

# **Clean Cities 2011 EV Community Readiness**

**Clean Energy Coalition (CEC): Plug-In Ready Michigan**

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**U.S. Department of Energy**

**National Energy Technology Laboratory**

**May 16, 2013**

**This presentation does not contain any proprietary,  
confidential or otherwise restricted information.**

**Project ID: TI032**

# OVERVIEW

## CEC: Plug-In Ready Michigan



### Timeline

- Start: October 2011
- End: June 2012
- 100% Complete

### Barriers Addressed

- Availability of Alternative Fuel Vehicles & Electric Drive Vehicles
- Availability of Alternative Fuels and Electric Charging Infrastructure
- Consumer Reluctance to Purchase New Technologies
- Lack of Technical Experience with New Fuels and Vehicle Technologies

### Budget

- Total Project Funding:
  - **\$500,000**
  - DOE: \$500,000
  - Cost Share: \$0
- Funded w/ FY11 & FY12 funds
- \$476,886 spent (95%)
- (as of 2/14/13)

### Partners

Greater Lansing Clean Cities  
OHM  
Next Energy  
Governing Dynamic  
Pike Research

### Objectives

- The Plug-In Ready Michigan Project will develop a state of Michigan plug-in electric vehicle charging infrastructure community preparedness plan, working with 40 organizational partners to expand the work of the previously established Michigan Plug-in Electric Vehicle Task Force. The preparedness plan will be framed with outside research and stakeholder input from utilities, OEMs, technology providers, pivotal adoption communities, state and local government, members of the general public, and Clean Cities Coalitions. The project will also incorporate state and local level policy implementation, education, and outreach to positively impact consumer behavior.

### Supports VTP Deployment Goals

- By 2020, to achieve a petroleum reduction of over 2.5 billion gallons per year through voluntary adoption of alternative fuel vehicles and infrastructure.
- To ease market introduction of alternative fuels and new electric drive vehicle technologies through voluntary efforts in partnership with local communities
- To provide technical and educational assistance to support local communities and partnerships that promote better understanding of the benefits of these new technologies

### **Task 1: Project Management and Administration**

The recipient will manage the cost, schedule and scope of the project and provide status and progress to the Department of Energy in accordance with the deliverables section of this document.

### **Task 2: Create and launch stakeholder register/database**

### **Task 3: Develop Communication Mechanisms for Distribution and Collection of Information**

### **Task 4: Research and data collection – barriers, incentives and benefits**

This task will include conducting surveys, presenting research, and identifying decision factors for the stakeholders at each session; organization of research into a complete list of barriers; collection and creation of list of electric vehicle servicing equipment (EVSE) planning benefits with estimated return on investment data; creation of a prioritized list of community infrastructure planning steps; and the development of a non-residential site selection criteria and guidance document; research of economic and workforce development opportunities relative to EVSE installation and plug-in electric vehicle (PEV) deployment; research and compilation of best practices relative to EVSE installation and PEV deployment.

### **Task 5: Completion of Michigan Plug-In Electric Vehicle Community Readiness Plan (Final Plan)**

Activities in this task include drafting and completion of the final plan; submission of plan draft to project partners and stakeholders for review and comment; revision of draft plan according to stakeholder input and feedback as necessary; report of final plan to DOE. The recipient will draft the Plan which contains and addresses, at a minimum, the critical elements 6-10 identified in the Sample Plan Outline, shown as Appendix 1 to Attachment 3 – Federal Assistance Reporting Checklist.

### **Task 6: Develop, Recommend and Implement Model Regulations and Incentives**

Activities in this task include assessment of current regulations and identify barriers to PEV adoption; and identification of needed modifications to existing regulations and incentives; outreach to municipalities and formal recommendations to state and local community leaders to create monetary and/or other incentives to encourage early adoption of electric vehicles and supply equipment; development of a database of regulations and incentives for consumers and municipalities. When variances exist, the recipient will work with project partners and key stakeholders to create a statewide accessible database of regulations and incentives by geographic region.

### **Task 7: Create and Implement a Statewide Education and Outreach Plan**

Activities associated with this task include development and implementation of a targeted education and outreach plan; leverage community events to educate consumers about PEVs and EVSE; link the Michigan PEV Community Readiness Plan to relevant websites and other appropriate media outlets; incorporate the Plan into the PEV Taskforce website.

