

- Third party sale of electricity in North Carolina
- **Model Plans:** Identify and collect local plans and policies; i.e., Durham City-County Electric Vehicle and Charging Station Plan

## 6. EDUCATION & OUTREACH

### 6.1 Introduction to Education & Outreach

There is a large segment of the population unaware that PEVs are on the market, or that they are highway-ready vehicles that perform similarly, and in some cases better than, conventional gas vehicles. Many others have incomplete or incorrect information about PEVs and their benefits. In addition to these basic education and outreach concerns, there is also a need to develop PEV training for occupations that will encounter PEVs and charging stations in the workplace. Stakeholders at the regional level are particularly well equipped to address the significant hurdle of educating their community about PEVs.

The goals of the Education & Outreach Working Group were to

- Educate car buyers and the general public about PEV technology and benefits
- Provide training to key stakeholders that will work with PEVs and charging stations

The Education & Outreach Working Group developed education and outreach strategies to inform the general public and key stakeholders about PEVs, marketing strategies to incentivize car buyers to buy electric vehicles, and PEV training at community colleges for occupations that must work with PEVs. The CVC will work with a wide range of regional stakeholders to implement education & outreach strategies in this plan. The participation of local community colleges and universities, media outlets and auto dealers will be especially important to the success of these strategies.

#### *Types of Education & Outreach Strategies*

##### Education

For the purpose of PEV readiness planning, the term *education* is defined as developing and or disseminating information on PEVs and their benefits. Education may be disseminated via presentations or seminars, or through *educational materials* such as printed handouts, website content, and videos.

##### Outreach

*Outreach* is defined as educating the general public about PEVs through events, media outlets, websites and social media. Outreach seeks to reach a broader audience with a more basic goal of generating awareness of PEVs.

##### Training

*Training* is defined here as workforce training for occupations, primarily offered at Community Colleges through courses that students can earn credits for attending. Key stakeholders that will require training are auto technicians, first responders, and electrical inspectors. Training also includes less formal one-day workshops offered by the CVC and other groups.

## Marketing

*Marketing* involves specific education to car buyers and EVSE hosts about the benefits of electric vehicles. *Marketing* PEVs to car buyers is also categorized as a Vehicle Deployment strategy in this PEV plan.

## 6.2 Past and Current Education & Outreach Activities

Over the past year, many activities were undertaken in the Asheville region to educate local stakeholders and the general public about plug-in electric vehicles. Below is a summary of those education, outreach and training activities carried out during the M2S project:

### M2S Education & Outreach Activities

Category	Activity	Date
Education	EV Seminar by Dave Erb at UNC-A	7/19/2012
Education	EV Panel at Southern Green Living Expo	9/14/2012
Education	Driving Electric in WNC Seminar – AB Tech Community College	10/3/2012
Education	Asheville Area PEV Plan featured at Asheville Green Drinks	12/15/2011
Outreach	EV Test Drive at Eaton	12/3/2011
Outreach	City of Asheville Brightfield Ribbon Cutting	12/7/2011
Outreach	PEV entered into Holiday Parades in Asheville and Waynesville	12/10/11
Outreach	Land-of-Sky Brightfield Ribbon Cutting	1/25/2012
Outreach	UNC-A Revenge of the Electric Car Screening / EV Test Drive	3/16/2012
Outreach	Press releases and news articles on public EVSE installed through Advanced Energy EVSE project	Jan. 2012
Outreach	EV Test Drive at Haywood Community College Earth Day	4/20/2012
Outreach	Mitsubishi I and Nissan LEAF at AB Tech Earth Day	4/20/2012
Outreach	Radio Interview with Bill Clement	7/5/2012
Outreach	CVC Booth at Bele Chere Festival and Nissan LEAF	7/28/2012
Outreach	LEAFs at Black Mountain Sourwood Festival	8/11/2012
Outreach	NAFTC Odyssey Day Event at BRCC	10/18/2012
Education Materials	EV Resources on EV Committee Website and Facebook	Ongoing
Education Materials	Asheville Area PEV Plan Flyer	April 2012
Training	EVSE Installation Workshop	10/11/2011
Training	Policy Codes & Standards Workshop	6/29/2012
Training	Fleet Manager Workshop	8/20/2012
Training	Hybrid & EV First Responder Training - Blue Ridge Community College	Sept. 2012

Figure 6.1 Asheville City Councilman Cecil Bothwell signs up for the EV Test Drive Event at Eaton



