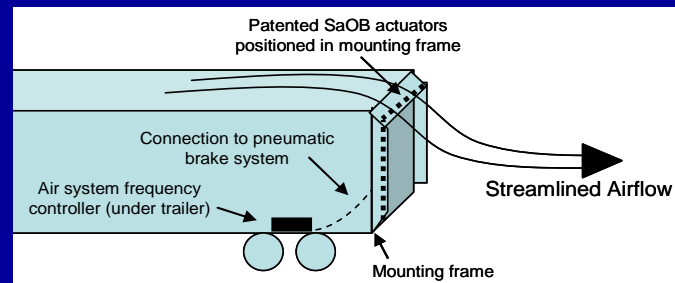


Innovative Clean Air Technologies Program (ICAT)

Project Recommendations for the Board's Consideration



ARB Support for
Promising
Technologies

February 26, 2009

California Environmental Protection Agency

 **Air Resources Board**

What Has ICAT Accomplished?

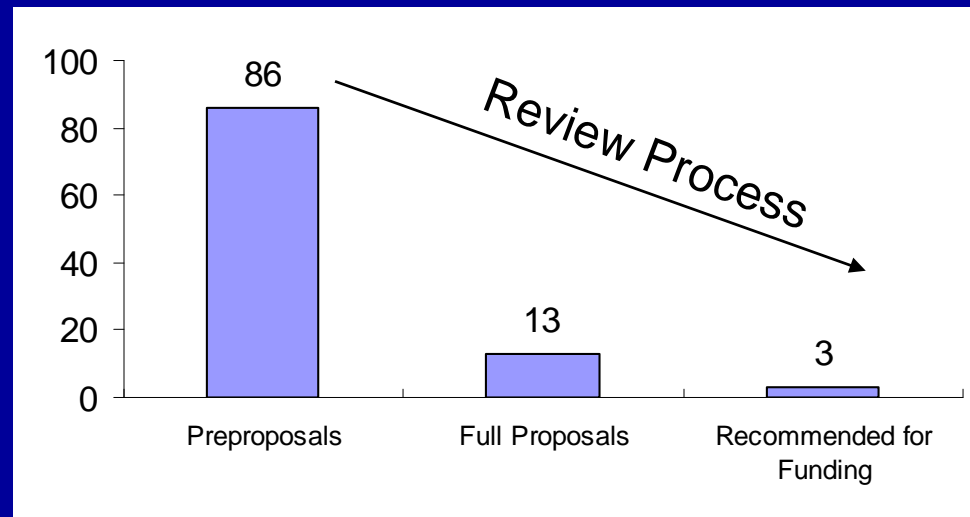
- 10 past projects have been commercialized, examples include:
 - airport electric ground support equipment
 - electrically-regenerated diesel particulate filter
 - controlling boiler NOx emissions
- 16 projects currently underway include:
 - ferry boat NOx emission control
 - outboard motor catalytic converter
 - low-cost residential solar water heaters
- ICAT has reduced 1200 tons criteria emissions
- Avoided ~60 premature deaths

Staff Examined Payback Requirement

- Board requested staff investigate ICAT receiving payback from participants (e.g., royalties)
- The 3 main issues:
 - Payback requirements would discourage applicants
 - ~18 months for legislation and implementation
 - Staff administrative costs would likely exceed income
- Staff recommends no ICAT payback requirement

Selecting 2008 Grantees

- Solicited applications focusing on greenhouse gas controls
- Received 86 pre-proposals
- Invited and evaluated 13 full-proposals
- Selected 3 for recommendation to Board



Three New ICAT Grants Recommended

- \$709,904 in total ICAT support
- Over \$1.6 million total project value (including applicant's contributions)
 - Emission controls for dairy digester engines
 - Active flow control for reducing truck drag
 - A hydraulic hybrid package delivery vehicle

