1. INTRODUCTION

1.1 Purpose of the Asheville Area PEV Plan

The purpose of the Asheville Area PEV Plan is to provide local stakeholders with a roadmap of strategies to prepare the Asheville region for the roll-out of plug-in electric vehicles, and to serve as a resource for individuals and organizations interested in using electric vehicles.

Roll out of Plug-in Electric Vehicles for the Mass Market

In 2011, the Nissan Leaf and Chevrolet Volt became the first mass produced plug-in electric vehicles (PEVs) available to consumers in the United States. As of December 2012, Americans have purchased over 71,000 plug-in electric vehicles.

Both private industry and government have invested considerable resources in producing and promoting PEVs. Every major vehicle manufacturer has announced plans to add a PEV to their product line, and several new start-up companies have entered the auto industry with the express purpose of producing PEVs. The United States government is supporting PEV adoption as a key component of future American economic growth, international competitiveness, national security, and environmental health. The U.S. Department of Energy (USDOE) has invested billions of dollars of federal funding in battery development, vehicle manufacturing, and infrastructure deployment.

Global market estimates from independent research organizations, such as JD Power & Associates and Pike Research, project that cumulative U.S. sales of electric vehicles could reach almost 500,000 by 2015. More than 20,000 of those electric vehicle sales are projected to take place in North Carolina. Studies that drill down to the regional level suggest that 1,000 to 2,000 of these PEVs could be sold in the Asheville Metro Area by the end of 2015; by 2020 nearly 8,000 electric vehicles may be on the road in our region.¹

1.2 Benefits of Plug-in Electric Vehicles

PEVs give drivers the choice of fueling their cars with electricity instead of gasoline, offering the potential for significant fuel cost savings, reduced emissions, and a more secure energy supply from domestic sources.

Fuel Economy

PEVs can reduce your fuel costs dramatically. Charging an electric car costs three to five cents per mile. In contrast, fueling a gasoline car that has a fuel economy of 27.5 mpg costs about 14 cents per mile. If you drive 15,000 miles per year, you could save $1,300 to $1,600 per year in fuel costs annually by driving a PEV in all-electric mode instead of driving a conventional gasoline car.²

¹ Waters, Mike. “EPRI PEV and EVSE Penetration Estimate v4.xls”. Email to Brian Taylor. 9/15/2012
² http://www.afdc.energy.gov/pdfs/pev_handbook.pdf Fuel cost savings depend on electricity and gasoline prices, as well as vehicle types and driving patterns. This example compares a gasoline car with a fuel economy of 27.5 mpg (combined
utility offers lower electric rates for charging overnight during off-peak times, PEV owners may be able to reduce PEV fuel costs even further by charging during these times.

**Reduced Air Pollutant and GHG Emissions**

PEV adoption can also dramatically reduce vehicle emissions of air pollutants and greenhouse gases (GHGs). When PEVs are driven in all-electric mode they produce zero direct emissions, thereby reducing air-pollutants that contribute to local smog, haze and health problems.

In most areas of the country, PEVs also have a significant well-to-wheel emissions advantage over similar conventional vehicles running on gasoline or diesel. Based on DOE estimates, well-to-wheel emissions from a PEV that is powered solely by electricity in North Carolina can be 50% lower than the well-to-wheel emissions from a conventional gas vehicle with an Internal Combustion Engine (ICE) and roughly 25% lower than the emissions from a hybrid electric vehicle (HEV) like the Toyota Prius. These emissions estimates are based on the mix of fuels that power the electrical grid in western North Carolina. The grid is primarily powered by a mix of coal, natural gas, nuclear and hydroelectric power.

![Figure 1.1 Estimated Annual Emissions of PEV Charged in the Asheville Region](http://www.afdc.energy.gov/vehicles/electric_emissions.php)

As North Carolina utilities continue to increase renewable energy production to meet the Renewable Energy Portfolio Standard mandated by the state, the well-to-wheel emissions advantage of PEVs...
Many of the PEVs in the region are already using solar-powered charging stations for some portion of their charging needs or by purchasing renewable energy through programs such as NC GreenPower.\(^5\)

**Increased Energy Security**

PEVs can help make the Asheville region and the nation more energy independent. Today our transportation sector depends almost entirely on petroleum, and more than 60% of this petroleum is imported from outside the US. The transportation sector accounts for two-thirds of our petroleum consumption. With much of the world’s petroleum reserves located in politically volatile countries, our reliance on petroleum makes the US economy vulnerable to price spikes and supply disruptions. Western North Carolina has proven to be particularly vulnerable to these supply disruptions given its distance from the Colonial Pipeline. In 2005 and 2008, hurricanes in the Gulf of Mexico created severe fuel shortages in the Asheville region that impacted not only local car drivers, but also the emergency services of many local governments. PEVs help reduce this threat, because almost all U.S. electricity is produced from a diverse mix of domestic fuels that includes coal, nuclear, natural gas, and renewable sources. Electricity prices are far more stable than oil prices, there is substantial spare generation capacity, and the backbone of the infrastructure already largely exists.