Figure 6.2 City of Asheville Brightfield Ribbon Cutting with Asheville Mayor Terry Bellamy and U.S. Congressman Heath Shuler



Figure 6.3 Land-of-Sky Brightfield Ribbon Cutting



Figure 6.4 Nissan LEAF at Black Mountain Sourwood Festival



Figure 6.5 "Electric Car Info" Display created by local EV Owner at Sourwood Festival



Figure 6.6 *Revenge of the Electric Car* was screened at UNC-Asheville

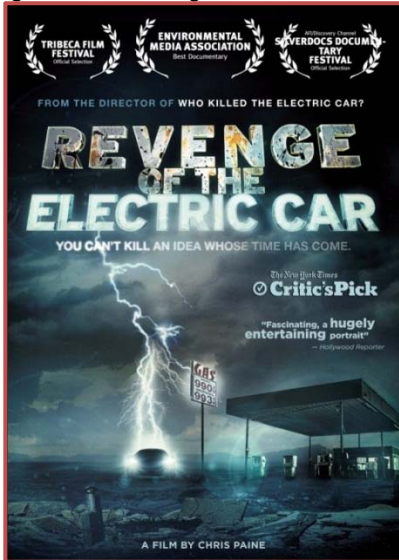


Figure 6.7 Engineer from Eaton volunteering at the Clean Vehicles Coalition booth at the Bele Chere Festival in downtown Asheville



Figure 6.8 Chevy Volt Press Event at Asheville Area Chamber of Commerce



Figure 6.9 Buncombe County Commissioner David Gantt and Chuck Simmons of Anderson Nissan in the Nissan LEAF at the 2011 Asheville Holiday Parade



Figure 6.10 City of Asheville Staff at EV Test Drive Event



Figure 6.11 "EVs and the Power Grid" Seminar by Dave Erb at UNC-Asheville

**IEEE Western North Carolina Section**  
*of the*  
**Institute of Electrical and Electronic Engineers**

**And the**  
**The WNC Chapter of the IEEE Power and Energy Society**  
*Presents*

**"Making a Case for the DG PV EV:  
Electric Vehicles and the Power Grid"**  
*by*  
Dave Erb  
University of North Carolina at Asheville

**Thursday, July 19, 2012**  
**7:00 PM UNCA Robinson 125**  
**5:30 PM, Dinner in the UNCA Dining Hall**

Figure 6.12 CleanVehiclesCoalition.org

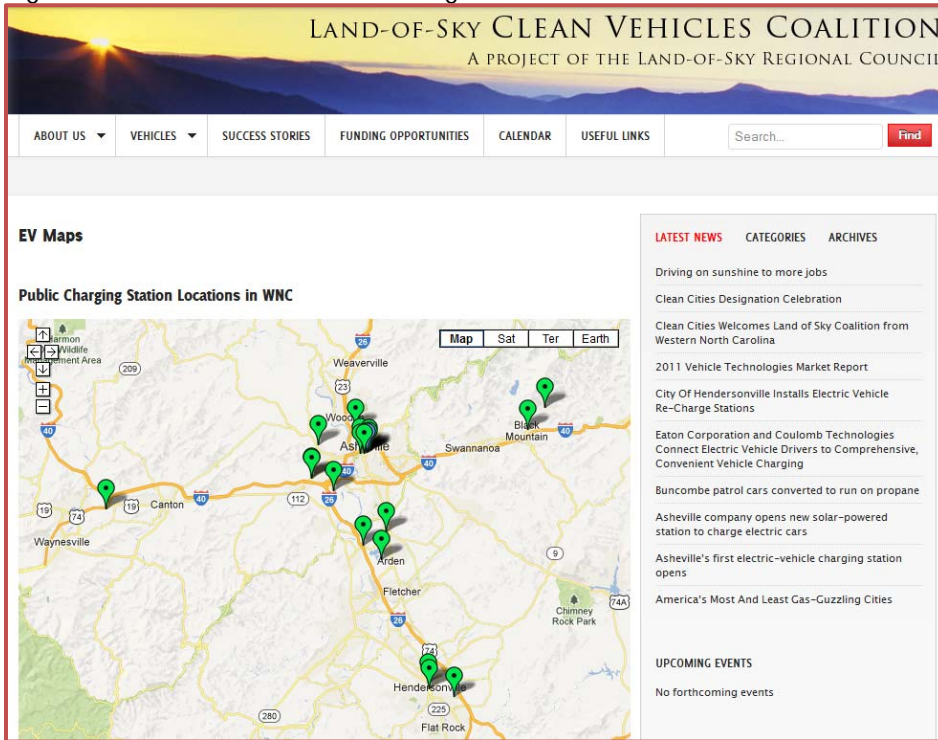


Figure 6.13 Blue Ridge Community College's new Alternative Fuels Training Lab





## 6.3 Education & Outreach Planning

### *Education & Outreach Goals*

The Education & Outreach Working Group was guided by two goals

- Educate car buyers and the general public about PEV technology and benefits
- Provide training to key stakeholders that will work with PEVs and charging stations