- **Data Gathering**

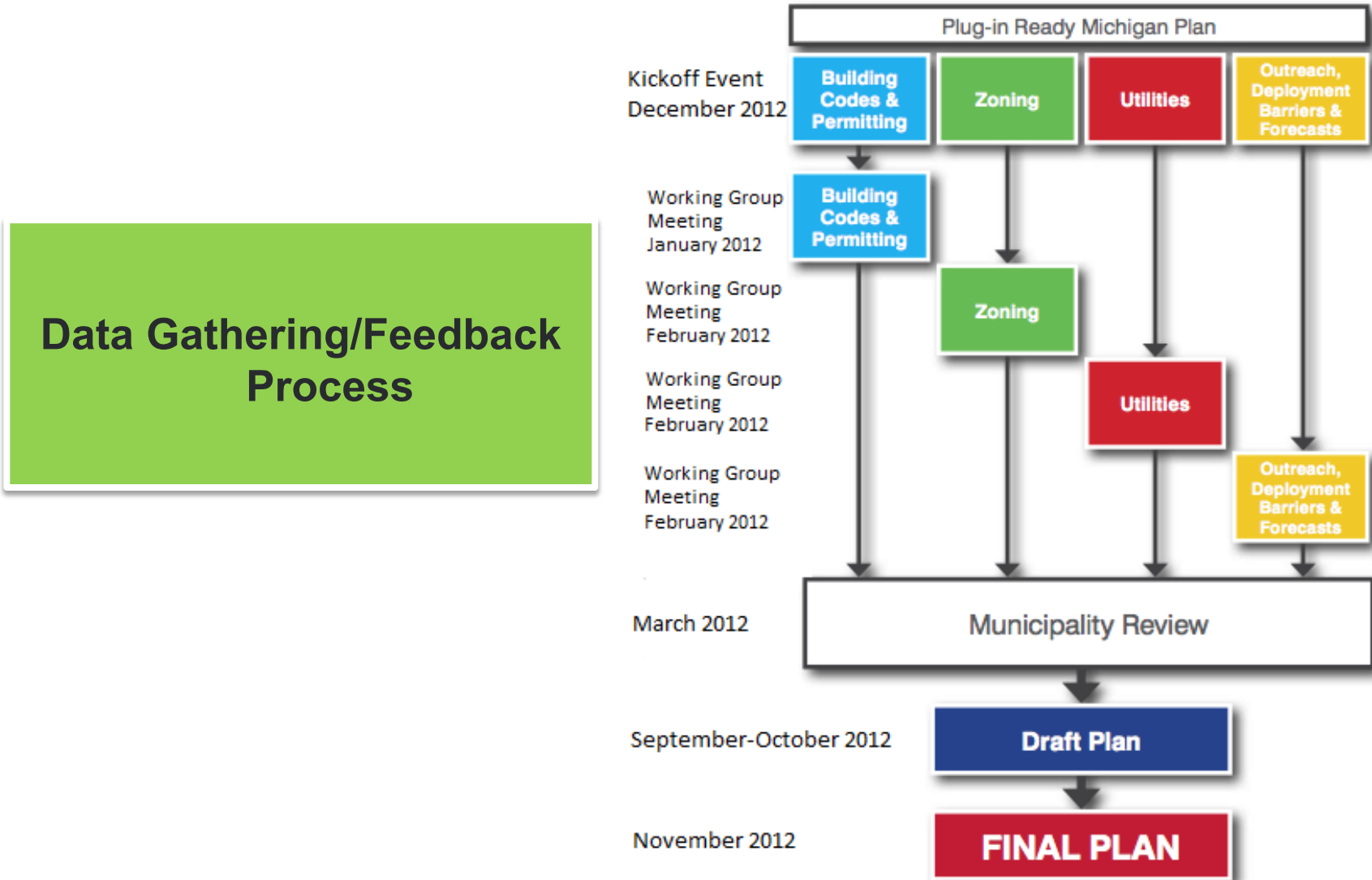
- (Q1-Q4) CEC and project partners collected data and information from stakeholders through work group sessions. Several key stakeholders were engaged in one-on-one meetings. Also, industry and scholarly articles referenced in the *Plan* were gathered during this time frame.
  - OHM was contracted to assist with the planning work and the *Plan* design.
  - Pike Research was contracted to provide Michigan forecasts for PEVs (included in the *Plan*)

- **Feedback**

- (Q1) A wiki site was set up to gather stakeholder feedback, however it was used sparingly after Q1 and discontinued.
- (Q1-Q3) Direct stakeholder engagement, through conference calls and individual meetings, was the preferred form of feedback.
- (Q4) Rough and final drafts of the *Plan* were emailed to stakeholders to solicit feedback.