**Economic Development**

PEV adoption has the potential to redirect billions of dollars spent on foreign petroleum towards local investments in manufacturing and services that support the electric vehicle industry. Eaton, one of the largest charging station makers in the U.S. market, is already hiring new employees at their Asheville facility to manufacture their Level 2 and DC fast charge stations. The demand for thousands of new charging stations in the Asheville region will also increase business for local charging station vendors, electrical contractors, utilities, and other related service providers, such as solar PV installers. PEV adoption, for example, will fuel the growth of small businesses like Brightfield Transportation Solutions, an Asheville-based start-up company building and installing solar powered charging stations. The retail and hospitality sectors can also attract new customers by installing charging stations to cater to PEV owners. Businesses in close proximity to public charging stations in the Asheville area are already benefitting from the patronage of local PEV owners. Meanwhile, several hotels are planning to install charging stations to attract visiting PEV drivers.

**1.3 NC PEV Readiness Initiative: Plugging In from Mountains to Sea**

The North Carolina PEV Readiness Initiative: Plugging in from Mountains to Sea (M2S) is one of 16 electric vehicle planning initiatives funded by the U.S. Department of Energy (USDOE) Clean Cities program in an effort to increase awareness and consumer usage of PEVs, as well as to help communities develop plans for the charging infrastructure needed to support these vehicles (Figure 1.2).

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4 In 2007, North Carolina adopted a Renewable Energy Portfolio Standard (REPS), which requires utilities obtain a 12.5% of their energy through renewable energy or energy efficiency measures by 2021. [http://www.ncuc.commerce.state.nc.us/reps/reps.htm](http://www.ncuc.commerce.state.nc.us/reps/reps.htm)

5 NC GreenPower, is an independent nonprofit organization established by the NC Utilities Commission. NC GreenPower supports electrical generation from renewable energy sources [www.ncgreenpower.org](http://www.ncgreenpower.org)
In September 2011, the Land-of-Sky Clean Vehicles Coalition (CVC) partnered with regional councils of government, non-profits and utilities across the state to launch the M2S initiative and prepare North Carolina for the roll-out of PEVs. As illustrated in Figure 1.3, M2S is a two-tiered planning initiative that will produce:

- a state PEV Roadmap for North Carolina, and
- four community PEV plans for the Asheville, Charlotte, Triad, and Triangle metro areas.

The North Carolina Plug-in Electric Vehicle Taskforce (NC PEV Taskforce) was formed to oversee the development of the NC PEV Roadmap. Key taskforce members include utilities, non-profits, state agencies, PEV industry, and Councils of Governments from each of the M2S regions. These Taskforce members have worked with additional stakeholders from across North Carolina to develop a NC PEV Roadmap that includes state-level policy recommendations and statewide guidelines for local policies.

The four community PEV planning processes were led by councils of governments in each M2S region with support from Advanced Energy and the NC Solar Center (Figure 1.3). These plans serve as a guide to strengthen local PEV readiness initiatives and address PEV adoption barriers specific to each region. The Asheville Area PEV Plan process was led by the Land-of-Sky Clean Vehicles Coalition which is based within the Land-of-Sky Regional Council.
Land-of-Sky Clean Vehicles Coalition

The Land-of-Sky Clean Vehicles Coalition was created by the Land-of-Sky Regional Council in 2004 to promote alternative fuel vehicle adoption in the Asheville region, which is defined as Buncombe, Haywood, Henderson, Madison and Transylvania counties.

