New York State Energy Research and Development Authority

On behalf of the

Transportation and Climate Initiative
Northeast & Mid-Atlantic Clean Cities Coalitions
Georgetown Climate Center
National Association of State Energy Officials

Proposal for:

Northeast Regional Electric Vehicle Network Planning

In response to:

Funding Opportunity Number: DE-FOA-0000451

Clean Cities Community Readiness and Planning for Plug-in Electric Vehicles and Charging Infrastructure

Sponsored by:

U.S. Department of Energy

June 14, 2011

Principal Investigator: Adam Ruder, Asst. Project Manager, NYSERDA
Phone: (518) 862-1090 x3411
Email: ar3@nyserda.org

A Proposal for
Northeast Regional Electric Vehicle Network Planning

PROJECT OBJECTIVES [MERIT REVIEW CRITERIA #1A, 2C]

The New York State Energy Research and Development Authority (NYSERDA) is submitting this application for the US Department of Energy Clean Cities FOA DE-FOA-0000451 on behalf of the Transportation and Climate Initiative (TCI), a partnership of the state energy, environment, and transportation agencies from the Northeast and Mid-Atlantic states and Washington, D.C., and 16 of the region's Clean Cities Coalitions.[1] NYSERDA requests $994,500 in DOE funding to develop planning documents and conduct outreach and education for region-wide implementation of electric vehicle infrastructure projects and is providing $500,000, or 33 percent matching funds for this project.

TCI was formed in June 2010 in an effort to "reduce greenhouse gas emissions, minimize our transportation system's reliance on high-carbon fuels, promote sustainable growth, address the challenge of vehicle-miles traveled and help build the clean energy economy," as the agency heads stated in TCI's founding Declaration of Intent. One of the four working groups within TCI is specifically tasked with addressing clean vehicles and fuels in the region. TCI views this solicitation as an excellent opportunity to accelerate and expand its efforts to develop the Northeast Regional Electric Vehicle Network.

The Northeast Regional Electric Vehicle Network project will develop a plan and accompanying guidance documents to accelerate the introduction of a network of electric vehicle (EV) charging stations throughout the Northeast and Mid-Atlantic regions of the United States.[2] TCI will work with the region's Clean Cities Coalitions to bring together stakeholders to inform the process, adapt the documents to local audiences, and convey the benefits of a regional approach to local policymakers. The Georgetown Climate Center has served as facilitator for TCI and will continue to support TCI's work by coordinating region-wide stakeholder outreach, conducting necessary research, and recommending model policy and planning approaches. NYSERDA may engage additional consultants for assistance developing specific planning documents, and will work with the National Association of State Energy Officials (NASEO) to generalize the documents for states to use in the rest of the country outside of the TCI region.

NYSERDA, New York State's energy office, has successfully implemented energy programs for the state since 1975 and has been a leader in collaborating on energy policy and planning regionally. NYSERDA's Adam Ruder, the principal investigator, is one of the three co-chairs of the TCI Clean Vehicles and Fuels working group, which has taken on electric vehicle planning as its first focus, and has assumed the leadership role for this application.

Regional collaboration and local implementation make this project unique. While none of the 12 jurisdictions has worked on all elements of a successful EV plan, many of them have made progress on one or more elements. By collaborating on a plan, TCI can draw on the best practices and experiences of the states that have worked on specific elements, such as building codes or permitting, and generalize that knowledge to create compatible templates for the region. This collaboration will allow federal funding to stretch further, creating useful planning documents for the whole TCI region, which represents approximately 20% of the nation's population.

[1] The jurisdictions participating in this proposal are Connecticut, Delaware, District of Columbia, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Pennsylvania, and Vermont.

[2] This application refers to plug-in hybrid electric vehicles and battery electric vehicles as electric vehicles.

The region's Clean Cities Coalitions will assist the effort by educating the critical local stakeholders responsible for adopting new permitting, zoning and building codes and helping these policymakers customize the model rules and practices for local circumstances. The Coalitions will also integrate local stakeholders into the regional process, sharing their knowledge of what a regional collaboration can provide to local leaders to make EV deployment successful.

The ultimate goal of the Network is two-fold.

- First, the TCI aims to ensure that travelers can drive electric vehicles with ease locally and region-wide, from northern New England to the District of Columbia and everywhere in between.
- Second, by creating consistent rules and standards across the entire region, the TCI seeks to attract private sector investment to the region and encourage the development of an EV market both for consumers, by making the EV experience common, standardized, and easy to use, and for the EV industry, by simplifying the maze of local regulations, building codes and permitting processes, and creating certainty so that manufacturers know how to work in the region.

MERIT REVIEW CRITERIA

For ease of reference, the title of each section of this proposal is annotated with the Merit Review Criteria to which it corresponds.

Criterion 1, Probability of Project Success Based on Technical Approach and Project Narrative/Statement of Project Objectives

Sub-Criterion A, *Responsiveness and relevance of the application to the programmatic goals and requirements identified in this announcement for this area of interest*: TCI's proposal for EV planning is directly relevant to USDOE's programmatic goals. As a regional collaboration that incorporates local, statewide, regional, and national entities, including 16 Clean Cities Coalitions, the proposal seeks to prepare a broad array of communities for EV acceptance. By working with partners with relationships in each facet of EV adoption, TCI hopes to educate and influence a variety of decision-makers to ensure that the products of this planning work are put into use. A further explanation of the relevance and impacts of this project can be found under Relevance and Outcomes/Impacts on pp. 19-20.

Sub-Criterion B, *Adequacy, reasonableness, and soundness of the proposed effort including the duration and sequencing of tasks and the scheduling of project milestones verifying that the project will be completed within the proposed period of performance* **and C,** *Adequacy, appropriateness, and reasonableness of the proposed work and budget distribution among the team members to accomplish the Statement of Project Objectives*: NYSERDA, the Clean Cities Coalitions, Georgetown Climate Center, and NASEO all have extensive experience administering federal awards and a proven history of completing projects in a timely manner. The timeline described in the Project Timetable on p. 19 is aggressive, but the sizable project team assembled for this project provides a large number of staff that can ensure that multiple tasks within the project are ongoing at any given time. Budgets, at the end of each Task in the Work Plan and on p. 19, have been designed based on previous experiences of each of the partners. The Partners and Commitments (pp. 20-21) and Roles of Participants (pp. 21-24) sections further describe who the partners are and what work each of the partners will be conducting.

Sub-Criterion D, *Thoroughness of approach to gather broad representation of relevant stakeholders and sources of information to provide input and/or comments to the plan*: Each of the project partners has a wide stakeholder network. Sections 1 and 2 of the Self-Assessment (pp. 5-7), as well as Task 1 of the Work Plan (p. 12), describe the group's stakeholder outreach to date and what it plans to do under this

project. A further list of EV stakeholders that have worked with the project partners is attached to this document.

Sub-Criterion E, *Identification of barriers or roadblocks to expeditious infrastructure deployment as well as plans to develop mitigations for each*: Many of the TCI states have already been working to identify potential barriers to expeditious infrastructure deployment, including high initial price of ownership, production limits, regulatory impediments, electric grid capacity, environmental impacts, and consumer anxiety (see Self-Assessment, pp. 7-8). By first learning more about these through a thorough literature review (see Work Plan, Task 2, p. 13), TCI hopes to incorporate mitigations for each of these into its planning documents.

Criterion 2, Probability of Successful Implementation

Sub-Criterion A, *Clarity, completeness and adequacy of the self-assessment using the Sample Plan Outline*: TCI's self-assessment, found on pages 5-11, captures the EV-related activities that the project partners, including the TCI agencies and the Clean Cities Coalitions, have been working on. This comprehensive account touches on each step in USDOE's Sample Plan Outline. A major advantage of working with such an experienced group is that while no single partner has experience in each step of the Sample Plan Outline, the combined group has a wide range of experiences in most, if not all, of the steps.

Sub-Criterion B, *Extent to which the proposal addresses work remaining to be accomplished in terms of the planning elements, including the implementation of local policies, procedures, and incentives that facilitate development*: The Work Plan proposed on pages 11-19 (particularly Tasks 3, 4, and 5) describes the planning work that remains to be completed and how TCI and its partners plan to accomplish it. The Work Plan contains a mix of local implementation and regional collaboration that draws on the strengths of each of the project partners.

Sub-Criterion C, *Adequacy of rationale of how implementation of the plan will contribute to a sustainable extended range electric vehicle, plug-in hybrid electric vehicle, or electric vehicle market in the proposed region/territory*: The Relevance and Outcomes/Impacts (pp. 19-20) section of the document describes how this project will help generate a more sustainable EV market in the Northeast and Mid-Atlantic region by bringing consistency to the regulatory environment in the region and educating key stakeholders, which will pave the way for more private and public investment in EVs and EV infrastructure.

Sub-Criterion D, *Strength of documented vehicle deployment commitments, such as Original Equipment Manufacturer (OEM) launch areas and other relevant fleet commitments*: Chevrolet and Nissan have begun deploying EVs in the TCI region, and many of the TCI agencies and Clean Cities Coalitions have worked with fleets in the region that are buying Smith Electric and Navistar electric trucks and other electric fleet vehicles. These commitments, as well as commitments from EVSE vendors to deploy in the region, are described in more detail under Partners and Commitments on pp. 20-21.

Criterion 3, Probability of Project Success Based on Team Expertise and Prior Experience Developing and Implementing EV Plans

Sub-Criterion A, *Qualifications, expertise, and experience of both the identified key personnel and the applicant organization and/or partners in areas relevant to the proposed work*: The key personnel and partners have extensive qualifications and experience, both in managing USDOE awards and in implementing EV-related projects. The Qualifications and Experience section (p. 24) describes NYSERDA's recent experience managing USDOE awards, the Partners and Commitments section (pp. 20-21) describes who the project partners are, and the Self-Assessment (pp. 5-11) describes the project

partners' experience with EV projects. Further detail on key personnel can be found in the Bios and Resumes file, which is attached.