# MILESTONES: Year 1 (continued)

## CEC: Plug-In Ready Michigan



- Plan Completion**

- (Q5) The final *Plan, Plug-in Ready Michigan: An Electric Vehicle Preparedness Plan*, was completed in November and submitted to the Department of Energy on November 20, 2012.

- Project Outreach** conducted by CEC and project partners

- Meetings with Organizations**

- Michigan Association of Planners (MAP)
    - Michigan Association of Home Builders
    - Michigan Municipal League
    - RE-AMP
    - State of Michigan - Office of Fire Fighter Training (OFFT)
    - University of Michigan – Transportation Department

- Presentations**

- The Business of Plugging In Conference
    - MAP Annual Conference
    - Oakland County Planners Luncheon
    - Trans4M Transportation Policy Webinar
    - Detroit
    - DeWitt

- Meetings with Michigan Municipalities**

- Ann Arbor
      - Auburn Hills

- Farmington Hills
    - Flint
    - Grand Rapids
    - Grand Ledge
    - Kalamazoo
    - Lansing
    - Madison Heights
    - Meridian Township
    - Novi
    - Oakland County
    - Troy
    - Rochester Hills
    - Warren



# MILESTONES: Year 2

## CEC: Plug-In Ready Michigan



- Presentations/lesson learned/info sharing at Electric Vehicle Community Readiness Workshop (May 1, 2013)
- Continued outreach to Michigan municipalities
- Submitted presentation proposal to ACT Conference in Washington D.C. (pending approval) titled *Plug-in Ready Michigan: Recommendations from a Statewide Electric Vehicle Preparedness Plan*

### **Deliverables/Products completed:**

- *Plug-in Ready MI: An Electric Vehicle Preparedness Plan*

The Plan includes six main sections

1. Introduction
2. Electric Vehicle Outlook in Michigan
3. Utilities
4. Codes and Permitting
5. Master Plans and Zoning
6. Toolkit
  - » Barriers and projections
  - » Michigan EVSE Case Studies
  - » Master Plan and Zoning Tools for PEV Readiness
    - » Sample Master Plan language
    - » Sample Zoning language
    - » City code of ordinances, traffic, and vehicle regulations
  - » EVSE Siting, Design, and Installation considerations
    - » Conceptual Charging Station Installations

### Tiered Approach to Planning and Zoning Language

#### Accepting

There is a desire to ensure no barriers exist, but there is no interest in actively promoting the installation of charging stations.

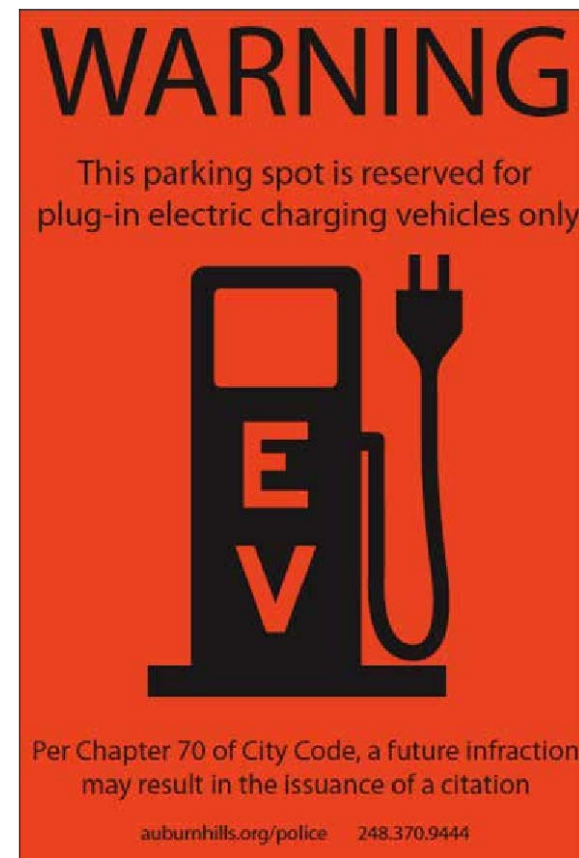
#### Encouraging

There is both a desire to ensure no barriers exist and an interest in promoting the installation of charging stations.

