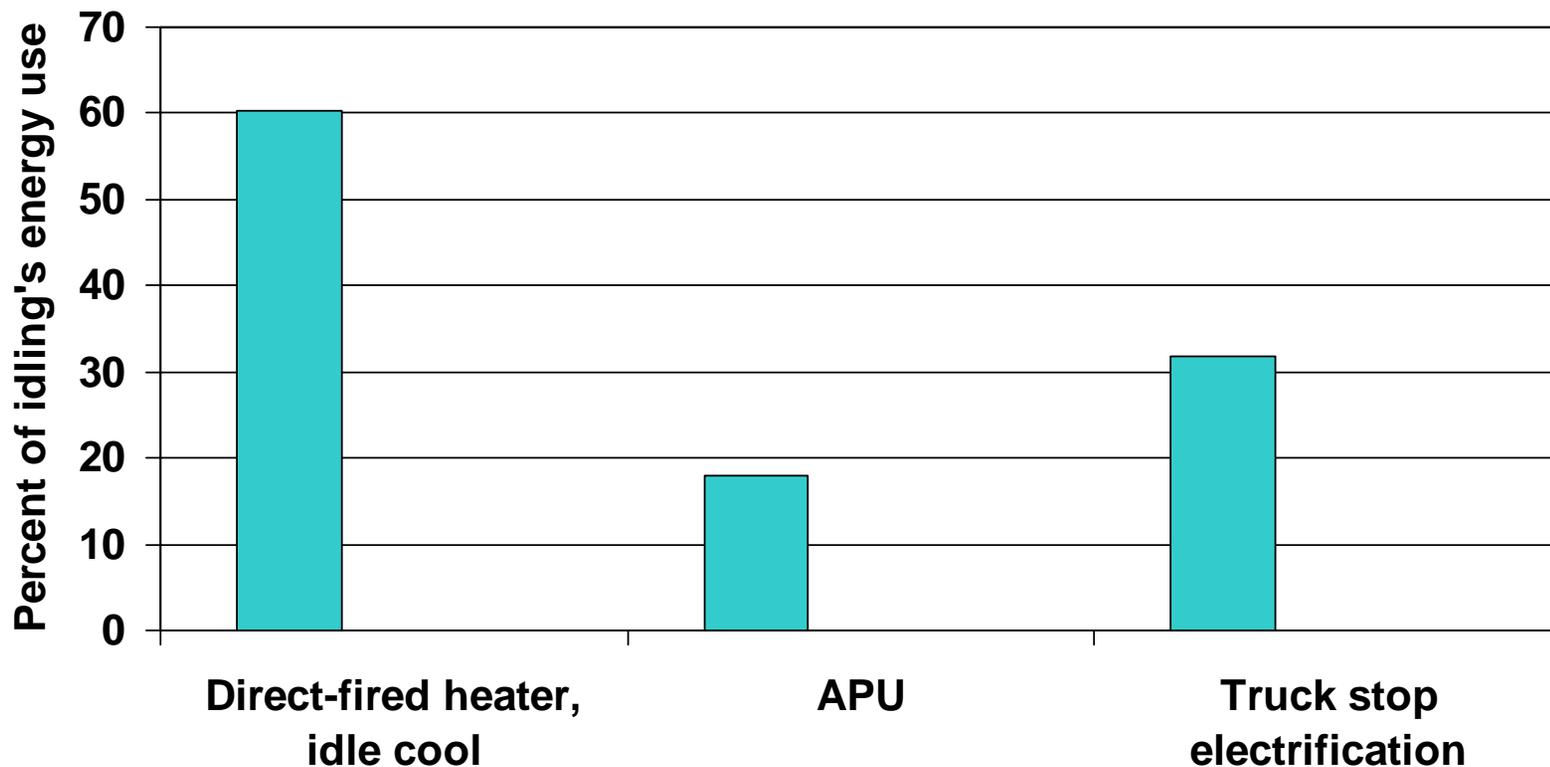




# Devices to keep cab comfortable have payback times from 4 months to 4 years

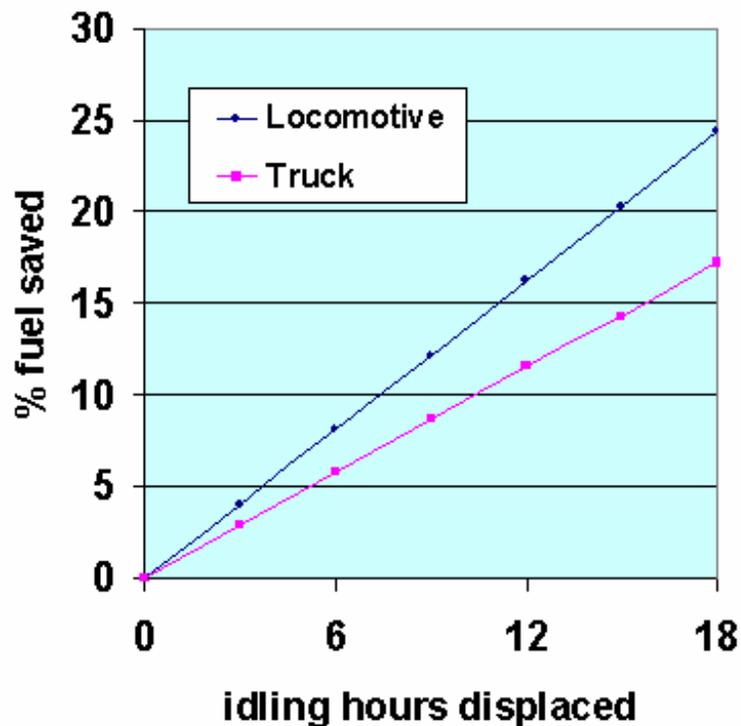
Technology	Benefits	Drawbacks
Automatic start/stop	Intermittent services anywhere	Noise disrupts rest; uses main engine
Direct-fired heater	Heat anywhere; small and inexpensive	Cannot supply cooling; uses battery
Auxiliary power unit (APU)	HVAC and power anywhere	High cost and weight
Truck stop electrification (TSE)	All services; no <b>local</b> emissions	Only at fixed locations; <b>limited potential</b>
Integrated electrical accessories with APU	HVAC and power anywhere	In development (2005 intro); only on new trucks

# Alternatives to truck idling have lower impacts



Similar reductions occur for CO<sub>2</sub> emissions and petroleum consumption except truck-stop electrification uses <1% petroleum.

# Potential fuel savings are significant



- Truck idling reduction could save 630 million gal/y\*
  - Over \$1 billion in total fuel savings
  - Up to \$3500 annually per truck
  - 230 million gal/y from locomotives
- **Incentives needed to boost market penetration**
  - Tax credits
  - Low-interest loans
  - Emission credits
  - Weight waivers

\*Assumes 75% of idling displaced



# Real help is needed

We just received this note:

“As an owner of 1 truck, I am interested in reducing my idling. I would like to install an auxiliary power unit, but cannot find the funds to do this. **Does the government have a program that could help an owner-operator get the money to buy one**, like a grant or small business equipment loan?

I know there are a lot of people who would take advantage of anything that would help in defraying the cost, not only as a way to save money, but it would also help the environment.”



# Credit trading can provide incentive to reduce emissions

- Could trade NOx or CO2 emission credits
- NOx credits worth up to \$75,000/t/y
- Stationary but not mobile source trading established