Sub-Criterion B, *Identification of specific personnel assigned to major project tasks, their roles in relation to the work required, percent of their time on the project, and special qualifications they may bring to the project. Include resumes of individuals proposed for this contract*: The project partners are detailed in the Partners and Commitments section (pp. 20-21), while the key personnel managing the project are described in the Roles of Participants section (pp. 21-24) and in the attached Bios and Resumes file.

Sub-Criterion C, *Adequacy of the allocation of applicant and/or team resources to successfully complete the proposed work*: NYSERDA has a history of delivering strong results to USDOE with a low administrative rate. The amount budgeted for NYSERDA is in line with previous similar awards and should be enough to ensure the same type of project management that USDOE has received from NYSERDA in the past. The other project partners have done similar projects with similar budgets in the past and are more than capable of delivering within budget on this project.

Sub-Criterion D, *Strength of partnerships and extent of active participation of Clean Cities coalitions public or private fleets, auto dealerships, equipment manufacturers, energy marketers, utilities/ energy companies, local and regional planning entities, state agencies and transportation authorities*: Project partners include 16 Clean Cities Coalitions, through which TCI intends to engage with stakeholders in a variety of fields related to EVs. State transportation, energy, and environment agencies are thoroughly engaged with this project through TCI. A number of other partners, including utilities, MPOs, and EVSE vendors, have submitted letters of support for the project, which are attached.

Sub-Criterion E, *Quality and strength of commitment letters documenting technical and/or financial support and /or site availability from all team partners*: NYSERDA has attached a letter of commitment regarding its cost sharing commitment. The other named project partners that will be sub-awardees, which includes the Georgetown Climate Center, NASEO, and the 16 Clean Cities Coalitions, have all submitted letters of support detailing their involvement in the project, which are attached.

SELF-ASSESSMENT [MERIT REVIEW CRITERIA #1D, 1E, 2A, 2D, 3A]

Planning Tasks Accomplished To Date
Since its inception in June 2010, TCI has been focused on how it can help facilitate EV deployment in the Northeast/Mid-Atlantic region. The jurisdictions that make up TCI and the Clean Cities Coalitions in the region have been working on EV readiness activities for years.

TCI's primary focus to date has been engagement with key stakeholders, although many of the TCI member agencies have begun investigating the issues surrounding EVSEs, building codes and permitting, EV impacts on the electrical grid, and EV incentive programs. Additionally, many of the Clean Cities Coalitions have already begun hosting public outreach and education events that inform key stakeholders of the benefits of EVs, the technical workings of EVs and EVSEs, and the process one must follow to purchase and install EVSEs. Specifically, TCI, its members, and its Clean Cities partners have undertaken the following actions:

1. Partnerships with Relevant Stakeholders
The Transportation and Climate Initiative is a voluntary, collaborative enterprise whose members are the transportation, energy, and environment agencies of the eleven Northeast and Mid-Atlantic states and the District of Columbia. Partnership is a core value and organizing principle of TCI.

TCI and its member agencies have forged deep partnerships with a wide range of stakeholders working at all stages of the electric vehicle market. Many of TCI's member agencies have been working on electric vehicle projects for years and have developed deep relationships with the major utilities, manufacturers, fleets, regulatory agencies, infrastructure manufacturers, and other stakeholders.

TCI has crafted a close relationship with the region's Clean Cities Coalitions. Many of the state agencies in TCI have a long history of working with U.S. DOE's Clean Cities program (and some even are hosts to their states' Clean Cities Coalitions), and TCI has broadened the relationship to the other agencies that did not have as much experience working with these local coalitions. TCI has enlisted 16 of the region's Clean Cities Coalitions as project partners for this project. They are:

- Maine Clean Communities
- Granite State Clean Cities (NH)
- State of Vermont Clean Cities
- Massachusetts Clean Cities
- Ocean State Clean Cities (RI)
- Capital District Clean Communities (NY)
- Clean Communities of Central New York
- Clean Communities of Western New York
- Genesee Region Clean Communities (NY)
- Greater Long Island Clean Cities Coalition
- New York City and Lower Hudson Valley Clean Communities
- New Jersey Clean Cities
- Philadelphia Clean Cities
- State of Delaware Clean Cities
- State of Maryland Clean Communities
- Greater Washington Region Clean Cities Coalition

The Baltimore Electric Vehicle Initiative (BEVI), a non-profit organization that promotes EV deployment in Maryland through education, stakeholder engagement and strategic EVSE installations, has also joined as a project partner to complete the same tasks in Maryland as the other Clean Cities Coalitions will in their regions.

Utilities and electricity regulators, some of the most important stakeholders for any discussion of electrifying the transportation sector, have been working with the TCI agencies and our Clean Cities Coalition partners. TCI has worked with the Regional Electric Vehicle Initiative, a collaboration established by the New England utilities and led by National Grid and Northeast Utilities. Agencies have been working closely on EV rollouts across the region, with utilities such as PSE&G in New Jersey, BG&E and Pepco in Maryland and the Mid-Atlantic, National Grid and ConEdison in New York and New England, Unitil in New Hampshire, and others. In addition, a number of public utilities commissions/public service commissions are members of TCI and have been engaged in TCI's EV work. TCI agencies, particularly the energy agencies, have deep experience working with the region's three electric grid operators, ISO New England, NYISO, and PJM.

TCI member agencies have been actively working with EV manufacturers and charging equipment manufacturers. Delaware has worked closely with Fisker Automotive to attract the company's new manufacturing facility to its state. NYSERDA and the New York Power Authority have been working with Ford, Chrysler, and Navistar to test their newest plug-in electric SUVs, pick-up trucks, and school buses, respectively. A number of the states in the Northeast have been hosts to GM's roll-out of the Chevrolet Volt and have worked closely with GM to ensure that it has gone smoothly. Maryland has worked successfully with GM to expand its Baltimore plant to manufacture motors for electric vehicles. TCI and its member agencies have held meetings with ECOTality, Coulomb, SemaConnect, NRG, AeroVironment, and other EVSE vendors and service providers.

The region's Clean Cities Coalitions have been active in working with fleets and parking lot owners, two of the groups closest to the direct decisions to invest in EVs and EVSE. NYSERDA and the New York

Clean Cities Coalitions have funded EV purchases for both public and private fleets and EVSE installations at public and private parking facilities across the state. Massachusetts and New York Clean Cities organizations have facilitated information sessions with EVSE vendors and parking garage owners in Boston and New York City to educate the latter on the variety of products and business models available for parking garages to offer EV charging.

2. Stakeholder Engagement

There are already a number of existing EV stakeholder groups in the Northeast that have been assembled by state governments, utilities, and Clean Cities Coalitions. For instance:

- Connecticut created the Electric Vehicle Infrastructure Council by governor's executive order; the stakeholder group produced a comprehensive report on EV deployment strategies in 2010.
- Maryland has a new statutorily created Electric Vehicle Infrastructure Council that is intended to include both government representatives and members representing utilities, EV manufacturers, EV charger vendors, environmentalists, fleet owners, and others and that will be charged with producing a plan to promote the diffusion of EVs and EV infrastructure on a statewide basis.
- Massachusetts has created an EV Stakeholders' Workgroup that is collaborating with the Department of Environmental Resources to develop a statewide EV infrastructure plan.
- Rhode Island has partnered with the nonprofit Rocky Mountain Institute to create Project Get Ready – Rhode Island, which includes a wide variety of stakeholders who are working together toward reaching a goal of 10,000 plug-in EVs in the state by 2015.
- A number of the utilities in New England have formed the Regional Electric Vehicle Initiative (REVI), which has been coordinating the utilities' efforts on EV rollouts.
- The Clean Cities Coalitions have been actively developing networks of stakeholders interested in EVs, and many of them have already held workshops, seminars, and other meetings with these stakeholders. For instance, New York City and Lower Hudson Valley Clean Communities has conducted a series of EV education events over the past six months targeting fleet owners, parking garage owners, and the general public.

3. Barriers to EV Implementation

Many states have begun analyzing the barriers to deploying EVs and EV infrastructure. For example, New Jersey has been working to identify regulatory impediments to vehicle charging infrastructure installation, as well as potential consumer pricing and infrastructure incentives to foster adoption of EVs and charging infrastructure. This work has been done in collaboration with a group of stakeholders engaged through New Jersey's Clean Cities Coalition.

New York just completed an assessment of the electrical grid impacts of widespread EV deployment, which found that even in the most congested areas of New York City, the electrical grid could handle the additional load from EVs if the charging is managed by a Smart Grid. New York has also proposed $55 million over five years for EV and Smart Grid research and development for the renewal of the System Benefits Charge that is anticipated in 2011. These funds will provide support for basic research, technology development, and new product deployment that will help break down technological and policy barriers to the adoption of EVs.

Connecticut's Electric Vehicle Infrastructure Council was established in late 2009 by executive order of then Governor Jodi Rell to strategize on preparing the state for a rapid and seamless integration of electric vehicles (EV) into the market, while coordinating interagency decision making on critical issues. The Council's final report, issued in September 2010, focused on home-based EV charging, policy planning, environmental considerations, incentives, education, marketing, and outreach opportunities. Barriers to success such as pricing, battery costs, market acceptance, and installation issues were identified as well as solutions.

Maryland recently passed legislation creating the Electric Vehicle Infrastructure Council to develop a plan for integrating EVs into the state's transportation system; and a second law directing its Public Service Commission to establish a demand-response pilot program to incentivize electric customers to charge EVs during off-peak hours. Maryland's PSC has also initiated a proceeding to consider the regulatory treatment of EV charge providers under the state's public utilities code.

Delaware has been at the forefront of breaking down a potential barrier for EV adoption by pioneering vehicle to grid (V2G) technology, which has the potential to reduce electric grid impacts and improve the return on investment for EVs. In 2009, the legislature passed Senate Bill 153, which specifically prepares Delaware for grid-integrated electric vehicles and vehicle-to-grid (V2G) power by recognizing V2G as a power source that can be net metered. The 2009 Delaware Energy Plan includes recommendations for conducting a V2G large fleet demonstration project and the development of an advisory group to assist in defining EV infrastructure, incentives and rules for expedited development and implementation. The Delaware Department of Natural Resources and Environmental Control (DNREC) purchased their first electric vehicle with V2G capabilities in 2009. The University of Delaware has a research area specifically focused on V2G technologies and research in the Center for Carbon-free Power Integration. UD's research is leading the way for innovative EV technologies and mainstream development.