#### Assertive

This stance may involve requiring charging stations, or at a minimum charging infrastructure, to be installed as part of parking requirements.

### Signage Recommendations for the State of Michigan



# COLLABORATIONS

## CEC: Plug-In Ready Michigan



- Clean Cities Coalitions
  - Ann Arbor Clean Cities
  - Detroit Clean Cities
  - Greater Lansing Clean Cities
- Other Agencies/Institutions
  - Southwest Michigan Planning Commission
  - University of Michigan Transportation Research Institute (UMTRI)
  - S.E. MI Council of Governments
  - MI League of Conservation Voters
  - Michigan Municipal League
  - Michigan Public Service Commission
  - Michigan Technological University
- Utilities
  - Consumers Energy
  - NextEnergy
  - Upper Peninsula Power Company
  - DTE Energy
  - Indiana Michigan Power
  - Lansing Board of Water & Light
- Local Governments/Agencies
  - Ann Arbor DDA
  - City of Ann Arbor
  - City of Auburn Hills
  - City of Dearborn
  - City of Detroit
  - City of Flint
  - City of Grand Rapids
  - City of Houghton
  - City of Lansing
  - City of Warren
- Industry
  - Chrysler
  - ClipperCreek
  - Coulomb Technologies
  - Eaton
  - Ford Motor Company
  - General Motors
  - LAZ Parking
  - Magna
  - Mercedes Benz
  - Michigan League

# PROPOSED FUTURE WORK

## CEC: Plug-In Ready Michigan



- CEC will continue to build on Plug-in Ready MI and the work of the PEV taskforce in new Michigan Fuel Forward program beginning in 2013.

# SUMMARY

## CEC: Plug-In Ready Michigan



### Relevance:

- Achieve a petroleum reduction of over 2.5 billion gallons per year through voluntary adoption of alternative fuel vehicles and infrastructure.
- To ease market introduction of alternative fuels and new electric drive vehicle technologies through voluntary efforts
- To provide technical and educational assistance to support local communities and partnerships that promote better understanding of the benefits of these new technologies

### Approach:

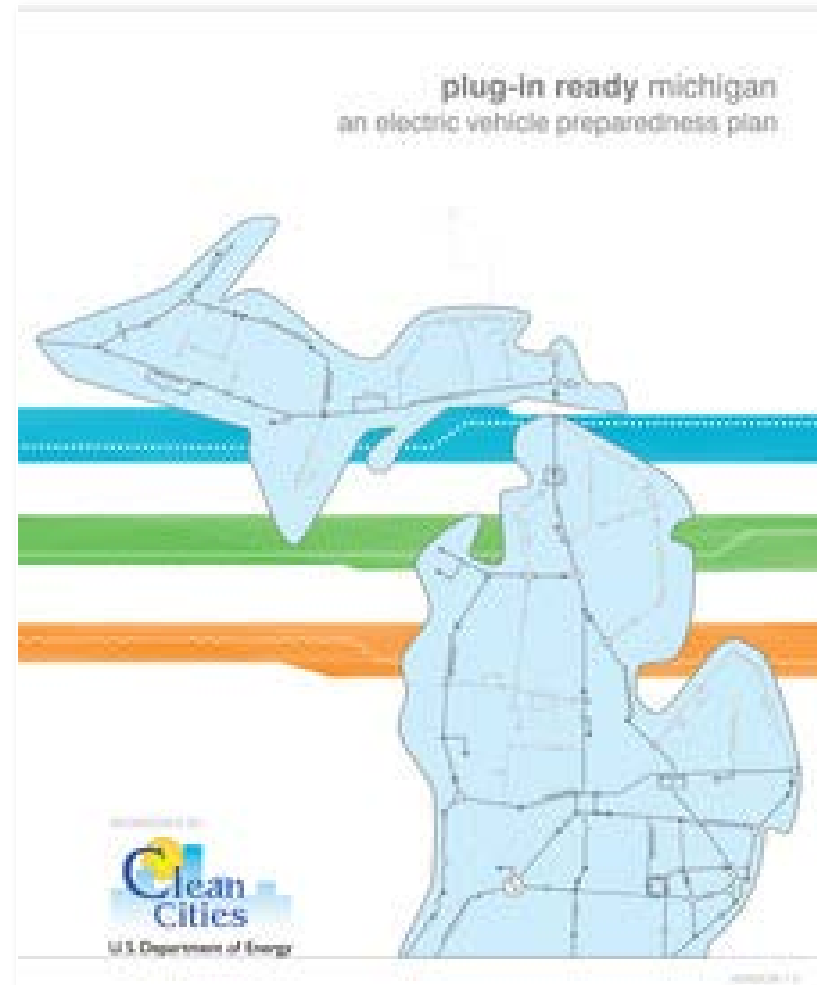
- Engage stakeholders
- Collect data
- Create and release Plan
- Develop and recommend model incentives
- Create & implement outreach and education plan

