EXECUTIVE SUMMARY

Plug-in electric vehicles (PEVs) represent a new tool that empowers organizations and individuals to promote the Asheville region’s future economic resilience, energy security, and environmental health.

As with any new technology, however, PEVs face several barriers to widespread adoption, including the lack of awareness about PEVs and their benefits, the relatively high purchase price of PEVs, and range concerns stemming from the real or perceived lack of charging stations. In 2012 the Land-of-Sky Clean Vehicles Coalition (CVC) organized a broad group of public and private stakeholders in the Asheville region to identify barriers to PEV adoption and develop strategies to resolve those barriers. The purpose of the Asheville Area PEV Plan is to provide local stakeholders with a roadmap of strategies to prepare the Asheville region for plug-in electric vehicles, and to serve as a resource for individuals and organizations interested in using electric vehicles.

PEV Readiness Goals

PEV readiness in the Asheville metro area is defined by the following PEV Plan goals:

- Facilitating the deployment of electric vehicles in fleets, rental car agencies and the general public
- Deploying and mapping a network of public charging stations that maximizes the range of electric vehicles
- Ensuring that local policies and codes support PEV adoption
- Increasing awareness of the potential uses and benefits of PEVs
- Training for occupations that will work with PEVs and charging stations
- Incentivizing investments in renewable energy to support PEV charging demand

Key Findings

Vehicles and Incentives

- PEV adoption in the Asheville region is expected to be above average relative to the population of the region; nearly 8,000 electric vehicles may be on the road in the Asheville region by the end of 2020
- The high initial cost of ownership is a large barrier to PEV adoption for car buyers that are well informed about PEVs
- PEVs often have a lower total cost of ownership than similar gas vehicles for car buyers that own a vehicle for 5 or more years, especially for PEV buyers that can claim the full $7,500 federal tax credit
- North Carolina is one of the few states in the Southeast that does not provide a financial incentive to PEV buyers

Charging Infrastructure

- Most PEVs will be charged overnight at home, but public and workplace charging stations are needed to bolster market acceptance of PEVs
- Over 40 public charging stations have already been installed in the Asheville region as of October 2012. This level of charging station deployment is high for a region of Asheville’s size, but there are still large gaps in this regional network of public charging stations.
- It is projected that the demand for public charging in the Asheville region could reach 450 stations by 2020 and over 3,000 stations by 2030
- Deploying public charging stations will do little to promote PEV adoption if they do not show up on the online maps and smart phone apps used by PEV drivers

**Policies, Codes & Standards**
- Compliance with ADA accessibility standards has the potential to be a stumbling block for public charging station installations
- New regulatory signage and parking policies will be needed in the Asheville region to preserve PEV access to parking spaces with charging stations

**Education & Outreach**
- Understanding of PEVs, their benefits, and local PEV readiness activities is limited among most car buyers and even some PEV dealers in the region
- Many car buyers have concerns or misconceptions about PEV emissions and batteries
- Blue Ridge Community College is one of only three training centers in the state that offers PEV-focused workforce training

**Electrical Grid**
- Well-to-wheel emissions from a PEV that is powered solely by electricity in the Asheville region can be 50% lower than the emissions from a conventional gas vehicle and roughly 25% lower than the emissions from a hybrid electric vehicle

**Priority Recommendations**

**Vehicles and Incentives**
- Provide technical assistance to fleet managers through workshops and fleet assessments that help them identify attractive PEV applications, purchase vehicles, and develop PEV purchase policies
- Pursue grant funding to offer vehicle rebates to fleets that purchase PEVs for high use, high visibility applications
- Deploy PEVs in an Asheville-based car share program
- Support NC PEV Taskforce efforts to encourage state legislation to create a point-of-sale rebate for PEV buyers or eliminate the NC Highway Use Tax for PEV buyers

**Charging Infrastructure**
- Partner with property managers and local governments to install public Level 2 charging stations in strategic areas in the Asheville region
- Pursue funding for public charging station deployments, especially DC fast charge stations that allow battery electric vehicles the driving range to reach nearby metro areas
- Add new public charging sites in the Asheville region to the national Alternative Fueling Station map and disseminate maps to local auto dealers and other key stakeholders

**Policies, Codes & Standards**
- Deploy PEV parking and way finding signage on local and state roads
• Establish CVC as a clearing house for best practices on charging station permitting, zoning, PEV parking, and ADA compliance

Education & Outreach
• Organize EV Test Drive events with the help of local auto dealers to educate car buyers about PEVs, their benefits, and available incentives.
• 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.
• Promote new PEV workforce training courses offered by Blue Ridge Community College to auto technicians and first responders

Electrical Grid
• Support policies and partnerships that encourage investments in renewable energy to offset the energy use and emissions of PEVs charged on North Carolina’s electrical grid