The CVC helps coalition partners adopt alternative fuel vehicles (AFVs) by:

- identifying and securing funding for vehicles and infrastructure,
- educating fleet managers, policy makers & other stakeholders about alternative fuel technology and benefits,
- conducting fleet assessments to identify AFV applications,
- working with local and state governments to develop policies that facilitate AFV adoption,
- connecting alternative fuel vehicle businesses with local clients, and
- providing a forum for industry partners and fleets to address technology barriers to reducing petroleum use.
To prepare the Asheville region for the adoption of plug-in electric vehicles, the Land-of-Sky Clean Vehicles Coalition created the EV Committee (Figure 1.5). Planning activities for the Asheville Area PEV Plan were carried out through EV Committee meetings and working groups.

Figure 1.5 Land-of-Sky Clean Vehicles Coalition Organizational Chart

North Carolina PEV Taskforce
The North Carolina Plug-in Electric Vehicle Taskforce is a collaborative group of key stakeholders from private industry, academia, non-profit and local and state government, which is focused on establishing North Carolina as a leader in electrified transportation and promoting PEV readiness throughout the state.

During the M2S initiative, the Taskforce was responsible for drafting the NC PEV Roadmap to guide state-level efforts to prepare North Carolina for PEVs. The Taskforce created the following five working groups to guide this statewide PEV planning process:

- **Vehicles:** Keep public and private informed of PEV opportunities, answer questions about the suitability and cost-benefit of PEV use, and track statewide PEV adoption
- **Incentives & Economic Development:** define and evaluate various state & local incentives to promote PEV adoption and survey fleet managers on interest in PEVs
- **Infrastructure:** Identify charging infrastructure needs for wide spread PEV adoption.
- **Policies, Codes & Standards:** Documentation and modify existing municipal, state, utility or business policies related to PEV charging stations, particularly permitting requirements, building codes and development ordinances
- **Education & Outreach:** Formulate strategies meant to increase general PEV awareness among stakeholders such as the green workforce, the public, government and key organizations

Through monthly working group meetings, Taskforce members and other key stakeholders developed strategies to address statewide barriers and opportunities related to PEV adoption. These state-level working groups developed a number of strategies that will also support the community readiness plans, including the Asheville Area PEV Plan.
1.4 Asheville Area PEV Planning Process

The Asheville Area PEV Plan was developed using the following process:

1. Define planning region and focus areas
2. Recruit stakeholders
3. Form working groups and define goals for each focus area
   a. Educating the public and training key stakeholders
   b. Charging infrastructure deployment
   c. Local permitting processes, ordinances, codes
   d. Vehicle deployment
4. Identify and resolve barriers

PEV Planning Region

At the beginning of the planning process, the Land-of-Sky Clean Vehicles Coalition worked with the French Broad Metropolitan Planning Organization to define the geographic boundaries for the Asheville Area PEV Plan. For the purposes of PEV planning, the Asheville Area is defined as the five counties within the Transportation Planning Area of the Land-of-Sky Regional Council: Buncombe, Haywood, Henderson, Madison, and Transylvania (Figure 1.6). This planning area was defined based on commuting patterns in the region, as documented by the French Broad MPO. This five county region is also the service area of the Land-of-Sky Clean Vehicles Coalition.
This five-county planning area lies in the Blue Ridge and Smoky Mountain regions of western North Carolina. The City of Asheville is the largest municipality in Western North Carolina (WNC) and is the economic and cultural center of the area. Other large satellite towns in the region include Hendersonville, Waynesville, and Black Mountain.
Interstate 40 runs east-west through the region, connecting Asheville with the towns of Black Mountain and Waynesville, and with other metro areas including Knoxville, TN and Hickory. Interstate 26, which runs north-south, connects Asheville with Hendersonville, Mars Hill, and the Greenville, SC metro area. The region is also bisected by the Blue Ridge Parkway (Figure 1.8).\(^6\)

**Figure 1.7 Asheville Metro Area Counties, Population, Vehicles, and Cities, 2010**

<table>
<thead>
<tr>
<th>County</th>
<th>County Population</th>
<th>Registered Vehicles as % of State Total</th>
<th>Registered Hybrids as % of State Total</th>
<th>Largest City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buncombe</td>
<td>238,318</td>
<td></td>
<td></td>
<td>Asheville</td>
</tr>
<tr>
<td>Henderson</td>
<td>106,740</td>
<td></td>
<td></td>
<td>Hendersonville</td>
</tr>
<tr>
<td>Haywood</td>
<td>59,036</td>
<td></td>
<td></td>
<td>Waynesville</td>
</tr>
<tr>
<td>Transylvania</td>
<td>33,090</td>
<td></td>
<td></td>
<td>Brevard</td>
</tr>
<tr>
<td>Madison</td>
<td>20,764</td>
<td></td>
<td></td>
<td>Mars Hill</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>457,948</strong></td>
<td><strong>5.1%</strong></td>
<td><strong>10.4%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: 2010 Census, NC Dept. of Motor Vehicles