### *Education & Outreach Barriers*

The following barriers were identified by the Education & Outreach Working Group

- Limited understanding of PEVs among consumers
- Limited awareness of PEV benefits (TCO and non-financial)
- Lack of EV and EVSE information at point of sale
- Environmental concerns about PEV emissions and batteries
- Workforce unfamiliar with PEVs and charging stations

### *Education & Outreach Strategies*

The following strategies were proposed to address the Education & Outreach barriers identified for the Asheville region

<i>Category</i>	<i>Strategy</i>	<i>Responsible Parties</i>	<i>Time Frame*</i>	<i>Priority Level**</i>
Education	EV 101 Presentations	CVC, UNC-A, AB-Tech	Ongoing	
Education	K-12 EV Curriculum	AB-Tech, EV NC, CVC, Buncombe County Schools	Mid-term	High
Edu. Materials	Educational placards for EVSE	Brightfield, AB- Tech	Short-term	
Edu. Materials	Educational videos about EVs	AB Tech, CVC, EV owners	Short-term	High
Edu. Materials	EV news, events, online & local resources on EVC website, CVC website and Facebook	CVC	Ongoing	
Edu. Materials	One page flyer/ FAQ	CVC	Short term	
Outreach	EV Test Drive Events	Dealers	Ongoing	High
Outreach	Revenge of the Electric Car Screenings	CVC	Short-term	High
Outreach	Publicize and celebrate success stories and local champions	CVC, CVC members, BCTV, local media	Short-term	
Outreach	EV booth and EVs at local events (e.g. car shows, Bele Chere, LEAF, SEE)	CVC, NCDAQ Dealers, EV Owners	Ongoing	
Outreach	Radio, newspaper, or TV interviews and coverage of events	CVC, local media	Ongoing	
Marketing	Handout & online calculators for auto dealers	CVC , Dealers	Short-term	

Training	EV Course for Auto Technicians	BRCC	Ongoing	High
Training	EV Workshop for First Responders	BRCC	Ongoing	High
<i>Category</i>	<i>State-level Strategy</i>	<i>Responsible Parties</i>	<i>Time Frame*</i>	<i>Priority Level**</i>
Edu. Materials	EV Test Drive kit	NCPEVTF		

\*Short term (1 year or less); Medium-term (1 to 2 years); Long-term (More than 2 years)

\*\*Strategies with a “High” priority level received the highest scores in a survey that asked stakeholders to rank their top 5 strategies. All strategies shown in the table were flagged as priorities by a majority of stakeholders in working group and EV Committee meetings.

### Education

- **EV 101 Presentations** were seen by stakeholders as a good ongoing strategy for the CVC staff and certain member organizations. CVC members such as UNC-A, the Sierra Club and AB-Tech already make educational PEV presentations to a variety of audiences. The CVC will provide up-to-date information on technology, policies and deployment to these groups. The CVC can also help other stakeholders that would like to make PEV presentations with supporting educational materials such as presentation templates that already include basic PEV 101 slides. The presentation template will also help CVC members capitalize on more opportunities to make short PEV presentations to groups, especially in situations with little advance notice.

**Example:** The CVC has frequently been invited to make PEV related presentations at events such as Asheville Green Drinks. The CVC has also provided support to PEV educational presentations organized by other stakeholders, such as UNC-A professor Dave Erb’s “EVs and the Grid” seminar presented by the Institute of Electrical and Electronic Engineers (Figure 6.11).

- One of the highest priority education strategies identified by stakeholders was the introduction of **PEVs in the K-12 curriculum**. Jon Snover of AB-Tech Global Institute for Sustainable Technologies has volunteered to work with Buncombe County Schools to identify opportunities to introduce PEV topics into math and science courses.