Sacramento Municipal Utility District

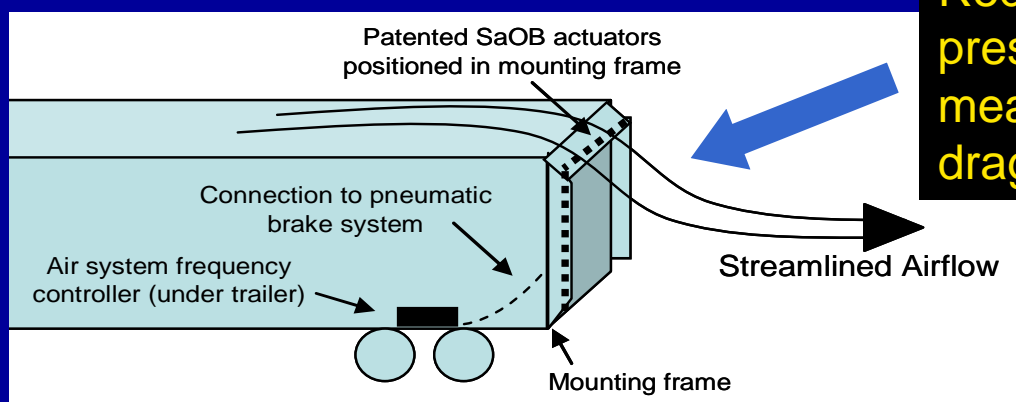
- “Removal Of H₂S From Biogas And NO_x From Engine Exhaust At A Dairy Digester Using Microwave Technology”
 - Supports AB32 GHG goals while meeting District NO_x limits
- ICAT funding request \$246,309; total project cost \$595,267
- Planned demonstration at Elk Grove dairy
- Strong stakeholder interest



212 kW genset

Advanced Transit Dynamics, Inc.

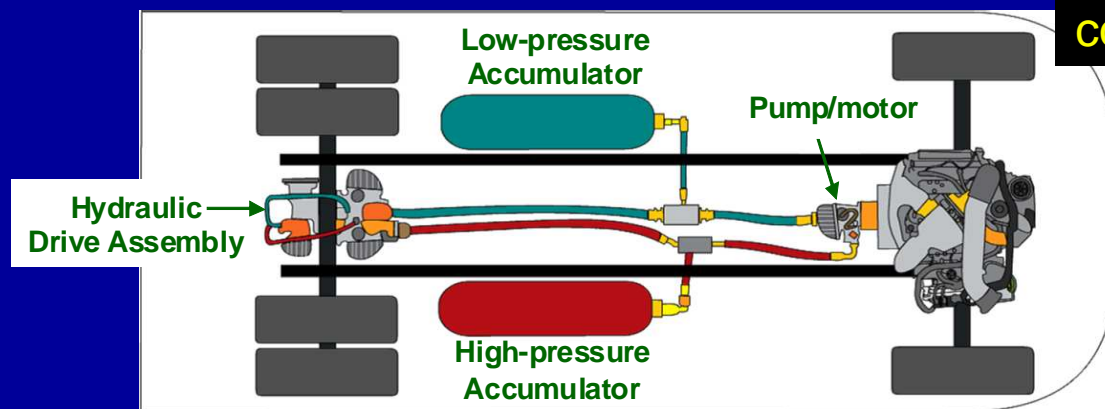
- “Fuel-Efficient Active Flow Control for Tractor-Trailers”
 - Supports on-highway HDV regs, AB32 goals
- Reduce drag, improve fuel economy 6-10%
- ICAT funding request \$249,194; total project cost \$529,759
- Project will conduct track, on-road testing



Reduced low pressure area means reduced drag

Eaton Corporation

- “Series Hybrid Hydraulic Drivetrain in a Package Delivery Vehicle”
 - Supports AB32 goals and on-highway HDV regulations
- Improves fuel economy up to 50%
- ICAT funding request \$214,401; total project cost \$478,802
- Demonstration in California



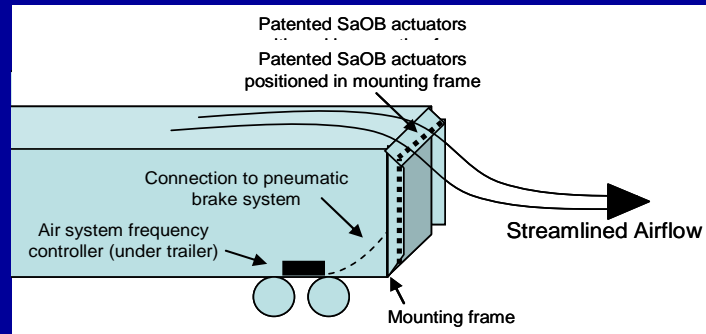
Hydraulic hybrid
conceptual view

Summary

- ICAT supports new technologies
- 3 projects recommended
- Total ICAT funding request - \$709,904
- Total Project Costs - \$1.6 million



Digester Microwave
Biogas and Exhaust
Treatment



Active Flow Control for
Tractor-Trailers



Hydraulic Hybrid
Package Delivery
Vehicle