### Collaborations:

- Continue collaborations with local governments, Clean Cities, utilities and industry partners

### Project Accomplishments/Progress:

- **The Plug-In Ready Michigan Plan has been released and is available for review. Since its release in November, the plan has been downloaded 173 times.**



<http://cec-mi.org/mobility/programs/pluginreadymichigan/>

# **Clean Cities 2011 EV Community Readiness**

**Clean Fuels Ohio (CFO): Charging Forward with Electric Vehicles in Ohio**

**PI: Cynthia Maves, Clean Fuels Ohio**

**Erin Russell-Story**

**U.S. Department of Energy**

**National Energy Technology Laboratory**

**May 16, 2013**

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**Project ID: TI032**



# OVERVIEW

## CFO: Charging Forward with Electric Vehicles in Ohio



### Timeline

- Start: October 2011
- End: March 2013
- 100% Complete

### Barriers Addressed

- Availability of Alternative Fuel Vehicles & Electric Drive Vehicles
- Availability of Alternative Fuels and Electric Charging Infrastructure
- Consumer Reluctance to Purchase New Technologies
- Lack of Technical Experience with New Fuels and Vehicle Technologies

### Budget

- Total Project Funding:
  - **\$600,724**
  - DOE: \$500,000
  - Cost Share: \$100,724
- Funded w/ FY11 & FY12 funds
- \$453,963 spent (75%)
- (as of 2/14/13)