The CVC will also work with members to find schools interested in participating in the Sustainable Transportation Education Program (STEP). STEP is a collaborative effort between the N.C. State University College of Engineering and the NC Solar Center that educates middle and high school students on electric transportation while introducing them to the possibility of a career in the fields of science and engineering. STEP also includes a competition every May for the middle and high school students during which student teams compete to see who can build the best electric vehicle and solar powered charging station.

Kent Barnes of EV North Carolina offered to lead efforts for more hands on education with students, and proposed the creation of an Asheville-based contest modeled on the EV Challenge, which allows high school students to build their own electric vehicles for

competition.<sup>55</sup> Asheville High School students have participated in The EV Challenge in previous years, but the location of the competition in eastern North Carolina makes it difficult for many students to take part.

**Example:** Kent Barnes of EV North Carolina worked with a team of students at Asheville High School to build a full-size, street legal plug-in electric vehicle and enter it into the EV Challenge.

### Education Materials

- The development of **educational PEV videos** was flagged by stakeholders as a high priority strategy. The AB-Tech Global Institute for Sustainable Technologies has funding that can be used to develop a series of short informational videos on PEVs that could be posted on the web, played on television, and screened as previews at local movie theaters. The CVC will provide educational material for the videos and help A-B Tech distribute the videos through the channels described above. PEV owners involved in the planning process offered to provide testimonials that could be used for this video and for other educational materials.

**Example 1:** The City of Raleigh developed a series of YouTube videos to educate residents and businesses about residential and commercial EVSE installation, including the city's new streamlined EVSE permit & inspection process

**Example 2:** Brightfield Transportation Solutions worked with a local video producer to create several videos on their Brightfield solar charging stations, PEVs, and PEV readiness efforts in the Asheville region

- The CVC will continue to use the **EV Committee website, CleanVehiclesCoalition.org, and the CVC Facebook page** to disseminate information on EV news, events, funding opportunities, educational materials, and other resources that promote PEV adoption.
- Brightfield Transportation Solutions is installing **educational placards at Brightfield solar charging stations to educate the public about electric vehicles, charging stations, and renewable energy.** Brightfield has received funding from the AB Tech Global Institute for Sustainable Technologies to support the installation of these placards.
- The CVC will work with members to draft **flyers on the Asheville Area PEV Plan** for use at meetings, events, auto dealerships, and online. Additional flyers may be needed to address the commonly voiced concerns of more informed audiences, such as environmental concerns about PEV emissions and battery production.

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<sup>55</sup> The Electric Vehicle (EV) Challenge is an education program that engages high school students in advanced electric drive technology through real-world, hands-on experience. The program features students who participate in a yearlong educational program and learn about engineering, environmental science and electronics. Students then work as a team and use their skills to design, construct and operate a street-legal, full-size plug-in electric vehicle. These vehicles compete in a series of events where students determine the range and performance of their vehicle while educating the public about plug-in electric vehicles and electric drive technology. In addition to running an educational program, the EV Challenge provides teachers with a comprehensive electric vehicle curriculum, seminars, and fundraising support.

**Example:** Sierra Club published “Electric Vehicles: Myths vs. Reality” to address concerns and myths about the environmental impacts associated with electric vehicles.  
<http://www.sierraclub.org/electric-vehicles/myths.aspx>

### Outreach

- **EV Test Drive events** were seen by working group members as one of the most effective ways to help people understand PEVs and their benefits. The CVC worked with Advanced Energy to develop a EV Test Drive kit to help stakeholders organize their own test drive events.

**Example:** EV Test Drive events at Eaton proved to be very effective as a way to educate stakeholders about PEVs and their benefits, and led directly to several PEV sales.

- ***Revenge of the Electric Car* Screenings** have proven to be an effective way to energize the public and key stakeholders about the roll-out of electric vehicles. Over the next year the CVC and member organizations will look for opportunities and venues that can be used to screen this film.

**Example:** UNC-Asheville hosted a screening of *Revenge of the Electric Car* with the help of the CVC, the Sierra Club, and local PEV dealers that offered test drive opportunities after the screening. According to Nissan LEAF dealers, this event put them in contact with a large number of potential PEV buyers.

- The CVC will continue for use **Booths and PEVs at festival, expos and other local events (e.g. car shows, Bele Chere, LEAF, SEE) as a primary education and outreach strategy.** The CVC will develop of comprehensive list of local events that can be used for PEV outreach efforts. The CVC will use this list help auto dealers, EV owners, and other CVC members identify outreach events that fit with their schedule and priorities.

