Complete engine-off, anti-idling solutions

1) Heavy Duty Truck engine-off heating and cooling systems
   • Total anti-idling solution
   • Eliminates the need for climate control related idling

2) Passenger Car and Light Truck engine-off parking heaters
   • The logical alternative to remote starting devices

3) Fuel Cell APU - Total engine-off power solution
   • The future of anti-idling technology for trucks, buses and passenger cars
Heavy Duty Truck Engine-off Heating and Cooling Systems

- Fuel Operated Parking Heaters
  - Proven technology, in production for over 30 years
  - In-cab, engine-off overnight heating solution
  - Approximately 1% of idling truck emissions
- Parking Cooler
  - Totally new, completely innovative product
  - In-cab, engine-off overnight cooling solution
  - ZERO emissions!
Heavy Duty versus Light Duty Idling

- More work needs to be done, but solutions are in place to solve heavy duty truck idling
  - Legislation moving forward
  - Positive progress being made
  - Technology is commercially available

BUT...
- Light duty vehicle idling is the new and upcoming challenge
- Data shows that this segment will represent over 70% of today’s heavy duty vehicle idling emissions by 2010 and will continue to grow
- All the efforts to eliminate heavy duty vehicle idling may be offset by light duty idling
Facts about unattended idling passenger vehicles

An unattended idling vehicles obtains ZERO MPG.

In 2004 over 4 million remote starters were installed in North America. The practice of remote vehicle starting and subsequent unnecessary idling is growing at an alarming rate 12.6% annually. – source Martec Study

Without a change, in 2010 OEM and aftermarket remote start idling will contribute the following annual emissions:

195,350 Tons of CO
803 Tons of NOx
15,673 Tons of HC
6,363,698 Tons of CO₂

-Source EPA Approved Laboratory

The Tonnage figures shown above do NOT include emission data from passenger vehicles idling not equipped with an OEM or aftermarket remote starting devise.
Webasto Summary:

• Privately Owned
• Not reliant on public funding
• In business since 1901
• Invests majority of profit into new technologies
Anti-Idling legislation and enforcement

- Current anti-idle legislation is focused mainly on the Heavy Duty Truck industry.
- When anti-idle laws are passed, enforcement is an important consideration.
- Idle reduction in passenger vehicles will lead to improved air quality.

BlueHeat® operates and functions WITHOUT IDLING.
Light Duty Vehicle Anti-idling Solutions

Fuel Operated Parking Heaters (BlueHeat ®) eliminates a consumers desire to idle a vehicle for the purpose of heating
  • Technology available today
  • Widely used throughout Europe – In use on millions of vehicles today

Emissions are reduced in two vital ways:

1. Vehicle’s engine does not need to idle for heat
   • Webasto heater produces approximately 4%* of idling vehicle emissions (* HC + NOx)

2. A preheated engine will always produce less pollution at start up
How it works:

BlueHeat® operates and functions WITHOUT IDLING.
Fuel Cell Auxiliary Power Units (APUs)

Next Generation of clean engine-off power for all modes of transportation

• Total engine independent power solution
  • Truck, Bus, and Passenger Car
• Solves all cooling, heating, and electrical power needs
• Completely eliminates need to idle
• Technology developed internally with no outside sources of funding used or required