The Georgetown Climate Center recently conducted a review of the region's building codes and how they relate to EV infrastructure deployment. The paper examines the relationship between electric vehicle infrastructure and the legal structures relevant to building code development and administration. GCC recommends that TCI policy makers facilitate code official education, expedite permitting processes, and fold building codes into a comprehensive EV infrastructure deployment plan. TCI intends to use this paper as the basis for further collaboration and sharing of best practices among its members.

Project Get Ready – Rhode Island has developed a list of "Top 15 Actions for Community Leaders – In Business, Government, Civic Groups, Education, and Beyond – To Take to be Plug-In Ready." These action steps are organized around addressing seven identified barriers to wider EV use:

1. Not enough cars in the pipeline, OEMs need proof of future consumer demand
2. How can we manage this as a multi-sector, city-wide project?
3. How can we bring down upfront costs for consumers?
4. Consumer hesitation at diving into a new paradigm for mobility
5. Red tape around infrastructure installation
6. What if these cars exacerbate my peak load?
7. Who will pay for infrastructure?

TCI has also reviewed national reports on the barriers to EV adoption, such as EPRI and NRDC's 2007 report on the GHG emissions of PHEVs, "The Next Generation of Hybrid Cars," which looked at the environmental impacts of expanded PHEV use.

Each of these efforts addresses different barriers to and concerns about the expansion of EV use. Taken together, they provide a broad overview of the challenges and opportunities associated with EV deployment and a guide to which issues are most important for TCI and its partners to work on.

4. Current Plans and Projections for EV Deployment

TCI has not conducted a detailed analysis of current EV deployment projections and regional travel patterns. The departments of transportation and metropolitan planning organizations (MPOs) have the best data on regional travel patterns and vehicle usage, data that TCI can access through its DOT members.

Based on a number of EV market penetration projections, the average forecast is for about 1.3 million new annual EV registrations nationally in 2020 and about one million cumulative EV registrations nationally by 2015. The TCI region is about 20% of the national market, so if EV purchases are evenly distributed throughout the national market, the projection for cumulative EV registrations for the region would be about 230,000 by 2015.

5. Plans for Deploying EV Infrastructure

A number of TCI members are already pursuing vigorous EV infrastructure deployment schemes. Some of the notable state-level efforts are:

- The District of Columbia, which has begun to install public EV chargers in the city through the ChargePoint America program
- Maryland, which was awarded funding (through federal grants) for 60 EV chargers at garages in Baltimore and 55 more charging stations around the state, including along the I-95 corridor and at train stations, bringing the total number of charging stations in the state to nearly 150
- Pennsylvania, which has awarded grants for chargers at more than 50 locations throughout the state, including significant clusters in the Philadelphia and Pittsburgh areas, and which is working on plans for installing fast chargers at all Pennsylvania Turnpike locations, creating a major east-west corridor
- Massachusetts, which plans to announce EV charging station grants shortly
- New York, which through a DOE Clean Cities award is funding the installation of over 75 EV charging stations in New York City, Syracuse, Rome, and other cities around the state and will offer a solicitation for up to $4 million in demonstration EVSE projects beginning in July 2011
- Delaware, which has retrofitted eight parking spaces with conduits for EV chargers at the I-95 Delaware Welcome Area

In addition, many states, cities, and regions have begun conducting EV planning processes. Each of the Level 1 Clean Cities Coalitions in the region has begun work on an EV plan for their area. The City of Albany is creating a comprehensive plan for EV placement around the city. New York State will be issuing a solicitation for assistance in developing a statewide EV plan this summer. Massachusetts has developed sample guidelines for the installation of EVSE that provide directions for employers or residential customers and instructions for electricians on what steps to take in deploying EVSE.

Many of the states have also conducted EV demonstrations, which have yielded important information over the years. The current EV planning will be informed by projects like New York's and Massachusetts' station car EV pilot programs for commuters in the 1990s, New York's program to convert state fleet hybrid vehicles to PHEVs, New York's work with Navistar on demonstrating PHEV school buses, and the work of many states with auto OEMs to pilot their newest EVs and PHEVs. Many states have already deployed both light-duty EVs and heavy-duty PHEVs in fleet settings and continue to collect data from those projects, which will inform future planning.

6. Building and Electrical Codes and EVSE

As mentioned above, the Georgetown Climate Center recently conducted a review of the region's building codes and how they relate to EV infrastructure deployment. The paper examines the relationship between electric vehicle infrastructure and the legal structures relevant to building code development and administration. GCC recommends that TCI policy makers facilitate code official education, expedite permitting processes, and fold building codes into a comprehensive EV infrastructure deployment plan. TCI intends to use this paper as the basis for further collaboration and sharing of best practices among its members.

7. Permitting for EVSE Installation
Only a few of the TCI states have made significant progress toward streamlining permitting for EVSE. Massachusetts has rules requiring a five day/five day permitting and inspection process, meaning that permits must be issued within five days of the initial request and inspections must be performed within five days of installation. Massachusetts also drafted a guide for residential and commercial customers considering installing EVSE. The guide addresses the steps for installing EVSE, with a focus on what a licensed electrician must do to install EVSE at different types of locations.

New Jersey has been one of the region's leaders in addressing this issue. Noting that electric vehicle manufacturers have identified the time, cost and potential delays in local permitting for residential charging equipment as a significant obstacle for EV buyers, the New Jersey Department of Consumer Affairs reviewed applicable state codes and regulations and determined that residential charging installations are considered "minor work". This means that the homeowner or electric contractor need only provide oral notification to the local code enforcement agency prior to starting the installation (the permit application can subsequently be filed within five days of the notification). This determination eliminates a waiting period for approval of a permit to initiate installation that could have been as long as three weeks. In Spring 2011, the Department of Community Affairs published guidance on EV charging station installation and permit requirements for local code enforcement officials. The New Jersey Clean Cities Coalition, working with the New Jersey Department of Environmental Protection, facilitated a stakeholder meeting in Spring 2011 at which the DCA explained its determination. TCI has identified this area as a subject for best practices information sharing, beginning with the State Electric Vehicles Programs Comparison project that Georgetown Climate Center has prepared for the group.

8. Local Ordinances for EVSE Installation
The TCI states and our partners have not been involved with this area to date, but have built relationships with cities, parking facilities, and other key stakeholders interested in this issue and are well positioned to begin addressing these concerns.

9. EV Marketing and Training
Clean Cities Coalitions have been leading the public education campaigns in the Northeast about EVs. There have been EV workshops and information sessions virtually every month for the last year across the Northeast, in virtually every state. New York City-Lower Hudson Valley Clean Communities has hosted a series of workshops in the New York City area for fleets, parking garages, municipalities, and other interested parties to introduce them to the EV and EVSE technologies and address their concerns. BEVI has hosted a series of EV roundtable conferences and technology demonstrations throughout Maryland in partnership with public and private stakeholders. Similar events have taken place in Boston, Washington, DC, New Hampshire, and in other states.

Massachusetts has met with the Licensing Board for electricians in the state regarding appropriate levels and contents of trainings for EVSE installers and will be providing the details from these meetings as a model for other states to follow as they work with electricians on EV infrastructure installations going forward.

Massachusetts has also been in communication with National Fire Protection Association to learn about their safety training they developed for EVs in traffic crashes. TCI intends to help distribute these training materials to all of the states in the region.

10. EV Benefits and Incentives
TCI and the region's Clean Cities Coalitions have been leaders establishing EV incentives and educating the public about the benefits of EVs and incentives for purchasing EVs.

TCI believes that an appropriate array of benefits and incentives can stimulate more rapid EV adoption. Eight of our jurisdictions have adopted specific financial incentives. These include:

- Connecticut's fund for business grants for infrastructure upgrades to support EVs;
- Delaware's Vehicle-to-Grid energy credit for retail electricity customers;
- The District of Columbia's excise tax exemption for alternative fuel vehicles;
- Maryland's tax credits for the purchase of EVs and EV charging equipment;
- New Jersey's exemption of zero emissions vehicles from the state sales tax;
- New York's alternative fueling infrastructure tax credit;
- Pennsylvania's alternative fuel vehicle rebate program; and
- Vermont's alternative fuel and advanced vehicle research and development tax credit.

Among nonfinancial incentives, Maryland and New York both have enacted laws that allow EVs to travel freely in high occupancy vehicle (HOV) lanes.

TCI has compiled a comprehensive listing of EV benefits and incentives among its states and included it in a "State Electric Vehicles Programs Comparison" white paper that has been shared with all of the TCI agencies.

The Clean Cities Coalitions in the region have been actively disseminating information about the EV incentives in their areas. Many of the CCCs have invited speakers to discuss EV programs in their states, and each CCC seminar on EVs includes information on the incentives available to fleet owners, parking lot owners, and other potential EV or EVSE owners.

11. Electric Grid Impacts and Planning for EVs

Some TCI states have begun to examine the impacts of EVs on the grid. New York just completed an assessment of the electrical grid impacts of widespread EV deployment, which found that even in the most congested areas of New York City, the electrical grid could handle the additional load from EVs if the charging can be managed by a Smart Grid. Maryland has begun a grid impacts analysis with its legislative directive for a demand-response pilot program to encourage off-peak EV charging.

Many of the region's utilities have already begun to investigate EV deployment and how it will affect their business. National Grid and Northeast Utilities have spearheaded a group of utilities in New England, the Regional Electric Vehicle Initiative, which is leading on EV deployment in the region. REVI is a group of six utilities with operations in New York, Connecticut, Massachusetts, Rhode Island, and New Hampshire that collaborates on a wide range of EV-related activities, from demonstration vehicle usage and charging station equipment testing, to planning and program development through ongoing stakeholder collaboration and industry presentations. Other utilities, such as PSE&G in New Jersey and BG&E in Maryland have been actively working with customers on EV preparedness.