### Partners

AECOM  
EPRI  
OSU CAR  
University of Akron  
Communica

### Objectives

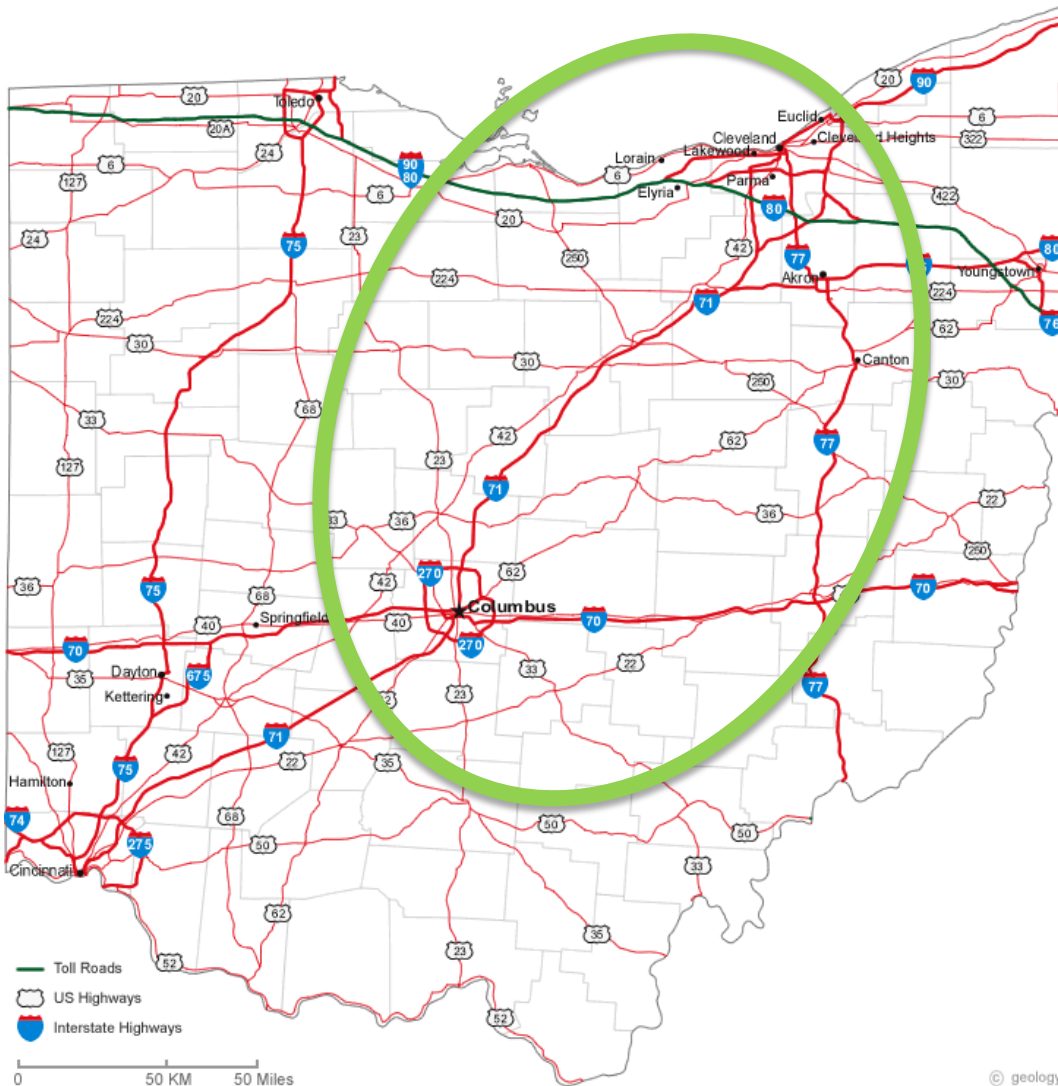
- The Charging Forward project, led by Clean Fuels Ohio, will develop local, regional and statewide plans and implement policies that support the deployment of plug-in electric vehicles (PEV) and electric vehicle charging infrastructure in Ohio. A master plan will be completed based on detailed infrastructure studies of Columbus, Cleveland and Akron. The final plan will also include a comprehensive consumer marketing strategy, training plans, permitting and code templates, and policy implementation strategies.

### Supports VTP Deployment Goals

- By 2020, to achieve a petroleum reduction of over 2.5 billion gallons per year through voluntary adoption of alternative fuel vehicles and infrastructure.
- To ease market introduction of alternative fuels and new electric drive vehicle technologies through voluntary efforts in partnership with local communities.
- To provide technical and educational assistance to support local communities and partnerships that promote better understanding of the benefits of these new technologies.

# GEOGRAPHIC AREA

## CFO: Charging Forward with Electric Vehicles in Ohio



**Cleveland –  
Columbus  
Corridor**

### **Task 1: Project Management and Administration**

The recipient will manage the cost, schedule and scope of the project and provide status and progress to the Department of Energy in accordance with the deliverables section of this document.

### **Task 2: Data collection, market analysis and modeling**

Activities in this task will include the development of an infrastructure deployment plan based on highway usage analysis, vehicle and infrastructure demand analysis, market analysis and modeling.

### **Task 3: Development of strategy for updating building codes, permit processes, zoning, parking rules, inspections**

Activities in this task include gathering successful models from other communities, development of sample/model ordinances, building codes, permit processes, zoning, parking rules, inspections, and updating and implementing policies in partner cities.

### **Task 4: Development of Training Plan**

Activities in this task include defining the scope of the training plan and associated training requirements; development of the training schedule; description and development of curriculum; and compilation of required materials and equipment

### **Task 5: Development of Marketing Strategy**

Activities in this task include development of primary research questions regarding definition of demographic and psychographic characteristics of target audience; review of secondary research; conduct focus group sessions among target audiences of current and potential PEV buyers, vehicle retailers and manufacturers, potential public and private partners; presentation of focus group results to key stakeholders; drafting of statewide marketing communications plan; development of brand identity; presentation of plan and brand recommendation to project partners and stakeholders for input before preparation of final plan; and publication of final marketing plan.

### **Task 6: Distribution of Sample Models to Communities**

Activities in this task include distribution of model building codes, permit processes, zoning parking rules and inspection practices developed and reviewed in Phase II.

