EFFORTS TO REDUCE EMISSIONS FROM MOTOR VEHICLES IN THE ASEVILLE REGION

Bill Eaker – Coordinator
Chris Dobbins – Fleet Advisor

Air Quality Issues in WNC

- **Mid 90s – Call for Action by NPS and USFS**
  - 3 Air Quality Issues – GL Ozone, Acid Deposition & Haze
  - LOSRC – AQ Assessment and Regional Conference
  - SAMI - Call for Local, State and Federal Action (Gov. Summits)

- **1998 – Regional Clean Air Campaign Established**
  - Education and Outreach to Public and Decision Makers
  - Message - Energy Conservation, Drive Less and Low Emission Vehicles
  - Clean Air Car Fairs

- **Air Quality has Improved Significantly in 15 years**
  - NC Clean Smokestacks Act – Huge emission reductions
  - Cleaner Fuels, Engines and Vehicles
The Land-of-Sky Clean Vehicles Coalition was created in 2004 to promote alternative fuel vehicle adoption in the Asheville Metro Area.
LOS Clean Vehicles Coalition Designated on July 27, 2012

Clean Cities Program Goal: support local partnerships to reduce petroleum use in US transportation sector, primarily by promoting cleaner, domestic fuels and vehicles

Support: Networking, Funding Opportunities, Technical Assistance
Clean Cities Alternative Fuels Portfolio

Alternative Fuels Promoted by CVC

- Biodiesel
- Electricity
- Natural gas
- Propane
- Ethanol (E85)
- Hydrogen

- Portfolio now includes Idle Reduction, Fuel Efficient Vehicles (Hybrids) and VMT Reduction
Benefits of AFVs

- Fuel Economy
- Energy Security
- Fewer Emissions

Fuel that is cheaper, cleaner, and made in America
Drive Less, Smarter, Cleaner

- Walk, Bike or Ride Transit
- Live Close to Work or School
- Telecommute (Work at Home)
- Car/Vanpool to work, school, meetings
  - New Park and Ride Lot (Waynesville)
  - New Trans. Demand Management Program
- Combine Errands to Reduce Trips
- Green Driving
- Engines Tuned up;
Idling – Why care?

• Idling is expensive
• Idling pollutes
• Idling threatens health

STOP Idling.
START $aving.
Coalition Services

- Education and Outreach and Training
- Forum for Discussions and Networking
- Fleet Assistance and Assessments
- Funding for Stakeholder Projects
Funding

- **Stakeholder/Project Funding** *(Over $12 Million)*
  - US DOE Clean Cities Program Grants
    - ARRA (Stimulus) Grants (SEPDP, CBS)
    - Mountains to Sea EV Readiness
    - National Parks Initiative
    - **SADI - AFV Pilot Demonstration Project**
  - NC DOT Congestion Mitigation & Air Quality (CMAQ)
  - NCSU Clean Fuels Advanced Transportation (CFAT)
  - US EPA/NC Division of Air Quality (Diesel Emission Reductions)
  - Propane Education and Research Council (PERC)
Biodiesel

- Used in any Diesel Vehicle without Modification
- Blue Ridge Biofuels local Producer – Moved Production but Distribution Center Here
- Users include MSD, Asheville, NC DOT, Great Smoky Mountains National Park; Tennoca Construction
- Lost Several Commercial Pumps but Fleet Use Steady
- Outreach Campaign: Workshops and Videos
Propane Auto-gas

Propane Autogas

- Propane is the most used alternative transportation fuel in the world
- Propane Road Shows in 2010, 2012 & 2013
- Current Success Stories
  - Mountain Mobility
    - 10 Vans; DOT Funds (Clean Air Excellence Award)
  - Buncombe Co. Sheriff’s Dept.
    - 10 cruisers; SEPDP $
  - Biltmore Estate – 8 shuttle buses/2 SUVs and onsite fueling
  - Haywood & Jackson Co. Transit (Macon Co soon)
- Blossman Research and Technology Center & Fueling Station
Propane Auto-gas

Propane Autogas

- Blossman/Alliance Autogas received EPA Certification for Ford F-150 Pickup and Ford Transit Van
- F-150 Coast to Coast Tour ending in Homecoming in Asheville on May 23rd
- Propane Mowers at Warren Wilson College, Blue Ridge Parkway and Great Smoky Mountains National Park
Compressed Natural Gas

- Public CNG stations
  - City of Asheville (2005)
  - Altech-Eco (2007)
  - Henderson Co. (2012)
  - PSNC (2013 & 2015)
  - Sixth Soon for Tractor Trailers?