WORK PLAN [MERIT REVIEW CRITERIA #1B, 1C, 1D, 2B, 2C, 2D]

Tasks to Be Undertaken

Within the Northeast/Mid-Atlantic region, there remains work to be done on each element of a successful EV deployment plan. TCI and its Clean Cities partners intend to use this planning grant funding to further progress toward a comprehensive plan for EV readiness.

The completion of the below tasks will allow the TCI to develop a regional EV deployment plan that can be customized for specific local needs by working with regional, state, and local organizations. By

bringing together these groups, it becomes more likely that the Northeast/Mid-Atlantic region can break through some of the common barriers that stand in the way of EVSE deployment.

NYSERDA is undertaking a detailed EV planning process for New York State concurrent with this project. Many of the topics that NYSERDA will work on are complementary to those in this proposal. NYSERDA's project will investigate the details of the regulatory barriers and incentives specific to New York State that may be too fine for a region-wide effort to focus on. This detailed investigation will both inform and be informed by the regional project conducted for TCI. NYSERDA is committing the $500,000 it will spend on its EV planning as cost share for this project, with the expectation that the findings and products of both projects will complement each other and provide a more complete approach to EV planning. This is the first step in a large EV research and planning commitment by New York State over the next five years. NYSERDA has proposed a five year, $55 million Smart Grid and Electric Vehicle Infrastructure program as part of the 2012-2016 System Benefits Charge Operating Plan. This money will build on the work done in New York's EV plan to develop and demonstrate the technologies and policies necessary for deploying Smart Grid and EVs in the state. Through TCI, this work can serve as a model for Smart Grid and EV deployment for the region.

Specifically, TCI and its partners propose the following activities under this award:

Task 1: Establish a Stakeholder Advisory Group [Merit Review Criterion #1D]
TCI plans to continue to build its stakeholder contacts through two channels. The state agencies, with support from the Georgetown Climate Center, will continue to engage with public and private sector national, regional, and statewide stakeholders interested in EV deployment and infrastructure in the region. In particular, the state agencies will focus on building deeper relationships with the automobile OEMs, manufacturers of EVSE, the major utilities in the region, and state agencies that oversee building codes and outreach to local governments.

At the same time, the Clean Cities Coalitions will work with their stakeholders to bring their expertise and experience to the stakeholder advisory group to inform the regional initiative. The CCCs have well-established partnerships with fleets, infrastructure owners, some automobile OEMs and EVSE manufacturers, utilities, and other key stakeholders and will work with these partners to bring local concerns and knowledge to the regional effort.

TCI will work with the Georgetown Climate Center to establish a stakeholder advisory group. This will consist of existing and new contacts of the state agencies and the CCCs. GCC will seek diversity of both geography and experience. The stakeholder group will include representatives from each TCI jurisdiction and representatives from each of the critical stakeholder categories, such as utilities, local governments, EV and EVSE manufacturers, and fleets. TCI member agencies will also participate in the advisory group and will bring in other state agencies, such as public service commissions and code-setting agencies as necessary. The stakeholder advisory group will be tasked with providing direction and feedback to TCI on what issues the planning process should address and how the TCI agencies can be of most assistance in helping to improve conditions for EV and EVSE deployment.

- **Deliverables:**
  - Establishment of a stakeholder advisory group represented by a diverse set of stakeholders
- **Timeline:** initial meeting(s) at the onset of the project, plus ongoing stakeholder engagement
- **Budget:** $220,000
  - $160,000 for Clean Cities Coalitions ($10,000 per coalition)
  - $60,000 for regional stakeholder engagement

Task 2: Conduct Literature Review [Merit Review Criterion #1E]
While a comprehensive analysis of the barriers to implementation for EVs in the Northeast/Mid-Atlantic region has not yet been completed, many groups have done analyses that investigate specific barriers at the state or national level. Various state efforts have analyzed barriers to consumer adoption (such as high incremental purchase prices, lack of vehicle availability, and "range anxiety"), electrical grid load management issues, environmental and public health impacts, and public infrastructure siting issues, among other impediments to adoption.

Georgetown Climate Center will conduct a literature review of the existing state and national analyses of issues facing EV deployment, with a focus on market barriers, electric grid impacts, and economic, health, and environmental impacts of EV use in the Northeast and Mid-Atlantic region. While some potential barriers, such as high incremental purchase prices, will be consistent across the region, other barriers as well as benefits, such as environmental and public health impacts, may not be. By drawing on work done on behalf of each of the TCI member jurisdictions, as well as national reports that offer regional or state-by-state breakdowns, GCC will be able to compile a wide view of the potential barriers and benefits to EV implementation in the region and the various approaches that TCI can take to address these challenges. The result of this literature review is critical to the communication elements of this proposal in several ways: it will help to inform continued development of public policies to address market barriers particularly at the state level; it will lay the groundwork for planning and regulatory activities that are needed to ensure adequacy of the electric grid; and it will provide substantive analyses of the economic, health and environmental benefits of EV deployment in the region.

NYSERDA's EV planning project will also be reviewing work that has been done to date on specific issues regarding EV and EVSE including building codes, distributed generation, demand and staggered charging, smart grid and V2G. NYSERDA's contractor will conduct an analysis of possible incentive programs supporting deployment of EV and EVSE and review the State-Local, Local-Local, State-Utility, and Federal-State issues within New York that may arise from widespread EV and EVSE deployment. This detailed work will be shared with TCI and will feed into the regional planning process. Because NYSERDA is a lead partner in both projects, it will ensure that the projects limit duplication.

In addition, GCC will review the various plans and projections for the roll-out of EVs and EV infrastructure and develop a report on what these plans and projections anticipate for the Northeast. Some of the plans that GCC will review include the Chevrolet Volt and Nissan Leaf roll-out strategies and the ChargePoint America and EV Project programs that Coulomb and ECOTality are undertaking. GCC will incorporate projections from IHS Global Forecasting, the Center for Automotive Research, and other analysts to define a consensus forecast for the Northeast/Mid-Atlantic EV market.

- **Deliverables:**
    - Literature review of market barriers that impede the deployment of EVs and EV infrastructure in the Northeast/Mid-Atlantic region
    - Literature review of electric grid impacts and economic, health, and environmental impacts of EV deployment in the region
    - Literature review of existing plans and projections for EV and EVSE deployment in the region
- **Timeline:** 3 to 4 months
- **Budget:** $277,000
    - $32,000 for Clean Cities Coalitions ($2,000 per coalition)
    - $45,000 for regional literature review
    - $200,000 for NYSERDA cost share literature review

Task 3: Create Region-Wide Siting and Design Guidelines [Merit Review Criterion #2B]
A plan for EV infrastructure deployment should include guidelines for how and where to deploy EVSE. By drafting a set of region-wide siting guidelines, TCI and its partners will provide the various parties that will invest in EV infrastructure, including state and local governments, fleet owners, parking lot owners, utilities, and other investors, with a tool for siting EVSE installations in a coordinated and consistent manner. Data collection from fleet owners, employers, auto OEMs, Departments of Motor Vehicles, and housing agencies will inform the creation of the siting guidelines.

Data Collection
TCI, through an outside contractor, will collect data on the number of single-family and multifamily residences in each jurisdiction and the percentage of each with access to garage or private lot parking from state and local housing agencies. Working with utilities, permitting authorities and real estate/developer constituencies, TCI and its contractor will identify locations, numbers and trends related to residential EVSE installations, with particular attention to business trends in providing EVSE access for multifamily units. TCI will approach auto OEMs and DMVs for information on the areas with high rates of hybrid vehicle purchases, as a predictor of likely early EV adoption areas. TCI will supplement this with additional research to further inform its understanding of numbers, trends and barriers with respect to residential charging access.

Through its Clean Cities partners, TCI will survey major employers and fleet owners in the public and private sectors to identify locations, numbers and trends for existing and planned EVSE installations at the workplace. The survey will query employers on barriers to providing charging infrastructure and recommendations for overcoming them. TCI will supplement this with additional research to further inform its understanding of numbers, trends and barriers with respect to workplace charging.

NYSERDA will be collecting, analyzing, and reviewing the data from EV and EVSE demonstration projects in New York State in a variety of settings and with a range of special features, such as V2G, smart grid connectivity, distributed generation powering EVSE, and innovative payment and reservation systems. This data will provide a closer look at how EVs actually charge in the field, how EVSE is actually used, and what types of settings are best at utilizing EVs and EVSE.

TCI's contractor will gather information from the major EVSE vendors on their products' communications software and their ability to interact and adaptively evolve with smart grid technologies and will hold discussions with the EVSE vendors, utilities, and the three regional independent system operators, ISO-NE, NYISO, and PJM, about EVSE-to-grid communications. TCI will use this information to inform its development of recommended communications standards for EVSE installations.

Inventory
Building on the mapping effort already begun in some TCI jurisdictions, TCI and its partners will continue to build and update a web-based regional map of publicly available charging stations, integrating data from EVSE vendors, EV manufacturers, fleet managers, large retail businesses, utilities, state and local permitting agencies, U.S. DOE's Alternative Fuels Data Center mapping, and other sources. Information will be provided to DOE for inclusion in its AFDC alternative fuels database and map.

Siting and Design Guidelines
TCI and its partners will convene multiple stakeholder sessions at several locations around the region to identify key issues regarding the proper siting and design for public charging stations, as well as a separate identification of specific problems associated with locating charging stations at multi-family dwellings. TCI will use stakeholder recommendations and the information collected on demand for EVs

and public and private EV infrastructure to develop a Site Selection and Design Guide for publicly accessible and multi-family dwelling EVSE. This guide will look at the regional outlook for EV ownership and general regional travel patterns and suggest guidelines for choosing where to site public charging infrastructure.

The guide will contain suggestions for types of sites at which to focus investments (train stations, workplaces, walkable downtown areas, etc.), for key roadways and travel corridors that should be electrified early to enhance mobility, and for optimal intervals for having Level 2 and Level 3 charging so as to promote local and region-wide travel. Identifying optimal Level 3 charging locations will be critical to minimize grid impacts and gain the greatest mobility benefits for EVs.

The guide will address multi-family dwelling unit siting issues such lack of access to indoor or private lot parking, metering, wiring and system upgrades, cost allocation to residents, use of common areas, and obtaining association approvals. The guide may include model bylaws for condo associations and model lease terms for rental units to govern EV charging.