**Example:** The CVC booth at Bele Chere 2012 featured a Nissan LEAF from Anderson Nissan and was visited by several thousand festival attendees

- In order to expand general awareness of PEVs and their benefits among the general public in the Asheville region the CVC will continue to **seek out opportunities with radio, newspaper, and TV outlets for interviews and coverage of EV events.**

**Example:** The Asheville Citizen Times published an article the City of Asheville Brightfield Ribbon Cutting Ceremony

### Marketing

Auto dealers are sometimes the only point of contact for PEV buyers, but not all sales people are sufficiently knowledgeable about PEV benefits, PEV emissions, and the location of charging stations in the region.

- **Handouts for auto dealers along with vehicle cost and emissions calculators on dealership websites** can help address this information gap for car buyers at the point of sale, whether they are shopping at the dealership or online.

**Example 1:** The CVC created a handout for auto dealers that lists all the public charging locations in the Asheville region.

**Example 2:** The AFCD Vehicle Cost Calculator ([www.afdc.energy.gov/calc/](http://www.afdc.energy.gov/calc/)) allows car buyers to compare the emissions and total cost of ownership of multiple vehicles side-by-side. The user enters information on: vehicle year, make and model ; their location (to calculate PEV emissions on regional grid) ; and their driving habits.

### Training

- Blue Ridge Community College staff have been trained and certified by the National Alternative Fuels Training Consortium (NAFTC) to **offer PEV-focused workforce training to auto technicians and first responders**. Beginning in the fall of 2012, Blue Ridge Community College will offer the following Alternative Fuels Transportation classes:
  - Introduction to Alternative Fuel Vehicles, Oct. 1 – 4, 5 to 8pm, 16 hours
  - Introduction to Hybrid and EV Technology, Nov. 5 – 8, 5 to 9pm, 16 hours
  - Hybrid and EV Diagnosis and Repair, dates TBD, 16 hours
  - First Responders Training for Alternative Fuel Vehicles, dates TBD

The National Alternative Fuels Training Consortium (NAFTC) provides the training infrastructure for implementing widespread use of alternative fuels, alternative fuel vehicles (AFVs), and advanced technology vehicles, in an effort to increase our nation's energy security and improve our air quality by reducing greenhouse gas emissions from our transportation system. The National Alternative Fuel Training Consortium (NAFTC) includes: educational institutions; fuel providers; equipment and parts manufacturers; industry; federal and state agencies; and professional, educational and training associations. This Consortium operates through a network of National Training Centers (NTCs) and Associate Training Centers (ATCs) throughout the United States.

Blue Ridge Community College is one of only three NAFTC training centers in North Carolina offering training on alternative fuel vehicles, and recently completed construction of their NAFTC Alternative Fuels Training Lab. The NAFTC uses Train-the-Trainer courses to teach alternative fuel vehicle technology to BRCC staff who then return to BRCC campus to conduct training.

- Less formal PEV training is also provided by the CVC through one day workshops. The CVC will organize **one day workshops** for electrical contractors and inspectors, fleet managers, and municipalities interested in PEVs and EVSE installation. Haywood Community College and Asheville-Buncombe Technical College have also expressed a desire to provide PEV education through their Continuing Education programs.

**Example:** In August 2012 the CVC and Advanced Energy organized a PEV Workshop for Fleet Managers.

### *State-level Education & Outreach Strategies*

State-level strategies of the NC PEV Taskforce Education & Outreach Working Group will complement regional strategies in the Asheville area.

#### NC PEV Taskforce Education & Outreach Working Group Strategies

- Develop and provide resources to help local community champions promote PEVs
- Engage colleges and universities in PEV readiness planning initiatives and support them in developing and promoting technical training courses and first responder trainings.
- Engage major media outlets in PEV readiness planning and implementation initiatives in efforts to provide the general public with accurate and positive information about PEVs.
- Develop a public awareness campaign that designates North Carolina communities as PEV ready communities to encourage communities to participate in planning initiatives and to promote PEVs.
- Develop training materials that will assist organizations that add PEVs to their fleets and/or install infrastructure in teaching their staff members about PEVs, EVSE, best driving practices for PEVs and how to answer questions related to PEVs.
- Engage fleet managers in PEV readiness planning activities and educate fleet managers on the benefits of adding PEVs to vehicle fleets.
- Hire a marketing firm to create and implement a state-wide PEV awareness campaign.