- Altech-Eco Energy NGV Conversion Facility

- Carolina Blue Skies DOE Grant
  - Over $1 million
  - 37 CNG Vehicles for Asheville, Hendersonville, Henderson Co. and Mission Hospital
  - Expanded Asheville/Henderson Co CNG Fueling Stations
High Speed Electric Vehicles

They're Here!
Chevrolet Volt

- Plug-in Hybrid Electric Vehicle (PHEV)
- Auxiliary gas engine charges battery
- Electric Range: 53 miles electric + 367 miles in hybrid mode
- 18.4 kWh Li-ion battery
- 2016 MSRP: starts at $33,995
- $7,500 federal tax credit

Nissan LEAF

- Battery Electric Vehicle (BEV)
- All-electric, no tailpipe
- Electric Range: 84-107 miles electric
- 30 kWh Li-ion battery
- 2016 MSRP: S model starts at $29,010
- $7,500 federal tax credit
Electric Vehicle Deployment

Dealerships are selling EVs in Region

Asheville Chevrolet
Skyland Mitsubishi
Waynesville Automotive
Sunshine Chevrolet
Hunter Nissan
Anderson Nissan
Boyd Auto

Over 200 electric vehicles in the Asheville region and 4,000 in NC

Duke Nissan LEAF
Eaton Mitsubishi i
APD Chevy Volt
**EV Charging Levels**

<table>
<thead>
<tr>
<th></th>
<th>Level 1</th>
<th>Level 2</th>
<th>DCFC</th>
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<tbody>
<tr>
<td><strong>Miles Recovered Per Hour of Charge</strong></td>
<td>~ 4 mi</td>
<td>~ 10-20 mi</td>
<td>~ 140 mi.</td>
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<tr>
<td><strong>Voltage</strong></td>
<td>120V</td>
<td>208/240V</td>
<td>208/480V</td>
</tr>
<tr>
<td><strong>EV Connector</strong></td>
<td>J1772 AC</td>
<td>J1772 AC</td>
<td>SAE AC/DC Combo or CHAdeMO</td>
</tr>
<tr>
<td><strong>Hardware Cost</strong></td>
<td>Comes with EV</td>
<td>Res: $500-$1,500</td>
<td>$20,000 - $30,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Com: $1,500-$7,500</td>
<td></td>
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<tr>
<td><strong>Installation Cost</strong></td>
<td></td>
<td>Res: $500-$1,500</td>
<td>$5,000-$15,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Com: $3,000-$10,000</td>
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Charging Station Deployment

112 Public & workplace charging stations at 50 locations in the Asheville region (2-16)
Charging Station Deployment

- DC Fast Chargers installed at AB Tech., Asheville Public Works, Aloft Hotel, Asheville Outlets, Waynesville, Biltmore Park Town Square and Great Smoky Mountains National Park
- 8 Tesla Super Chargers installed at Asheville Outlets
- First EV Chargers in Transylvania County at Brevard College
- CFAT Proposal for 20 Level IIs at 9 Sites in WNC
Coalition Accomplishments: Petroleum Reduction

Historical Gas Gallon Equivalents (GGE) Reduced 2009 - 2015

- Electric, PHEV, HEV, NEV
- Idle Reduction
- Vehicle Miles Traveled Reductions
- Fuel Economy Improvements
- Off-Road
- Alternative Fuel Vehicle
Greenhouse Gas Reductions

Historical GHG in Tons Reduced 2009 - 2015

- 1,700 tons in 2009
- 2,364 tons in 2010
- 3,970 tons in 2011
- 5,553 tons in 2012
- 6,881 tons in 2013
- 7,394 tons in 2014
- 7,519 tons in 2015
Thank You

- For more information
  - Email
    - Bill Eaker, bill@landofsky.org
    - Chris Dobbins, broadspeed@frontier.com
  - Website
    - Cleanvehiclescoalition.org
Brightfield Charging Station
scross@brightfieldts.com
Coalition Background and Upcoming Re-Designation

- **DOE Clean Cities Goals**
  - Petro Reduction
    - Displaced approx. 7 Billion Gals to Date
    - Displace 2.5 Billion Gallons per year by 2020
  - Coalitions – 15% Increase in Petro Displacement per year