The guide will contain suggestions for site design elements, including signage, lighting, weather protection, protective barriers, handicap and multiple EV access, integration with solar charging and distributed generation, transformer and distribution system upgrades, sidewalk and parking lot placement, and parking rules. The guide will also address payment and reservation systems for public charging, to try to create as consistent a user experience as possible. In addition, the guide will address signage for electric vehicles, including special license plates and other identifiers for first responders.

- **Deliverables:**
    - Data analysis of locations, numbers and trends for residential, workplace and publicly accessible EVSE
    - Stakeholder engagement to identify key issues and recommend siting and design criteria
    - Siting and Design Guidelines for public and multi-family EVSE
- **Timeline:** 6 to 9 months
- **Budget:** $367,000
    - $32,000 for Clean Cities Coalitions ($2,000 per coalition)
    - $160,000 for regional data collection and siting and design guidelines
    - $175,000 for NYSERDA cost share data collection and analysis

Task 4: Model Building Codes, Permitting, and Zoning [Merit Review Criterion #2B]
Through the GCC, TCI has conducted foundational research on building, electrical and fire codes and EVSE permitting and deployment, including a nationwide survey of state codes, barriers to streamlined permitting, and recommended actions for building an EVSE-friendly regulatory and permitting framework. The research suggests that existing code texts generally permit the installation of charging stations in buildings, and code development organizations work continuously to adapt them to new situations presented by EV charging. Public and outdoor charging installations present more challenges, including ambiguity over who has authority to approve and manage them. Training local permitting officials and installers and sharing best practices adopted by New Jersey, Massachusetts and other leading states will be central to expediting EVSE permitting across the region in all settings.

Model Codes
Building on GCC's work, TCI and its partners will engage with state and national code development organizations and code oversight agencies, utilities, permitting agencies and other stakeholders to shape the development of model code updates that address requirements for EV circuitry in both outdoor and public settings and in new and renovated residential and commercial construction – including best

practices for multi-family dwellings, compliance with Americans with Disabilities Act, and accommodations for bi-directional "smart" charging.

TCI's contractor will draft recommendations for model amendments to state or local building and electrical codes that can be easily incorporated into state and local codes. TCI will work with relevant state agencies and other stakeholders to incorporate the model code updates into state building, electrical and fire codes as part of the triennial revision cycle of the International Code Council, with follow-up adoption through state regulatory and local code amendment processes. TCI's CCC partners will work with local governments in their areas to educate them on the new codes and encourage adoption.

Expedited Permitting

Streamlining local permitting is critical to EVSE deployment and will be one of TCI's core tasks under this project. Permitting encompasses EVSE installations both in homes and in public places, such as parking lots and garages. TCI will focus on educating local permitting officials and technicians and recommending streamlining practices for municipalities. TCI recognizes that municipal code officials charged with code enforcement, who make the pivotal decision to approve or deny a permit for EVSE electrical work, typically lack the training and information to issue permits quickly. Through its CCC partners, TCI will work with community colleges, local permitting authorities, electrical contractor and fire safety associations, and the National Alternative Fuels Training Consortium (NAFTC) to increase training and education opportunities for permitting officials and technicians in the TCI states. The leadership of New Jersey, in providing guidance for code officials on EVSE installation in its Construction Code Communicator, and Massachusetts, in implementing its expedited EVSE permitting and inspection process, will serve as models for the TCI work in this area.

Through stakeholder input and a survey of best practices across the country, TCI and its contractor will develop model rule language for one or more permitting processes that will enable municipalities to issue permits within 24-48 hours following an application for a building installation. The "minor work" rule adopted by New Jersey and Oregon, the online permitting implemented by Houston, Los Angeles and San Jose, and Raleigh's "walk-through" process will be among the programs considered. TCI will also engage stakeholders and study jurisdictions with more experience in permitting Level 2 and DC Fast Charge units for public places, chiefly West Coast states, to develop recommendations and potential model rules for streamlining the permitting of public charging stations.

Zoning and Parking Ordinances

TCI states have just begun to grapple with zoning and parking regulations for public EV charging. New Jersey's Clean Cities Coalition will conduct a stakeholder process to identify major issues, solutions, and next steps related to zoning and parking. Building on New Jersey's initiative, TCI will conduct a literature survey of best practices nationwide and, through its Clean Cities partners, will convene local government planners, MPOs, disabilities advocates, municipal parking authorities, private owners of public parking spaces, and other stakeholders to determine if there is value in developing model zoning and parking ordinances for municipalities. A threshold issue to consider will be whether public charging stations and/or battery exchange stations are specifically allowed, specifically prohibited, or not addressed at all in local zoning regulations and, if prohibited or not addressed, what are the recommended solutions (for example, will state legislation – the Washington State model – or other state-level actions be needed?).

TCI, through its contractor, will develop model zoning and parking ordinances if it concludes from these processes that this will have value for local jurisdictions in the TCI states. TCI will look to the recent work done by the American Planning Association on writing model zoning regulations for EV charging, Washington State's statutorily driven model EV charging guidance document for local governments (Electric Vehicle Infrastructure: A Guide for Local Governments in Washington State), and the guide to

California EV ready communities produced by a coalition of Bay Area governments and other EV and clean fuels advocates (Ready, Set, Charge, California! A Guide to EV-Ready Communities). TCI will consider common emerging issues, including accessibility for disabled drivers, in what zoning districts is charging a permitted use and at what charging levels, how to regulate public stations on private property, placement of charging stations on streets, sidewalks and public places, data collection, design issues, and parking enforcement for non-charging parked vehicles.

NYSERDA's EV planning project will investigate building code and permitting challenges for EVSE in New York State. Some issues in certain localities, in particular New York City, may be distinct from those of other states. NYSERDA will share findings about unique local circumstances with the region-wide contractor to help inform development of guidances that are applicable in as many places as possible. By developing additional knowledge about these unique circumstances, NYSERDA and TCI will be able to address EVSE issues in a wider set of communities.

- **Deliverables:**
    - Guidance and training documents for local building, electrical, and fire code officials
    - Model building, electrical and fire code amendments for state and local adoption
    - Literature review of model zoning and parking regulations for public EV charging
    - Establishment of a stakeholder advisory group to identify major issues, solutions and next steps related to zoning and parking.
    - Model zoning and parking regulations contingent on findings of stakeholder process and literature review
- **Timeline:** 6 to 8 months
- **Budget:** $226,000
    - $16,000 for Clean Cities Coalitions ($1,000 per coalition)
    - $160,000 for regional development of model codes, permitting rules, and zoning ordinances
    - $50,000 for NYSERDA cost share model codes, rules, and ordinances

Task 5: Education, Coordination, and Communication [Merit Review Criteria #1D, 2B]

Education

TCI recognizes that a key component of successfully deploying EV infrastructure is marketing, outreach, training, and education. Education of entities that will be involved in installation, permitting, and inspection of EV charging stations is critical and will mean that EV infrastructure is deployed throughout the region as quickly as possible and will also help create new employment opportunities. In addition, public safety officials will need to be educated about the unique aspects of EVs to be able to respond to vehicle incidents effectively.

TCI will work with the Clean Cities Coalitions and states to develop recommended courses and training curricula at community colleges and develop marketing materials to raise awareness of these types of opportunities and careers. Specifically, TCI will enlist the National Alternative Fuels Training Consortium and its training centers in the TCI region to take advantage of existing training courses and outreach materials, to identify additional needs, and to develop a plan to deploy the training. TCI will also engage with the National Fire Protection Association (NFPA) to develop a plan to train first responders and fire departments throughout the TCI region.

Coordination

TCI understands that this planning is not occurring in a vacuum. Many of the cities and states in the TCI region, as well as the rest of the country, are charging ahead with both EV planning and deployment. Thus, it is critical that the planning documents that TCI generates under this project be compatible with other planning and deployment projects at the state and local level in both our region and the rest of the country.

To this end, TCI will incorporate the plans that are being developed by the CCCs and the TCI states into the TCI plans. To the extent necessary, TCI and NYSERDA will collaborate to ensure that the work done at the regional level and the work done by NYSERDA are compatible and consistent. TCI will identify other state plans that address similar EV and EVSE deployment issues and work with the developers to bring a level of consistency to the region's EV planning processes.

TCI will also work with the National Association of State Energy Officials (NASEO) to make the TCI plans applicable to other states around the country interested in creating conditions suitable for EV adoption. NASEO has vast experience working with USDOE and the state energy offices, so it has a strong understanding of what kinds of challenges the states will face in deploying EVs. By broadening the reach of these planning documents beyond just the Northeast and Mid-Atlantic region, this type of coordination provides significant added benefits for USDOE. NASEO will also facilitate technology transfer as it relates to how states and Clean Cities Coalitions can best work together on joint strategies such as those represented in this proposal.

Communication
TCI's Clean Cities partners have been active in working with a broad array of interest groups to build interest in and to deploy alternative fuel vehicles. With EVs now coming into the regional market, there is an increased level of interest and growing participation in EV events in each of the TCI states. TCI will work with the Clean Cities Coalitions to build support for EVs by organizing education and outreach events across the region to demonstrate the benefits of EVs and will develop materials to accompany these events.

To plan for EV outreach events, TCI will build on work and materials already in place in the region and information previously gathered by TCI. TCI will build on its existing inventory of existing and planned incentives for EVs in the region (State Electric Vehicles Programs Comparison) and develop a menu of incentives for EVs and practical steps for implementing the incentives. TCI will also develop outreach materials that highlight the environmental, economic, and energy security benefits of EVs. Finally, TCI will work with the Clean Cities Coalitions to develop a region-wide EV outreach plan that will market EVs to fleets, and potential car buyers. These TCI-developed materials will facilitate consistent messaging across the region from a variety of communicators.

NYSERDA's EV planning project will fund complementary communications activities, such as hosting conferences and developing a website to disseminate the findings from the planning process.

