



3rd Annual

NC Mobile CARE Awards

April 15-16, 2009

Background:

Our Judges

Jerry Higgins
Dept of Transportation

Heather Hildebrandt
Division of Air Quality

Cynthia Moseley
State Energy Office

Award Winners

Individual Category:

Dick Dell, AVRC

Fleet Category:

UNC Charlotte

Technology/Fuel

Provider Category:

Triangle Biofuels

Policy Category:

Carolina Clean Air
Coalition

Organization Category:

Mecklenburg County Air
Quality

The NC Mobile Clean Air Renewable Energy (CARE) awards have been created to recognize outstanding individuals and organizational efforts at reducing transportation related emissions. Through the Mobile CARE initiative, three state agencies with overlapping interests in air quality and energy, have come together to honor the achievements of those who are making a difference in North Carolina. The NC Department of Transportation, NC Department of Environment and Natural Resources Division of Air Quality and the NC Department of Administration State Energy Office have joined together to sponsor these awards to demonstrate the importance of actions taken to improve air quality.

Candidates were sought in four categories - Individual, Technology/Fuel Provider, Policy/Organization, and Fleet. After evaluating more than 20 nominations, the judges narrowed the winners to an impressive group of five. Some of the criterion the judges used to make their decision included:

- expanding educational opportunities
- conducting outreach
- changing policies
- length of involvement in fuel/vehicle activities
- perceived risk related to involvement
- diversity of strategies/technologies employed.

INDIVIDUAL: Dick Dell

Dick Dell, Executive Director of the Advanced Vehicle Research Center, is a visionary leader in developing clean air and alternative fuels. In 2001, he conceived and developed AVRC for the purpose of accelerating the development and advancement of new technologies while moving away from our dependence on oil and improving transportation-related emissions. Seeing a need for a catalyst organization, Dick developed AVRC to provide a place where many different efforts could be drawn together and he could make a difference through his lifelong love of cars. He approaches the challenges of oil dependence and air quality from many fronts:

1. **Plug-in Power:** Though many auto manufacturers are beginning to develop plug-in technologies for new vehicles, Dick has provided leadership in converting existing vehicles to plug-in power, allowing fleets to realize fuel savings more quickly than by purchasing new plug-in vehicles to replace existing vehicles. Consequently, AVRC has now done more plug-in hybrid vehicle conversions than any other company in the US. AVRC has completed conversions for Progress Energy, Duke Energy, City of Raleigh, Florida Power and Light, and many others to expand PHEV use.



2. **Hydrogen Refueling Stations:** AVRC has worked with NC State University and the NC Solar Center to complete a study on hydrogen refueling stations to provide a model of how to accelerate hydrogen infrastructure in the US.
3. **E85 Fuel Efficiency:** AVRC worked with a consulting company to complete an ethanol efficiency project to demonstrate how standard internal combustion engines (ICE's) can be modified to use the full power of E85, using the higher octane in ethanol to gain up to a 30% improvement in efficiency and horsepower.
4. **Training:** AVRC is working with Nash Community College to develop an alternative fuel vehicle training program to help future technicians become familiar with up and coming vehicle technologies.
5. **Biofuels:** AVRC participated in the development of the NC Biofuels strategic plan and has developed programs to support this plan.
6. **Power Infrastructure:** As a member of the NCSU FREEDM consortium, AVRC is participating in the design and development of the next generation power grid, which will support the growing electric fleet

TECHNOLOGY/FUEL PROVIDER: Triangle Biofuels

Triangle Biofuels, founded in 2005, currently produces 1 million gallons of biodiesel per year from virgin and waste vegetable oil and sells it to various municipalities, fleets, biodiesel cooperatives, and petroleum distributors throughout North Carolina and the Southeast. They have plans to expand their production to 5 million gallons a year by 2010. Their motto is "changing the world one drop at a time." As one of the few biodiesel plants operating in southeastern NC, they have put a lot of effort into



reaching out to agricultural and off-road diesel customers to educate them on the health and performance benefits of biodiesel. To make biodiesel more readily available to the local community and motoring public they initiated a retail pump dispenser program. Most importantly, they encourage biodiesel use by leading by example. They have incorporated biodiesel into all of their fleet vehicles, as well as a 100kW generator, boilers, and furnace. Many employees drive B100-fueled vehicles as well. Lead by Zachary Hamm, Triangle Biofuels has managed to sustain operations through difficult economic conditions while still demonstrating a dedication to alternative fuels.