  - Pilot program in Houston
  - Truck stops are stationary
- Trading reduces emissions if
  - Buyer would have been non-compliant and paid fine, or
  - Part of credit is retired
  - Lower limits enabled
- For more information, see 2002 A&WMA paper 43095
  - Trading of Locomotive NOx Emissions: A Potential Success Story



# Agencies have complementary missions

- DOE - To foster a secure and reliable energy system that is environmentally and economically sustainable... to increase the efficiency and productivity of energy use, while limiting environmental impacts
- EPA - To protect human health and to safeguard the natural environment— air, water, and land
- DOT - To ensure a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life...
- National Energy Plan added this for EPA/DOT: To develop ways to reduce demand for petroleum transportation fuels by working with the trucking industry to establish a program to reduce emissions and fuel consumption from long-haul trucks at truck stops by implementing alternatives to idling...



# DOE activities awakened interest in idling reduction

- Published reports in 1986 and 2000
  - Compared technology impacts
  - Widely distributed and publicized in trade press
  - Posted on web, with worksheet to calculate savings
    - <http://www.trucks.doe.gov>
  - Booth at truck shows
  - Presentations at conferences and Truck Maintenance Council
- Compiled data on regulations
- Supports technology research
  - MorElectric Truck Program (visit the Caterpillar exhibit!)
  - Fuel cell APU studies
- Railroad research roadmap features idling reduction
- Provided grant to Maryland to install locomotive APUs



# Stakeholders have complementary roles

- DOE focuses on energy and emissions R&D
- EPA formulates environmental programs and regulations
- DOT emphasizes infrastructure and operational safety
- Manufacturers improve equipment
- Truck owners install it
- Drivers turn off their engines

Collaborative effort can win the game!