TCI and the Clean Cities Coalitions will work with utilities and grid operators to integrate EVs into the electrical grid. Many of the utilities in the TCI region are now actively working to plan for EVs. As part of this grant, TCI will share its work with the region's utilities and grid operators and each state's public utilities commission/public service commission as a way to open a dialogue with them about what they can do to enable EV adoption, including electrical grid upgrades, pilot Smart Grid programs, EV-sensitive rate structures, and other policies for minimizing the effects of EV charging on peak loads.

- **Deliverables:**
    - Inventory of existing EV training and courses now offered
    - List of recommended training courses for EV installers, permitters, inspectors, and safety officials
    - Plan to provide comprehensive training throughout TCI region
    - List of existing and planned EV incentives in the TCI region and a menu of options
    - Plan for EV outreach events in TCI region and a marketing plan
    - Communications template for working with utilities

- **Timeline:** 4 to 6 months
- **Budget:** $305,000
    - $160,000 for Clean Cities Coalitions ($10,000 per coalition)
    - $60,000 for regional stakeholder communication and coordination of state plans with regional plans
    - $10,000 for generating nationally applicable versions of TCI planning documents
    - $75,000 for NYSERDA cost share stakeholder communications

PROJECT TIMETABLE [MERIT REVIEW CRITERION #1B]

	Months														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Task 1															
Task 2															
Task 3															
Task 4															
Task 5															
Reporting															

BUDGET [MERIT REVIEW CRITERIA #1C, 3C]

	Federal Share	Cost Share (NYSERDA)	Total
Task 1	$220,000	$0	$220,000
Task 2	$77,000	$200,000	$277,000
Task 3	$192,000	$175,000	$367,000
Task 4	$176,000	$50,000	$226,000
Task 5	$230,000	$75,000	$305,000
Admin	$99,500	N/A	$99,500
	$994,500	**$500,000**	**$1,494,500**

To cover the expenses associated with reporting to DOE, entering into sub-contracts, fringe benefits, and overhead expenses, NYSERDA requests $89,500, or 10% of the project total, plus $10,000 for travel to DOE's merit reviews and other meetings, bringing the total federal budget to $994,500. More details about NYSERDA's program administration functions can be found in the Roles of Participants section.

RELEVANCE AND OUTCOMES/IMPACTS [MERIT REVIEW CRITERIA #1A, 2B, 2C]

TCI and its partners have designed a program that will advance DOE's goal of preparing communities for EV deployment and creating the conditions for private and public investment in EVs and EV infrastructure.

By collaborating with all of the states in the Northeast and Mid-Atlantic region and the Clean Cities Coalitions of the region, TCI will generate far more value per dollar spent than if the states and Clean Cities Coalitions were to work separately. While none of the states has tackled all of the questions that need to be addressed to develop a robust EV market, many of the states have begun addressing some of the issues. By working together, the states can start with a greater knowledge across the board than if they worked alone. The economies of scale for developing model permitting and model building codes can be large because many of these products can be applied easily to a wide range of jurisdictions. TCI's work with NASEO will extend the value of this project by making the products this region develops applicable to the rest of the country.

By working with the region's Clean Cities Coalitions, the states ensure that the work products are based on the needs of the entities that will be using EVs and making decisions on EV infrastructure installations on a daily basis. The Clean Cities Coalitions will also help ensure that the products, once developed, are put into use. They will work with municipalities, fleets, parking lot owners, and other stakeholders in their areas to encourage adoption and incorporation of these documents into daily practice.

The work products from this project will bring more consistency to local governments' approaches to EVs and EV infrastructure, which is sorely needed in a region with strong home rule traditions and wide local variations in regulatory approaches. The combination of robust collaboration among the TCI states and between TCI and the region's CCCs will help create the certainty and consistency that drivers, fleet owners, private investors, auto OEMs, utilities, and other EV stakeholders need to invest in EV purchases and EVSE installations.

PARTNERS AND COMMITMENTS [MERIT REVIEW CRITERIA #1D, 2D, 3A, 3B, 3D, 3E]

The TCI states boast a wide variety of leaders in EV technology and deployment, many of whom have made significant commitments to deploying vehicles and infrastructure in the region. TCI has partnered with many of the critical EV organizations already, and will continue to collaborate with more on the tasks outlined in this proposal.

Project Partners

TCI has assembled an impressive group of project partners to collaborate on this project. Most significantly, TCI itself is a collaboration of the transportation, energy, and environment agencies from Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. These 35 agencies have been working together for the last year on a variety of initiatives aimed at reducing greenhouse gas emissions from the transportation sector. The group's focus is on implementing projects that are inter-state by nature. In its founding Declaration of Intent in June 2010, agency heads from transportation, energy, and environment agencies in the 12 jurisdictions instructed staff "to develop initial project proposals for our consideration and to seek funding from federal agencies, private foundations and other appropriate sources to support our efforts and initial projects." EV infrastructure planning has been the marquee project for TCI since its inception. Through TCI, cabinet-level participation in this project by the relevant state agencies ensures a higher probability of success in policy implementation and the execution of planning elements.

From the start, the Georgetown Climate Center has been a supporting partner of TCI. GCC has provided start-up funding and critical staff and consultant support to help TCI define its mission, develop a work plan, investigate key questions, and identify best practices among the states in each of TCI's focus areas. GCC will continue to provide support on this project.

TCI has also engaged the region's Clean Cities Coalitions to collaborate on this project. While many of the state agencies have close relationships with their CCCs, TCI hopes to strengthen that link through this project. CCCs will provide a critical link to the main actors at the local level in each state. The CCCs will both provide on-the-ground input to TCI regarding the needs of stakeholders dealing with EV deployment directly and educate their local stakeholders about the planning documents developed as part of the TCI project.

NYSERDA and the other state energy offices that participate in TCI have strong existing relationships with the National Association for State Energy Officials. NASEO works to improve the effectiveness and quality of state energy programs and policies, provide policy input and analysis, share successes among the states and regions, and be a repository of information on issues of particular concern to the states and their citizens.

In addition, TCI and the region's CCCs have a wide range of partners at all points in the EV ecosystem. Many of the states and CCCs have relationships with EV and EVSE manufacturers, such as GM, Nissan, ECOTality, Coulomb, AeroVironment, SemaConnect, and General Electric. All of the states work closely with their major utilities, who have been eager partners on past EV-related projects as well. Utilities such as National Grid and Northeast Utilities have shown particular interest in working with TCI. Transportation agencies have a particularly close bond with their states' metropolitan planning organizations (MPOs), who will be critical partners in creating regional travel plans. Both CCCs and TCI agencies have worked extensively with the local governments in the Northeast and Mid-Atlantic region, critically important given the power of the region's municipalities over land use, zoning and permitting regulations. CCCs will also provide connections to fleets considering buying EVs and private landowners considering installing EVSE.

TCI's relationship with partners and stakeholders is one of its most important strengths that will allow it to excel at EV planning.

Documented Deployment Commitments

The Northeast and Mid-Atlantic are home to many of today's leading EV innovators. Major rollouts of both EVs and EVSE have begun in the region. General Motors has begun selling the Chevrolet Volt in four of the TCI jurisdictions (Connecticut, New Jersey, New York, and Washington, DC) and is scheduled to begin selling Volts in Delaware, Maryland and Pennsylvania in the Third Quarter of 2011. ChargePoint America, Coulomb's USDOE-funded EVSE deployment project, is installing EVSE in New York, Massachusetts, and Washington, DC, with plans to expand to Maryland underway. ECOTality's EV Project, in partnership with Chevrolet and Nissan North America, is deploying residential EV charging infrastructure at no cost in Washington, DC. State-funded programs have already paid for infrastructure installations in Washington, DC, Maryland, and Pennsylvania, and new programs will pay for the same in Massachusetts and New York beginning later this year.

ROLES OF PARTICIPANTS [MERIT REVIEW CRITERIA #1D, 3A, 3B, 3D, 3E]

The lead applicant for this proposal is the New York State Energy Research and Development Authority (NYSERDA). NYSERDA is a public benefit corporation created in 1975 under Article 8, Title 9 of the State Public Authorities Law and is the cognizant state agency for energy related matters for the State of New York. NYSERDA's mission is to advance innovative energy solutions in ways that improve the State's economy and environment.

Program Management: The project application has been submitted by NYSERDA on behalf of the twelve participating jurisdictions of the Transportation and Climate Initiative. Administrative responsibility for the grant rests with NYSERDA, which will serve as the primary liaison with U.S. DOE. NYSERDA will enter into contracts with contractors, such as Georgetown Climate Center, NASEO, and the Clean Cities Coalitions, to complete the work. NYSERDA may identify one or more additional contractors to conduct work on the tasks outlined in this proposal, as necessary. If it does so, NYSERDA will select the contractor based on its procurement policies. A number of organizations with relevant experience in EV planning, building codes, zoning, permitting, and other areas specified in this proposal have already approached NYSERDA about performing specific tasks for this project, including AeroVironment, NRG, Rutgers University, LAZ Parking, Vermont Energy Investment Corporation, and the Rocky Mountain Institute.

The governance of the project includes teams of decision makers and staff from all twelve jurisdictions. Ultimate policy direction is provided by the Agency Heads from the transportation, energy and environmental agencies of the participating jurisdictions (the signatories of the TCI Declaration of Intent issued on June 16, 2010, which is attached). Each Agency Head is represented by one or more staff serving on the Staff Working Group (SWG). SWG members serve as the working representatives of the TCI and are liaisons between their Agency Heads and the committees and workgroups of the TCI. A Steering Committee of the SWG directs and tracks all activities of committees and workgroups and will oversee this project. Staff serving on the Clean Vehicles and Fuels Workgroup will be responsible for implementation of this project. Policy and program support is provided through Georgetown Climate Center. A list of TCI staff and bios of key TCI staff members can be found in the Resume file. The staff from the TCI agencies will help identify and reach out to stakeholders in their states, offer updates on EV-related activities they are undertaking, and, most importantly, provide guidance for the completion of the project.

Georgetown Climate Center will be a sub-contractor to NYSERDA. They will continue in the facilitation and research role they have played for TCI. GCC will coordinate the region-wide stakeholder engagement efforts (primarily Task 1, but each task contains stakeholder engagement efforts), conduct the research involved in developing the literature review discussed in Task 2, and provide additional research and support where necessary. GCC may take on additional work in Tasks 3, 4, and 5. GCC will report on its progress to NYSERDA.