### **Task 7: Completion of Final Plan**

Activities in this task include drafting and completion of the final plan; submission of plan draft to project partners and stakeholders for review and comment; revision of draft plan according to stakeholder input and feedback as necessary; report of final plan to DOE. The recipient will draft the Plan which contains and addresses, at a minimum, the critical elements 6-10 identified in the Sample Plan Outline, shown as Appendix 1 to Attachment 3 – Federal Assistance Reporting Checklist.

### **Task 8 : Ongoing policy work to update and implement policies**

Activities in this task include implementation of recommended policy modifications.

### **Task 9: Distribution of Final Plan**

Activities in this task include publication of final plan; and distribution of plan to, metropolitan planning organizations, city and state governments, universities, and other appropriate stakeholders.

### **Task 10: Begin Training and Education**

Activities in this task include commencement and implementation of training activities.

# MLESTONES: Year 1

## CFO: Charging Forward with Electric Vehicles in Ohio



### EV Research and Studies

- PEV Grid Modeling: Location design of charging stations for PEVs (OSU CAR )
- PEV Demand Study and Charging Station Location Identification (Greater Cleveland & Akron Area) (University of Akron)
- DC Fast Charging Network Model and Grid Impact Study (EPRI)
- Ohio Survey of Local Governments (Governing Dynamic)
- Consumer research & fleet research studies (Communica)
- ADA Compliance, Charging Station Design & EVSE Siting (Sustainable Transportation Strategies)

### Stakeholder Feedback

- Six large EV stakeholder meetings – Cleveland and Columbus
- All major Ohio electric utilities involved
- Marketing Firm Selection Committee
- Small Group Branding Workshops

### Completion of Products

- Ohio EV Readiness Plan – released late March 2013
- Model Permitting and Code Templates
- Consumer Marketing Strategy

### Project Outreach

- Drive Electric Ohio Website Development and Launch
- Municipal EV Community Readiness/Fleet Readiness Showcase
- NFPA First Responder Electric Vehicle Safety Training
- First Responder Electric Vehicle Safety Trainings
- Columbus Auto Show 2012 & 2013 – Amp Electric Vehicles, Nissan Leaf®, VIA etruck
- Revenge of the Electric Car Screening – EV Block Party
- EV Tour del Sol 2012 & 2013 – Collaboration with Green Energy Ohio

# ACCOMPLISHMENTS

## CFO: Charging Forward with Electric Vehicles in Ohio



- EPRI DC Fast Charging Network for Ohio
- EVSE Planning & Policy Tool Guidelines
- Model Ordinance and Policy Templates
- Model EVSE Permitting and Inspection Provisions
- Model Zoning Code Provisions
- Model Right-of-Way Standards
- Model Building Code Provisions
- ADA EVSE Guidelines for Persons with Disabilities
- EVSE Design & Layout Guidelines
- EVSE Siting Guidelines
- Statewide Consumer EV Marketing Strategy:





- **Clean Cities Coalitions**

- Virginia Clean Cities
- Clean Energy Coalition

- **Other Agencies/Institutions**

- Ohio Public Utilities Commission
- Ohio Department of Development
- Ohio State Fire Marshal's Office
- Ohio Association of Regional Councils
- Mid-Ohio Regional Planning Commission
- Northeast Ohio Area Coordinating Agency
- Great Lakes Energy Development Task Force
- National Electric Contractors Association
- Ohio Auto Dealers' Association

- **Utilities**

- American Electric Power
- Duke Energy
- FirstEnergy
- Dayton Power & Light
- Cleveland Public Power

- **Local Governments/Agencies**

- City of Columbus    - City of Dayton
- City of Cleveland    - City of Centerville
- City of Cincinnati    - City of Dublin
- City of Rocky River - City of Akron
- City of Bowling Green
- City of Shaker Heights

- **Industry**

- General Motors
- VIA Motors
- Navistar
- AMP Vehicles
- Coda Automotive
- Smith Electric Vehicles
- Signature Control Systems
- General Electric
- ClipperCreek
- Plugsmart
- Coulomb Technologies
- Eaton
- Graybar

### Remaining Project Activities:

- **Drive Electric Ohio website** - launched June 2012. Site will host Readiness Plan and is a resource for consumers, fleets, community leaders
- **Ohio EV Readiness Plan** – published late March 2013. Plan is featured on Drive Electric Ohio website
- **2013 statewide local government workshops** – permitting, zoning and building codes & fleet outreach component