The Asheville area has received increasing national attention as a desirable place to visit, work and live.\(^7\) The population of the region has continued to grow due to in-migration by young professionals, retirees, entrepreneurs, college students, and outdoor enthusiasts.\(^8\) Meanwhile, the local economy has been bolstered by a steady increase in tourism. These in-migrants and tourists are attracted to the Asheville region in large part by the natural beauty and the abundance of outdoor recreation opportunities. These trends have helped to reinforce a strong environmental ethic among residents in the Asheville area that want to preserve this natural beauty, and a desire to live and work more sustainably.

**Figure 1.8 Blue Ridge Parkway**

This environmental ethic is reflected in the high levels of hybrid electric vehicle (HEV) ownership in the region. While only 5% of all vehicles in North Carolina are registered in the Asheville area, over

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\(^6\) See Figure 4.1 in Chapter 4 of the Asheville Area PEV Plan for a map of the Blue Ridge Parkway
\(^7\) [http://www.ashevillechamber.org/economic-development/research-and-reports/asheville-area-rankings](http://www.ashevillechamber.org/economic-development/research-and-reports/asheville-area-rankings)
\(^8\) [http://www.ashevillenc.gov/portals/0/city-documents/parks/homepage_docs/appendix_i_demographics_and_trends.pdf](http://www.ashevillenc.gov/portals/0/city-documents/parks/homepage_docs/appendix_i_demographics_and_trends.pdf)
10% of all HEVs in North Carolina registered here (Figure 1.7). HEV ownership is an important data tool for PEV planning, because it is a strong predictor of future PEV ownership. Based on projections from market analysts, the Asheville region is expected to become a hotspot for PEV adoption in the Southeast.

**Stakeholder Participation**

To develop the Asheville Area PEV Plan, the EV Committee organized a broad group of stakeholders in the region to identify barriers to PEV adoption and develop strategies that CVC members and other local partners can implement to resolve those barriers.

The EV Committee identified categories of stakeholders whose engagement would be important to the plan. Representatives from each of the following categories were invited to participate in the planning process:

- **Academic institutions**
  - Community colleges: Provide workforce training to auto technicians and first responders; Offer basic PEV 101 courses for general public
  - Universities: Host public charging infrastructure; Research PEV technology and policies; Adopt PEVs in fleets; Incorporate PEVs into math & science curriculum; Key partner for PEV car share program
  - K-12 Schools: Incorporate PEVs into math & science curriculum

- **Businesses**
  - Retail and employers: Host public charging stations or private workplace stations for customers, guests, or employees
  - Fleet managers: Deploy PEVs in fleet

- **EV owners**

- **EV-related businesses**
  - Auto dealers: Sell PEVs; Provide PEVs for events; Distribute PEV information to car buyers; Provide information on PEV sales and demographics
  - Car rental agencies: Expand access to and familiarity with PEVs by introducing into rental fleet and car share programs

- **EVSE-related businesses**
  - EVSE manufacturers: Provide local manufacturing jobs; provide key information on PEV charging industry trends, barriers, & opportunities; Training on EVSE technology and installation
  - EVSE vendors and installers: Sell and install EV charging stations; collaborate on regional EVSE planning

- **Governments, Local**
  - Elected officials: Support local policies that promote PEV adoption internally and among citizens
  - Fleet managers: Deploy PEVs in fleet
  - Inspections: Ensure that permit & inspection process for EVSE installation is streamlined
  - Public works: Install public EVSE

- **Governments, State & Federal**

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9 Electric Vehicle Supply Equipment (EVSE) refers to electric vehicle charging stations
Elected officials: Support state and federal legislation to promote PEV adoption
State agencies: Support EVSE deployment and education & outreach through technical assistance, partnerships, and grant funding

Non-profits
Economic Developers: Grow local PEV industry and attract new PEV industry to the Asheville region
Environmental / Energy Organizations: Collaborate on PEV education & outreach; Support PEV-friendly legislation

Utilities
Generate and provide the energy for electric vehicles; Adopt rate structures that lower the cost to recharge vehicles during off-peak hours; Educate consumers on the benefits of EVs.