FLEET: UNC Charlotte



UNC Charlotte has made remarkable changes to their fleet, reducing their petroleum use by 30% in face of a growing campus. As of January 2009, their fleet was 33% alternative fuel vehicles. With strong University support, Larry Lane, Plant Maintenance Supervisor, has lead the initiative, reaching out to other fleets to share lessons UNC Charlotte has learned. The effort has also brought together many departments within the University to provide funding for the

purchase and to raise awareness about sustainability. Larry's strategy was to choose the correct size and type of vehicle for the necessary tasks. Once selecting the right size, they looked at the options for powering that type of vehicle.

UNC Charlotte now has 72 electric powered vehicles, 31 flex fuel vehicles, and a campus fuel farm that provides E10, E85, and electric charging stations. Since 2006, they have reduced their gasoline consumption by 10,000 gallons per year. This has resulted in a CO₂ reduction of approximately 70,370 lbs per year. These efforts have inspired other fleets, as well as changed the campus culture and reputation to reflect its commitment to the environment.

ORGANIZATION - PROGRAM: Mecklenburg County Air Quality

Grants to Replace Aging Diesel Engines, (GRADE), is the first local government incentive program to reduce air pollution from off-road construction equipment. Mecklenburg County Air Quality developed the program in 2007 and has since raised over \$1.5 million to fund the clean-up effort in the seven-county Charlotte region. The goals of the GRADE program are to (1) reduce nitrogen oxide air pollution, (2) conduct broad outreach/promotional effort, (3) encourage regional participation, and (4) secure additional funding.

In Mecklenburg County, 31% of NO_x pollution is from off-road vehicles, and these vehicles have historically not been required to be as clean as on-road vehicles and have life spans of 30-40 years. Thus, replacing or retrofitting off-road equipment greatly improves local air quality. GRADE provides incentive funding to owners of off-road construction equipment who

are willing to (1) replace aging equipment with newer models, (2) repower existing equipment with new engines, or (3) retrofit equipment with NOx control devices. Mecklenburg County has also made it a priority to include local heavy-duty diesel engine distributors in the GRADE development and implementation process.

In the 2007-2008 project period, GRADE awarded \$683,446 to worthy projects, identifying 16 pieces of non-road construction equipment for upgrades. Projects were funded in all 7 of the counties in the Charlotte region, and will provide 43 tons of pollution reductions from the air over the next five years. This is a cost effectiveness of less than \$12,000/ton of air pollution reduced or as little as \$6.00 a pound.

ORGANIZATION - POLICY: Carolina Clean Air Coalition



Lead by June Blotnick, Carolinas Clean Air Coalition (CCAC) has been a driving force to restore clean and healthy air by raising awareness about air pollution and climate change, building partnerships and advocating for policy changes and individual action. The nonprofit CCAC, founded in 2002, started the North Carolina Clean Diesel Campaign, aiming to reduce diesel emissions from on-road and off-road sources. To this end, CCAC has educated the public and gathered support for efforts to pass legislation requiring contractors working on state-funded projects to use clean technology and take other measures to reduce air pollution at worksites. They have also become a

leader in promoting school bus retrofits throughout North Carolina, using a multi-faceted approach to reduce school bus emissions.

In support of their Clean Diesel campaign and Clean School bus campaign, CCAC has gathered a diverse group of stakeholders with concern about children's health, including parents, medical professionals, school nurses, and asthma coalitions, and have educated school boards, legislators, and fleet managers to create policies to encourage clean diesel technologies. In 2005, CCAC worked with Charlotte Mecklenburg Schools to craft idle-reduction policy with Centralina Council of Governments to create the "Clear the Air for Kids!" program to reduce idling at schools and promote school bus retrofits. Later in 2005, CCAC began a partnership with the national Clean Air Task Force and the Southern Alliance for Clean Energy to determine the most effective retrofit technologies for reducing emissions within school buses. A report was published in 2007 and presented to NC Division of Air Quality leaders and staff to prioritize funding of the most effective retrofits. The report was also given to Representative Ruth Samuelson of Mecklenburg County, who then sponsored successful legislation which funded diesel particulate filters in non-attainment counties. CCAC's efforts to bring together multiple stakeholders to change policies across governments and school boards have helped to make great strides in improving North Carolina's air quality.