The 16 Clean Cities Coalitions in the region that are participating as partners will each receive $25,000 to conduct critical stakeholder outreach and education campaigns in their territory. The bulk of their work will be centered on Task 1 and Task 5. First, the CCCs will engage their stakeholder groups to bring local concerns to the attention of TCI and its contractors that will be developing planning materials. Later, the CCCs will lead an effort to both educate their stakeholders about the planning materials developed region-wide and work with their stakeholders to adjust those materials to address specific local issues. They will report on their progress to NYSERDA.

NASEO will be involved in the stakeholder process as a voice sharing what other state energy offices around the country are doing to prepare for EV deployment, but will primarily work on Task 5, transforming the planning documents developed under this project into ones applicable to all 50 states. They will report on their progress to NYSERDA.

TCI and the Clean Cities Coalitions have a multitude of additional stakeholders who will participate in the stakeholder conversations that will be critical to the success of this project. A list of stakeholders who have been particularly engaged with TCI and the partner Clean Cities Coalitions to date is attached to this proposal.

Program Administration: NYSERDA has developed a team approach for project development and management whereby a specific Contract Administrator, finance specialist, and Attorney are assigned to work on a team basis within one of NYSERDA's program areas. The approach allows the Legal, Finance and Contracts staff to work closely with the respective program manager and project staff in pursuing program priorities such as within the transportation program of NYSERDA. The team approach permits the support staff to become more acquainted with the programmatic aspects of the projects which they are working on, enabling them to better understand the issues and make enhanced contributions to project development and management. Bios of key NYSERDA staff members can be found in Appendix C.

NYSERDA will enter into contractual agreements with sub-awardee(s) within 120 days of award notification from USDOE. NYSERDA has extensive experience in developing and executing contracts with both public and private entities, performing approximately 5,000 contract actions every year. NYSERDA can move forward with contracts in this expedited manner because it has in place an experienced and highly trained contract support staff dedicated to assisting in implementing transportation and planning programs. This includes finance personnel, contract administrators, and legal counsel that are specifically tasked to work on these types of tasks with the Principal Investigator within NYSERDA.

All contracts will conform to the program rules set forth in the USDOE solicitation. These requirements will be passed down to sub-awardee(s) in the contractual agreements NYSERDA executes with them. Any sub-awardee not accepting these terms will not receive grant funding from NYSERDA.

NYSERDA will monitor the performance of the sub-awardee(s) in initiating and completing the work plan described and will provide technical assistance as needed to complete the project. NYSERDA and its TCI partners will perform regularly scheduled meetings and site visits with the sub-awardees to ensure work is progressing in a timely and effective manner.

Any issues that arise out of the sub-awardees efforts to complete the work will be dealt with primarily by the Principal Investigator, Adam Ruder. Mr. Ruder will resolve issues related to finance, legal, or contracts in consultation with the NYSERDA transportation team's finance, counsel and contracts personnel. The team will reach consensus on issue resolution and move to resolve issues with the concurrence of the NYSERDA program manager, Richard Drake. Issues will be reported to USDOE on a quarterly basis that will include how NYSERDA is proceeding to resolve issues.

NYSERDA will be responsible for all financial reporting for the grant, data collection and reporting of progress on the work plan with reports being submitted on a quarterly basis. NYSERDA's TCI partners will assist in data collection and reporting activities including progress on the work plan and other essential information.

NYSERDA fosters and promotes the participation of minority- and women-owned business enterprises in its energy programs. It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority- and women-owned business enterprises as bidders, subcontractors, and suppliers on its procurement contracts. NYSERDA also prioritizes programs and opportunities for low-income households.

Risk Management: Adam Ruder, the Principal Investigator, will be the person with primary responsibility for identifying, attenuating, and resolving risk to the overall project implementation. Mr. Ruder has successfully administered multiple federal grant awards from EPA, DOE, FTA, and DOT for alternative fuel vehicle and emission reductions for public and private fleets in New York. Mr. Ruder has the primary responsibility to control, direct and monitor the project's performance, identify needed changes and to ascertain whether the work performed meets the requirements of the grant funding and NYSERDA's contract with sub-awardee(s).

NYSERDA operates under a regime of risk control and which is outlined in NYSERDA's *Internal Control Manual*. Public Authorities Law, Article 9, Title 8, §2931, known as the New York State Governmental Accountability Audit and Internal Control Act ("Internal Control Act") requires NYSERDA to establish and maintain a system of internal controls. The Internal Control Act defines internal controls as a "process that integrates the activities, plans, attitudes, policies, systems, resources and efforts of the people of an organization working together, and that is designed to provide reasonable assurance that the organization will achieve its objectives and mission" (Article 9, §2930).

QUALIFICATIONS AND EXPERIENCE [MERIT REVIEW CRITERION #3A]

Recent Relevant NYSERDA Experience:

- The US Department of Energy (USDOE) awarded NYSERDA $13.3 million in December 2010 to complete a **Clean Cities project** as part of the American Recovery and Reinvestment Act. NYSERDA is working with 44 sub-recipients to deploy over 400 alternative fuel vehicles and over 100 alternative fuel infrastructure sites by the end of 2011. These projects include approximately 75 EV charging stations.
- NYSERDA has more than 20 years of experience in funding **R&D for hybrid and electric vehicles**, including major deployment projects with the U.S. Postal Service, FedEx, Coca-Cola, and others. Current work includes the evaluation of advanced prototype vehicles from Ford and Chrysler through USDOE programs. NYSERDA is also currently working with Coulomb Technologies, Shorepower Technologies, and other infrastructure providers on researching and demonstrating electric vehicle charging technologies.
- In June 2008, New York State began a new statewide energy planning process and on December, 2009, released the **2009 New York State Energy Plan**. Planning is now underway for the 2013 New York State Energy Plan. For more information, please visit the New York State Energy Planning site at www.nysenergyplan.ny.gov
- NYSERDA and the New York State Department of Environmental Conservation are currently leading the development of **New York State's Climate Action Plan**. The plan will lay out ways to meet Governor David Paterson's goal of an 80 percent reduction in greenhouse gas emissions by 2050, as established in Executive Order 24. NYSERDA and NYSDEC brought together hundreds of stakeholders from New York State to develop policy recommendations in four areas: Agriculture, Forestry and Waste (AFW), Power Supply and Delivery (PSD), Residential, Commercial/Institutional, and Industrial (RCI), and Transportation and Land Use (TLU). A draft plan was released in November 2010.
- Under a USDOE program, in 2003 NYSERDA's CHP Demonstration Program was the founding administrator and continues to provide annual funding to the Northeast Regional CHP Applications Center, which has recently been renamed the USDOE **Northeast Regional Clean Energy Applications Center** (NERAC). NYSERDA staff from the CHP Demonstration Program were founding members and continue to represent NYSERDA as a member of the Executive Committee for the Northeast CHP Initiative (NECHPI). NERAC and NECHPI cover the seven-member states of New York, Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

EQUIPMENT

No major equipment purchases are planned for this project.

STATEMENT OF PROJECT OBJECTIVES (SOPO) FOR THE NORTHEAST REGIONAL ELECTRIC VEHICLE NETWORK PLANNING PROJECT

A. OBJECTIVES:

1. To ensure that travelers can drive electric vehicles with ease locally and region-wide, from northern New England to the District of Columbia and everywhere in between
2. To attract private sector investment to the region and encourage the development of an EV market both for consumers, by making the EV experience common, standardized, and easy to use, and for the EV industry, by simplifying the maze of local regulations, building codes and permitting processes, and creating certainty so that manufacturers know how to work in the region
3. To increase regional collaboration on transportation issues and investments that are best addressed by the whole region together, rather than by individual states
4. To generate a framework for standardizing and simplifying EV planning and regulations nationwide
5. To coordinate regional efforts with local and state-level EV planning

B. PROJECT SCOPE

The Northeast Regional Electric Vehicle Network Planning Project will develop a plan and accompanying guidance documents to accelerate the introduction of a network of electric vehicle (EV) charging stations throughout the Northeast and Mid-Atlantic regions of the United States. NYSERDA, as the lead applicant on behalf of the Transportation and Climate Initiative, will work with the region's Clean Cities Coalitions to bring together stakeholders to inform the process, adapt the documents to local audiences, and convey the benefits of a regional approach to local policymakers. The Georgetown Climate Center has served as facilitator for TCI and will continue to support TCI's work by coordinating region-wide stakeholder outreach, conducting necessary research, and recommending model policy and planning approaches. NYSERDA may engage additional consultants for assistance developing specific planning documents, and will work with the National Association of State Energy Officials (NASEO) to generalize the documents for states to use in the rest of the country. NYSERDA will also conduct New York-specific EV planning, which will look at some of the issues at a more detailed, local level, and will coordinate its efforts at the state and regional level.

NYSERDA will manage the development of a full suite of planning documents, including siting and design guidelines, model building code amendments, model permitting rules, model zoning ordinances, and education and outreach materials.

C. TASKS TO BE PERFORMED:

Task 1.0 – Project Management and Administration

The project team will enter into contracts with contractors, manage their progress, and provide updates to the Department of Energy.

Subtask 1.1 – Contractual Agreements

NYSERDA will enter into contractual agreements with contractors within 60 days of award notification from DOE. All contracts will conform to the program rules set forth in the DOE solicitation.

Subtask 1.2 – Contractor Management

NYSERDA will oversee the work of its various contractors, ensure that contractors work according to pre-established schedules, and collect reporting information from contractors to relay to DOE.