To collect input for the Asheville Area PEV Plan, the Land-of-Sky Clean Vehicles Coalition engaged over 300 participants from over 100 organizations (Figure 1.9). Participation was evenly divided between public and private stakeholders in the region. When aggregating attendance at all meetings, events and conference calls, there were 530 attendees.

Figure 1.9 Participants in PEV Planning Process by Stakeholder Group
A list of some of the key stakeholders that made significant contributions to the Asheville Area PEV Plan and regional PEV readiness activities can be seen in the Stakeholder Map below (Figure 1.10). A full list of stakeholder organizations that contributed to the PEV Plan can be found in the Appendix.

Figure 1.10 Stakeholder Map

**Working Groups and PEV Plan Goals**

The community PEV Plan process involved engaging community stakeholders to address barriers to PEV adoption at the regional level. In broad terms, the primary barriers to PEV adoption include the lack of understanding about PEVs and their benefits, the relatively high purchase price of PEVs, the lack of public and workplace charging stations in the region, and outdated policies and codes that hinder deployment of charging infrastructure. At the March 2012 EV Committee meeting, four working groups were formed to evaluate these barriers in the Asheville region and develop strategies to address them. Stakeholders at the March meeting agreed on PEV readiness goals to guide the efforts of each working group (Figure 1.11).
Figure 1.11 Goals of the Asheville Area PEV Plan

<table>
<thead>
<tr>
<th>Working Group</th>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicles Deployment</td>
<td>Facilitate PEV adoption by fleets, rental agencies &amp; individuals in region</td>
</tr>
<tr>
<td></td>
<td>Track PEV sales for Asheville region</td>
</tr>
<tr>
<td>Charging Infrastructure</td>
<td>Facilitate the deployment of charging infrastructure in the region</td>
</tr>
<tr>
<td></td>
<td>Map existing public EVSE in Asheville region</td>
</tr>
<tr>
<td>Policy, Codes &amp; Standards</td>
<td>Ensure policies, codes &amp; standards of local governments and other key stakeholders facilitate appropriate EVSE installation</td>
</tr>
<tr>
<td>Education &amp; Outreach</td>
<td>Educate car buyers and other target groups about PEVs and benefits</td>
</tr>
<tr>
<td></td>
<td>Provide training to stakeholders that must work with PEVs and EVSE</td>
</tr>
</tbody>
</table>

Identifying and Addressing Regional Barriers to PEV Adoption

Local stakeholders at the March EV Committee meeting decided to address focus areas in the order shown in the planning timeline, starting with Education & Outreach (Figure 1.12). Each working group met one or more times to identify barriers related to their focus area and develop preliminary strategies to address these barriers. At the next full EV Committee Meeting, attendees ranked the draft list of barriers and strategies. EV Committee meeting attendees were given the chance to add to the list of barriers and strategies before voting occurred. Working groups then reconvened to incorporate the input from the full EV Committee meeting into the draft list of barriers and strategies for their work area.

Figure 1.12 Planning Timeline for Identifying & Resolving Barriers to PEV Adoption
Vehicle Deployment: This working group explored incentives, partnerships, and technical assistance that may facilitate PEV adoption in the Asheville area by fleets, rental car agencies and individuals.

Charging Infrastructure: Stakeholders in this working group defined a plan for deploying and mapping public and workplace charging infrastructure in the community.

Policy, Codes & Standards: This working group assessed existing policies, codes and standards of local governments and property managers in terms of PEV readiness. Recommendations were made to streamline existing processes related to EVSE installation and create new policies or ordinances that foster the installation of charging infrastructure and adoption of electric vehicles.

Education & Outreach: The Education & Outreach Working Group developed strategies to improve the understanding of PEVs and their benefits among car buyers and the general public. Strategies were also developed to provide workforce training for key stakeholders that must understand and work with PEVs, such as auto technicians and first responders.

