



## ***Next Steps for Technology***

### **Steering Committee**

*National Idling Reduction Planning Conference*

*Albany, NY*

*May 17-19, 2004*



# Technology Summary – Customer needs

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- **“Lighter, smaller, cheaper” – all types of technology**
- **Need to improve**
  - Efficiency of all technologies / load management / load levelling
  - Cab insulation / reduce thermal loads / window glazing
    - Can reduce hotel loads
  - Batteries / DC power / super caps / ultra caps
    - Continuous operation
    - Minimize drawdown
    - Power demands
  - Fuel cells
    - Infrastructure / on-board hydrogen storage vs. fuel reformation
    - Safety
    - Not yet in production
  - Capture & utilize waste heat
  - Reduce noise (all IR technologies, esp. APUs)
  - On board cooling technology
  - Electrical distribution of refrigeration units
  - 8-12 hours continuous operation required
- **Need a variety of options due to**
  - State-to-state legislative variability
  - Various companies have different needs, financial justification



# Technology Summary – Testing

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## ■ Testing

- Consistent, standardized of different IR technologies
- Longer duration to understand maintenance / ICE wear benefits
- Understand interaction w/ service intervals
  - Oil / oil filters (primary engine, APU if on vehicle)
- Understand fuel economy benefits of different types of IR technologies
- Quantify HVAC requirements (local vs. whole cab)

## ■ Test & evaluate emissions, develop standards

- Heaters, APUs
  - Cleaner, smaller ICE APUs...should they meet 2007/2010 regs?
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# Technology Summary – Interface

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## ■ Standardize Infrastructure / Vehicle

- Connections
- Plumbing
- Wiring / Electrical
- Mounting of various technologies
  - Brackets
- Locations of technologies
- Space claim requirements
- Engine-off HVAC standards
- Lightning protection
- Standardized duty cycle for product comparisons – GOOD LUCK!



# Technology Summary – Various & sundry

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- **Use APU as low-speed primary propulsion (ie, in traffic jam)**
  - **Learn from others**
    - Successfully implemented programs outside of US
    - RV, marine markets
  - **Engine electrification and start / stop are near-term solutions**
  - **Where is idling doing the most damage / happening the most?**
    - ***In military speak: Seek and destroy!***
    - Are specific cities worse than others?
    - Verify “where” (truck stops, near drop-off locations, US borders, etc.)
    - How is this changing with new hours-of-service rules?
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# Technology Summary – Applications

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- **How to leverage driver retention**
  - Want to keep the drivers and others safe and healthy
  - Want to make all technology options transparent to drivers
- **Understand your customer**
  - Application definition
    - Example of military
      - Cost is secondary to fuel savings, unlike commercial industry
      - Shorepower not an option when deployed
    - Example - Is shorepower on the routes a vehicle will run?
    - Example - What weather conditions will the vehicle experience?
  - If fleet turnover cycle < IR tech payback, doesn't make business sense unless there is resale value
  - Bus vs. truck
    - Bus – more focus on changing culture, truck – focus on changing culture as well as technology development

# **Technology Summary – Gov involvement**

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- **What is cut-off of government support to introduce technology / successful market penetration?**
- **Who is in charge of keeping it a level playing field?**
  - States favor one technology because of local/political benefits, but it may not be best solution for all applications
- **Gov agencies need to continue to coordinate amongst themselves as well as with industry**
  - Form a gov / industry workgroup such as TMA / EMA / ATA that is specific to idling
    - US, Mexico, and Canada