### Related Efforts

#### (NOT Project Funded):

- **DOE ARRA grant** – over 70 EV charging stations installed statewide. Some EVSE installation featured in ARRA marketing plan
- **DOE Implementation Initiatives grant** –
  1. Execution of statewide Drive Electric Ohio marketing strategy
  2. EV first responder safety training courses
  3. CFO/CALSTART workplace charging collaboration
- **Collaboration with GEO** – 2<sup>nd</sup> EV Tour del Sol

# SUMMARY

## CFO: Charging Forward with Electric Vehicles in Ohio



### Relevance:

- Achieve a petroleum reduction of over 2.5 billion gallons per year.
- To ease market introduction of alternative fuels and new electric drive vehicle technologies
- To provide technical and educational assistance to support local communities and partnerships that promote better understanding of the benefits of these new technologies

### Approach:

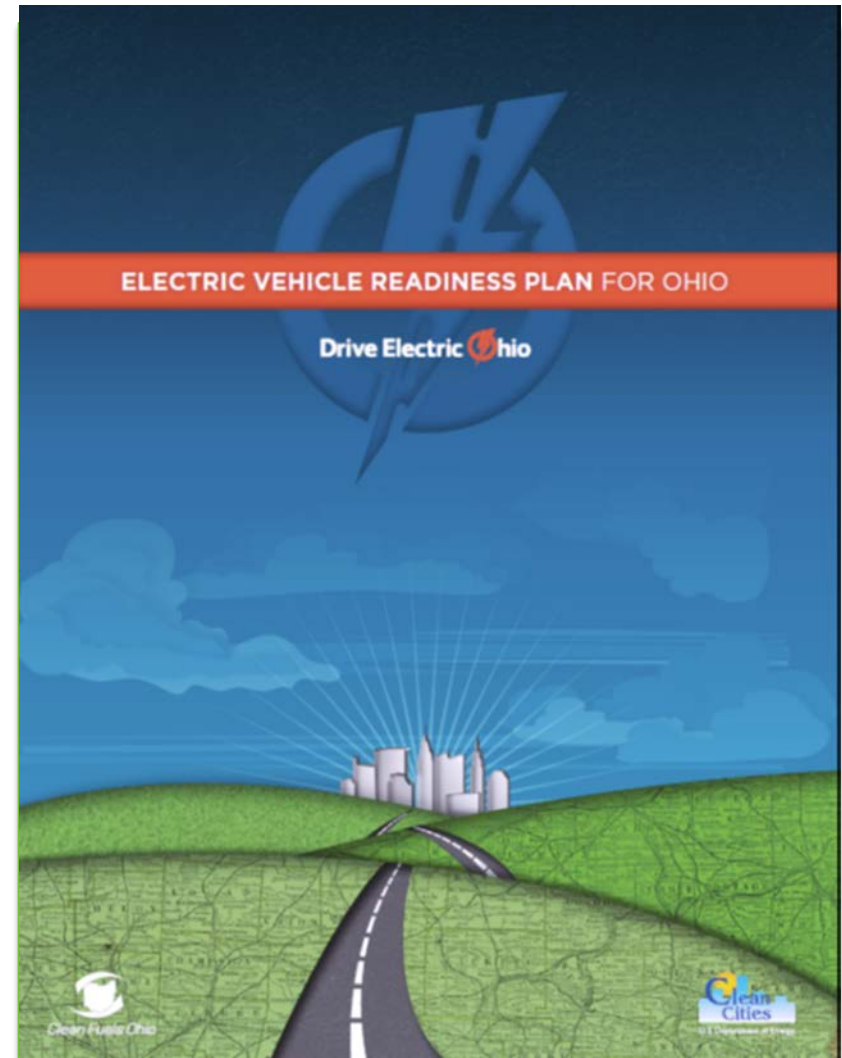
- Encourage voluntary AFV adoption
- Data collection, market analysis and modeling
- Strategy for updating building codes, permit processes, zoning, parking rules, inspections
- Development of Training and Marketing Plans
- Develop and recommend models to communities
- Completion and distribution of final Plan

### Collaborations:

- Continue collaborations with local governments, Clean Cities, utilities and industry partners

### Project Accomplishments/Progress:

- The Ohio EV Readiness Plan has been released and is available for review.



<http://www.driveelectricohio.org/draftpev/>