Predicted Impact of Idling Reduction Options for Heavy-Duty Diesel Trucks: A Comparison of Full-Fuel-Cycle Emissions, Energy Use, and Proximity to Urban Populations in Five States

August 15, 2007

Poster P-26

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**PM$_{10}$ emissions vary by state and technology**

- All idling-reduction options reduce full fuel-cycle emissions vs. idling
- Highest emissions in states with highest cooling loads
- Electrified parking space PM$_{10}$ high because of grid reliance on coal
  - Urban component low
- APU options have high urban component

**KEY:**
- APU = Auxiliary power unit
- DPF = Diesel particulate filter
- DFH = Direct-fired heater
- BEC = Battery-electric cooling
- AC = Air conditioning
- EPS = Electrified parking space