Figure 1.13 March 2012 EV Committee Meeting

PEV Adoption Strengths and Weaknesses of Asheville Area

PEV barriers and opportunities can be more or less pronounced due to the specific characteristics of a region. The Asheville region has the potential to become a hotspot for PEVs, whether they be used by residents, fleets or visitors to the region. As mentioned earlier, for example, the high rate of HEV ownership in the Asheville region is being used as a proxy to predict similarly high rates of PEV ownership. However, there are other regional characteristics that could hinder PEV adoption such as the mountainous terrain of the region, which can reduce electric driving range. The table below outlines the PEV adoption strengths and weaknesses of the Asheville region relative to other areas of the country (Figure 1.14). Strengths and weaknesses that are related to North Carolina as a whole are denoted in italics.
### Figure 1.14 PEV Adoption Strengths and Weaknesses of Asheville Region

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicle Deployment</strong></td>
<td>High rate of hybrid ownership, which is a strong predictor of future PEV ownership</td>
<td>No state tax credit or rebate offered to PEV buyers in North Carolina</td>
</tr>
<tr>
<td><strong>Vehicle Deployment</strong></td>
<td>Retirees and professionals with above average income are fueling PEV sales</td>
<td>Below average Median Household Income in Asheville region could limit market for PEVs</td>
</tr>
<tr>
<td><strong>Vehicle Deployment</strong></td>
<td>Tourists can help bolster market for PEV rentals and charging</td>
<td>Mountainous terrain can reduce real world electric range of PEVs</td>
</tr>
<tr>
<td><strong>Vehicle Deployment</strong></td>
<td>Strong environmental ethic among residents and businesses</td>
<td>There are no HOV lanes in the region that could be used to incentivize local PEV adoption</td>
</tr>
<tr>
<td><strong>Vehicle Deployment</strong></td>
<td>Low cost of electricity will lower total cost of ownership of PEVs relative to conventional gas vehicles</td>
<td></td>
</tr>
<tr>
<td><strong>Vehicle Deployment</strong></td>
<td>Well-to-wheel PEV emissions from charging on the NC electrical grid are below the national average and will continue to decrease as utilities move to meet a state mandate for 12.5% of power to come from renewable energy and energy efficiency measures by 2021</td>
<td></td>
</tr>
<tr>
<td><strong>Vehicle Deployment</strong></td>
<td>Asheville region is highly vulnerable to interruptions in the supply of fossil fuels due to position at end of Colonial Pipeline</td>
<td></td>
</tr>
<tr>
<td><strong>Charging Infrastructure</strong></td>
<td>A relatively large number of public charging stations have already been deployed in the region, especially in Buncombe County</td>
<td>Lack of DC Fast Charging to connect Asheville with other metro areas</td>
</tr>
<tr>
<td><strong>Charging Infrastructure</strong></td>
<td>The lack of multi-family housing minimizes issues with residential charging for garage orphans</td>
<td></td>
</tr>
<tr>
<td><strong>Policies, Codes &amp; Standards</strong></td>
<td>The CVC has already hosted two EVSE installation workshops for electrical inspector and contractors in the region</td>
<td></td>
</tr>
<tr>
<td><strong>Education &amp; Outreach</strong></td>
<td>Blue Ridge Community College is one of only three community colleges in the state that provides PEV-focused workforce training</td>
<td>Electricity use in Asheville is closely associated with coal power from the Skyland power plant, regardless of actual energy mix and low well-to-wheel emission profile</td>
</tr>
<tr>
<td><strong>Partnerships</strong></td>
<td>EV Committee has already been engaged in PEV readiness activities for over 3 years developed a strong partnerships with key stakeholders</td>
<td>Small market not targeted by major automakers or EVSE makers for PEV deployment initiatives</td>
</tr>
</tbody>
</table>
1.5 How the Asheville Area PEV Plan is to be Used

The Asheville Area PEV Plan provides CVC members and other local stakeholders with a roadmap of strategies to prepare the Asheville region for plug-in electric vehicles. Chapter 2, PEV Basics, serves as a starting point for organizations and individuals interested in driving PEVs or installing charging stations. For more detailed guidance on PEV readiness topics such as charging station installation please refer to the “Online Resources” section in the Appendix and the NC Plug-in Electric Vehicle Roadmap. The following four chapters describe PEV adoption barriers related to Vehicle Deployment (Ch. 3), Charging Infrastructure (Ch. 4), Policies, Codes & Standards (Ch. 5), and Education & Outreach (Ch. 6), and strategies that are to be implemented by CVC staff, member organizations, and other key stakeholders identified in the plan. NC PEV Taskforce state-level strategies that directly affect PEV readiness efforts in the Asheville region are also included at the end of each chapter. A matrix listing all Asheville Area PEV Plan strategies can be found in the Appendix. Chapter 7 gives an overview of the utilities operating in the Asheville region and their plans to prepare the grid for plug-in electric vehicles. Details on the implementation of the Asheville Area PEV Plan can be found in Chapter 8.