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# ***Status Update: California's Strategies for Motor Vehicle Air Conditioning***

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**AIR RESOURCES BOARD**

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# California Global Warming Solutions Act of 2006 (AB 32)

- New law mandates development of new rules and regulations to return California's GHG emissions to 1990 levels by 2020
- AB 32 lays the path for a low-carbon future and restoring California to 80% below 1990 GHG emissions by 2050
- Establishes a multi-year, multi-agency program of traditional performance-based command-and-control measures as well as market-based compliance mechanisms
- In 2007, CARB adopted:
  - a list of 44 early actions for greenhouse gas emission reductions,
  - mandatory reporting regulations, and
  - 1990 GHG emissions inventory
- In 2008, CARB will develop and adopt the AB 32 Scoping Plan, the overall master plan for achieving GHG reductions
  - All GHG limits and measures must be adopted and operative by 2012

## Reductions Required by AB 32

- **BAU without action would generate annual GHG emissions of about 175 MMTCO<sub>2</sub>E above 1990 levels by 2020**
- **Approximately 43 MMTCO<sub>2</sub>E of 2020 BAU GHG emissions would be due to high- global warming potential (GWP) gases**
- **Mitigation of impacts from use of refrigerants in MACS is key element of overall plan**
- **AB1493-related action for improved MACS on hold pending legal outcome**

# Cradle-to-Grave Suite of Strategies

| New vehicles                                 | In-Use Fleet                 |                                       | End-of-Life                                  |
|--|------------------------------|---------------------------------------|--|
| Pavley I (AB1493)*<br>(direct & indirect)    | DIY Can Strategy<br>(direct) | Leak repair in Smog Check<br>(direct) | End-of-Life Enforcement<br>(direct)          |
| HD and off-road fleet<br>(direct & indirect) |                              |                                       |  |
| Pavley II**<br>(direct & indirect)           |                              |                                       | Refrigerated shipping containers<br>(direct) |
| Cool paints<br>(direct & indirect)           |                              |                                       |  |

\* Pavley I (AB1493): Existing vehicle GHG emission standards (regulations adopted)

\*\* Pavley II: New vehicle GHG emission standards

# Mitigation of Impacts from Existing MACS

- **Control HFC-134a sold in DIY small cans (< 30 oz)**
- **Consider requirement for leak check and repair in Inspection & Maintenance Program**
- **Enforce refrigerant reclaim at vehicle end-of-life**
- **Add requirements for A/C technician certification and servicing procedures**
  - Multi-tier certification (basic + advanced)
  - Improved procedure for leak identification and repair
- **Adopt latest standards for servicing equipment and components**
- **Restrict sale of 30 lb disposable refrigerant containers**
- **Limit handling of refillable refrigerant containers to only certified technicians**

# Potential Requirements for New MACS

- **Phase out high-GWP HFC-134a refrigerant is an option**
- **Align California strategies with international push towards low-GWP refrigerants and new MACS with best LCCP**
- **Control MACS used in large vehicles (heavy-duty, buses, and off-road)**
- **Advance technologies to lower cabin heat load and reduce A/C size and usage**

## **Global Developments are Informing California's Process**

- **CARB closely following developments and decisions**
- **Possible alternative refrigerants (HFO1234yf, HFC-152a, and CO<sub>2</sub>)**
- **German auto manufacturers choose CO<sub>2</sub> to fulfill European Directive**
- **Other car makers are still exploring options**
- **Final staff recommendation going before the Board end of 2010**

# Dankeschön

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