Alternatives to Truck Engine Idling

“It is impossible to enjoy idling thoroughly unless one has plenty of work to do.”

Jerome K. Jerome
Who, What, Where, When, Why, and How?

Bill Gouse
American Trucking Associations
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Who?

• Applications and Vocations
  – Long Haul
  – Line Haul
  – P & D
  – Emergency Service
  – Power / Utility
  – Refuse / Recycling
  – Construction
  – Concrete Mixer
  – -------→
More “Who”…

- Drivers
- Motor Carriers
- Shippers / Receivers
- Travel Centers
- Governments
What?

• What is the motivation?
  – Safety
  – Cost
  – Productivity

• What are possible solutions?
  – What is available “now”
  – What the future might offer…
Where?

• Government owned / operated facilities
  – Weigh / Inspection areas
  – Public Rest Areas
  – Shipping / Receiving
• Travel Centers
  – Fuel Island
  – Parking
• Motor Carrier Terminal
When?

• 3 Minutes…
• 10 Minutes…
• 20 Minutes…
• 10 Hours…
• 34 Hours…
• Until the thaw…
Driver “technology”

Provide incentives through programs to encourage idle reduction where appropriate.

Positive:
• Low Cost
• Drivers have an option to participate
• Additional pay for drivers
• Reinforce correct behavior

Negative:
• Complex, difficult to manage
• Requires engine recording
• Negative driver perception
• Does not eliminate idling
Diesel Fired Cab Heaters

Small diesel fired furnace for heating cab when engine is off

Positives:
- Offers some cost payback
- Ease of operation
- Compact, don’t take up a lot of room
- .07 Gallons/hour fuel use
- Provide more than enough heat in all winter temps

Negatives:
- Does not have full payback
- Drivers leave it on entire time truck is parked
- Some battery usage
- Risk of jump start below 10° F
Cab and Coolant Heaters

Heat engine coolant keeping engine and cab warm

Positives:
- Heat both engine and cab
- Simple to use
- Compact, don’t take up a lot of room

Negatives:
- Battery power requirements
- No cost payback
- Additional complexity, requires tie in to engine and heating systems
Gensets

Diesel powered generators provide cab heating, cooling, electrical, charging and engine heat

Positives:
• Gensets do it all
• Ease of operation for drivers

Negatives:
• Very high cost
• PM interval is half tractor interval
• No cost payback
• .2 gal/hr Vs .75 for engine
• Added maintenance costs
• Some soon to be “outlawed”
Remote Heating and Cooling Solutions

Off-board heating and cooling solutions. Removable ductwork connects to tractor

Positives:
- Require no separate components on tractor
- Pay as you go
- Offer drivers internet and phone connectivity

Negatives:
- 80% of drivers park at or near customer locations, not truck stops or waysides
- No infrastructure exists or is likely to exist in near future
- Per hour cost is more than break even
- Risk of jump start below 10
110 Volt Systems

Uses a 110 volt RV Style A/C system to cool truck during engine off. Works off of a plug in or inverter and battery pack.

Positives:
• Provide adequate air conditioning in all temps
• Easy to use
• Experience in RV industry makes it a mature product
• Mobile Solution

Negatives:
• Cost
• No 110 Volt infrastructure and none on horizon
• Battery pack with inverter needed, cost, weight
12 Volt Systems

Uses a 12 volt A/C compressor and battery pack / ultra capacitors for engine off A/C.

Positive:
- Decent capacity for cooling
- Battery life looks good
- Potential to displace sleeper A/C unit
- Mobile Solution

Negative:
- Cost
- Requires additional battery pack
- Limited capacity
- Unknown durability
- Cooling only
Phase Change Storage Systems

Utilizes existing tractor air conditioning to charge a storage system. Discharged during breaks.

Positives:
- Lowest cost A/C approach
- Can be integrated with bunk A/C
- Mobile solution
- Very low noise

Negatives:
- Capacity, weak performance over 90° F ambient
- Poor tractor insulation capabilities
- Requires cocooning for maximum performance
- High driver interface
There are no solutions that offer a payback for heating and cooling!
How do we move forward?

Government Support:
• Focus on solutions and not tickets
• Support for legitimate development
• Incentives for more in depth cooperative evaluations
• Weight offsets for idle technologies

Industry Support:
• Lead -Tractor manufacturers
• Cost effective, integrated solutions
• More effort on work to find a solution
• Stronger partnerships with motor carriers and service providers
Future?
Let Sleeping Drivers Sleep!
Thank You

Bgouse@trucking.org

or

Engineering@trucking.org