Subtask 1.3 – Progress Reports

The project team will provide quarterly progress reports to DOE's Project Manager describing the work performed during the reporting period, segregated by major project task. The progress report shall provide a concise narrative assessment of the status of work and include the following information and any other information identified by DOE as pertinent to the project:

1. The DOE award number and name of the recipient
2. The project title and name of the project director/principal investigator
3. Date of report and period covered by the report
4. A comparison of the actual accomplishments with the goals and objectives established for the period and reasons why any established goals were not met.
5. A discussion of what was accomplished under these goals during this reporting period, including major activities, significant results, major findings or conclusions, key outcomes or other achievements.
6. Cost Status. Approved budget by budget period and actual costs incurred, broken out by DOE share, recipient share, and total costs.
7. Schedule Status. Significant milestones, anticipated completion dates and actual completion dates, along with schedule and budget variances.
8. Any changes in approach or aims and reasons for change.
9. Actual or anticipated problems or delays and actions taken or planned to resolve them.
10. Any absence or changes of key personnel or changes in project partners
11. A description of any product produced or market outreach activities accomplished during the reporting period

Subtask 1.4 – Final Report

The project team shall prepare a detailed final report covering all of the work performed. The final report shall comply with any DOE requirements and include all appropriate layout drawings, graphs, and tabulations of data and references. A draft of the final report shall be submitted to DOE within 30 days following the conclusion of the project. DOE shall provide its comments thereon to the project team within 30 days after receipt of such draft. Within 30 working days after receipt of DOE's comments (90 days following the conclusion of the project), the project team shall submit the Final Report to DOE in conformance with the DOE instructions.

Task 2.0 – Establish a Stakeholder Advisory Group

The project team will engage national, regional, and local stakeholders to create a stakeholder advisory group that will provide direction and feedback to TCI on what issues the planning process should address and how the TCI agencies can be of most assistance in helping to improve conditions for EV and EVSE deployment.

Subtask 2.1 – Engage regional/national stakeholders

The project team will engage with national, regional, and statewide stakeholders interested in EV deployment and infrastructure in the region to bring them into the TCI project.

Subtask 2.2 – Engage local stakeholders

The Clean Cities Coalitions will work with their local stakeholders to bring their expertise and experience to the stakeholder advisory group to inform the regional initiative.

Task 3.0 – Conduct Literature Review

The project team will conduct a literature review of the existing state and national analyses of issues facing EV deployment, with a focus on market barriers, electric grid impacts, and economic, health, and environmental impacts of EV use in the Northeast and Mid-Atlantic region.

Subtask 3.1 – Market Barrier Review

The project team will produce a report based on a review of existing literature on market barriers to EV adoption, including high purchase prices, regulatory hurdles, information gaps, and lack of public charging infrastructure.

Subtask 3.2 – Review of Electric Grid, Environmental, and Economic Impacts of EVs

The project team will produce a report based on a review of existing studies conducted by the TCI states and others of the electric grid, environmental, and economic impacts of EVs.

Subtask 3.3 – Review of EV Market Projections

The project team will review publicly available plans and projections for the roll-out of EVs and EV infrastructure and develop a report on what these plans and projections anticipate for the Northeast.

Task 4.0 – Create Region-Wide Siting and Design Guidelines

The project team will draft a set of region-wide siting and design guidelines based on data collected from employers, housing authorities, DMVs, and other sources.

Subtask 4.1 – Data Collection

The project team will collect data on the housing stock in the region with access to private garages, the number of HEVs and EVs registered in the region by ZIP code, the number and type of employers and fleet owners planning on purchasing EVs and/or installing EVSE at their facilities, and EVSE communication capabilities.

Subtask 4.2 – EVSE Inventory

The project team will continue to build and update a web-based regional map of publicly available charging stations, integrating data from EVSE vendors, EV manufacturers, fleet managers, large retail businesses, utilities, state and local permitting agencies, U.S. DOE's Alternative Fuels Data Center mapping, and other sources.

Subtask 4.3 – Siting and Design Guidelines

The project team will develop a Site Selection and Design Guide for publicly accessible and multi-family dwelling EVSE. This guide will look at the regional outlook for EV ownership and general regional travel patterns and suggest guidelines for choosing where to site public charging infrastructure.

Task 5.0 – Model Building Codes, Permitting, and Zoning

The project team will draft recommended model building codes, permitting rules, and zoning and parking ordinances that simplify EVSE deployment.

Subtask 5.1 – Model Codes

The project team will work with state and national code development organizations and code oversight agencies, utilities, permitting agencies and other stakeholders to draft recommendations for model amendments to state or local building and electrical codes that can be easily incorporated into state and local codes.

Subtask 5.2 – Expedited Permitting

Through stakeholder input and a survey of best practices across the country, the project team will develop model rule language for one or more permitting processes that will enable municipalities to issue permits within 24-48 hours following an application for a building installation.

Subtask 5.3 – Zoning and Parking Ordinances

The project team will conduct a stakeholder process to identify major issues, solutions, and next steps related to zoning and parking. The team will develop model zoning and parking ordinances if it concludes from these processes that this will have value for local jurisdictions in the TCI states.

Task 6.0 – Education, Coordination, and Communication

The project team will design and implement an education and communication plan and work to generalize the materials created in the above tasks to be relevant in the rest of the country.

Subtask 6.1 – Education and Training

The project team will develop recommended courses and training curricula at community colleges and develop marketing materials to raise awareness of these types of opportunities and careers.

Subtask 6.2 – State and National Coordination

The project team will incorporate the plans that are being developed by the Clean Cities Coalitions and the TCI states into the regional plans and work with the National Association of State Energy Officials (NASEO) to make the TCI plans applicable to other states around the country.

Subtask 6.3 – Communication and Marketing

The project team will build on its existing inventory of existing and planned incentives for EVs in the region and develop a menu of incentives for EVs and practical steps for implementing the incentives. The team will also develop outreach materials that highlight the environmental, economic, and energy security benefits of EVs and develop a region-wide EV outreach plan that will market EVs to fleets, and potential car buyers.

D. PROJECT MILESTONES:

Task 1.0 – Project Management and Administration

- Milestone 1.1: Completed SOPO and Project Management Plan in Q4 2011.
- Milestone 1.2: Completed contracts with contractors in Q4 2011.
- Milestone 1.3: Progress reports submitted to DOE quarterly from project start to project completion.
- Milestone 1.4: Final report submitted to DOE upon completion of the project in Q4 2012.

Task 2.0 – Establish a Stakeholder Advisory Group

- Milestone 2.1: Establishment of Stakeholder Advisory Group in Q4 2011.

Task 3.0 – Conduct Literature Review

- Milestone 3.1: Drafts of literature reviews completed in Q1 2012.
- Milestone 3.2: Final literature reviews completed in Q2 2012.

Task 4.0 – Create Region-Wide Siting and Design Guidelines

- Milestone 4.1: Data collection completed in Q2 2012.
- Milestone 4.2: EVSE inventory completed and incorporated into web-based mapping tool in Q2 2012.
- Milestone 4.3: Draft siting and design guidelines completed in Q2 2012.

- Milestone 4.4: Final siting and design guidelines completed in Q3 2012.

Task 5.0 – Model Building Codes, Permitting, and Zoning
- Milestone 5.1: Stakeholder engagement on codes, permitting and zoning completed in Q2 2012.
- Milestone 5.2: Development of language that can be incorporated in local codes, permitting rules, and zoning ordinances completed in Q3 2012.

Task 6.0 – Education, Coordination, and Communication
- Milestone 6.1: Development of education and communication materials completed in Q4 2012.
- Milestone 6.2: Outreach to local educators, fleets, municipalities, utilities, and other stakeholders completed in Q4 2012.
- Milestone 6.3: Edits to planning materials to make applicable to other states completed in Q4 2012.

E. DELIVERABLES

- Reports and other deliverables will be provided in accordance with the Federal Assistance Reporting Checklist following the instructions included therein. Reports will include, at a minimum:
    - Quarterly Financial Status Reports
    - Quarterly Federal Cash Transaction Reports
    - Quarterly Project Status Reports
    - Annual Project Status Reports
- Additional deliverables include:
    1. Task 1: Quarterly Progress Reports and Final Report
    2. Task 2: Establishment of a stakeholder advisory group represented by a diverse set of stakeholders
    3. Task 3:
        a. Literature review of market barriers that impede the deployment of EVs and EV infrastructure in the Northeast/Mid-Atlantic region
        b. Literature review of electric grid impacts and economic, health, and environmental impacts of EV deployment in the region
        c. Literature review of existing plans and projections for EV and EVSE deployment in the region
    4. Task 4:
        a. Data analysis of locations, numbers and trends for residential, workplace and publicly accessible EVSE
        b. Stakeholder engagement to identify key issues and recommend siting and design criteria
        c. Siting and Design Guidelines for public and multi-family EVSE
    5. Task 5:
        a. Guidance and training documents for local building, electrical, and fire code officials
        b. Model building, electrical and fire code amendments for state and local adoption
        c. Literature review of model zoning and parking regulations for public EV charging
        d. Establishment of a stakeholder advisory group to identify major issues, solutions and next steps related to zoning and parking.
        e. Model zoning and parking regulations contingent on findings of stakeholder process and literature review
    6. Task 6:
        a. Inventory of existing EV training and courses now offered
        b. List of recommended training courses for EV installers, permitters, inspectors, and safety officials

c. Plan to provide comprehensive training throughout TCI region
d. List of existing and planned EV incentives in the TCI region and a menu of options
e. Plan for EV outreach events in TCI region and a marketing plan
f. Communications template for working with utilities

F. BRIEFINGS/TECHNICAL PRESENTATIONS

NYSERDA shall prepare detailed briefings for presentation to the Project Officer at the Project Officer's facility located in Pittsburgh, PA, Morgantown, WV or Golden, CO, or at DOE Headquarters in Washington, DC. Briefings shall be given by NYSERDA to explain the plans, progress, and results of the technical effort. The first briefing shall be presented within 60 days after the award of the cooperative agreement. Additional briefings shall be presented at least 45 days before completion of a budget period and in conjunction with the continuation application for the next budget period. However in any case, at least one (1) technical briefing shall be made to the DOE per year. The final briefing shall be presented at least 45 days before the award is due to expire. These briefings shall be made at one of the DOE locations (Washington DC/Pittsburgh, PA/ Morgantown, WV/Golden, CO) or at one of the project team sites as appropriate.

In addition, reports shall be developed and delivered as appropriate at Program Merit Reviews, or at technical exchange meetings, which may be organized by DOE.