



ELECTRIC VEHICLE COMMUNITY PREPAREDNESS



NFPA Spurs the Safe Adoption of Electric Vehicles Through Education and Outreach

Principal Investigator: Andrew Klock

Presenter Name: Michael Gorin

Organization: National Fire Protection Association

Date: June 21, 2022

Project ID: ti132

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

Timeline

Start Date: 10/1/2020

End Date: 12/31/2023

Percentage Complete: 52%

Budget

Total project funding: \$1,356,176

- DOE share: \$678,087
- Contractor share: \$678,089

Funding for FY 2021: \$782,004

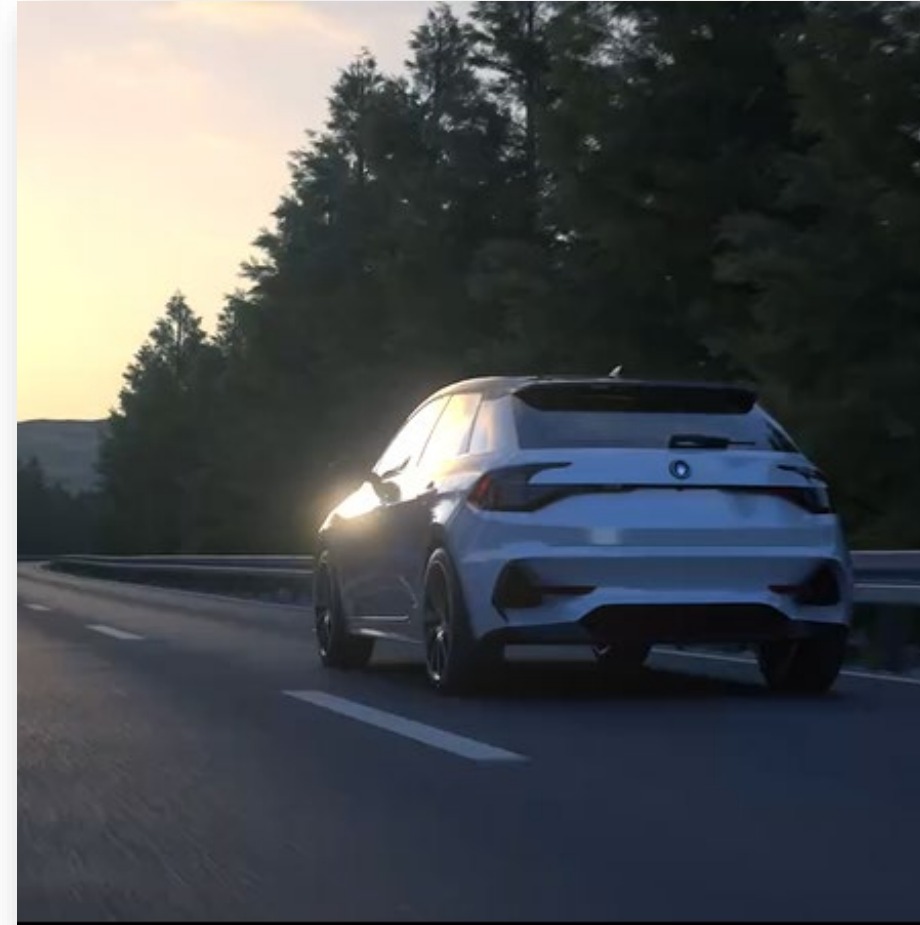
Funding for FY 2022: \$299,371

Partners

- East Tennessee Clean Fuels
- Virginia Clean Cities
- Central Florida Clean Cities

Barriers and Targets

- Lack of consistent EV knowledge amongst relevant stakeholder groups.
- Myths and misconceptions about EVs.
- Lack of EV community planning and preparedness that supports mass EV adoption.





Project Objectives

Overall Objectives

- ✓ Develop EV **web-based learning** modules that address the needs of all stakeholders in the Electric Vehicle Ecosystem.
- ✓ Build an EV Community Preparedness Assessment **Workshop curriculum** & toolkit for CCC implementation to prepare communities for mass EV adoption.
- ❑ Deliver 30 virtual **EV Community Preparedness Workshops** nationwide to kickstart planning and preparedness for EV adoption.

Impact

NFPA believes that increased community preparedness planning and collaboration among EV ecosystem stakeholders will result in greater understanding of electric vehicles and their benefits, more incentives for ownership, increased safety, and a more accommodating infrastructure.

VTO Technology Integration Goals Addressed

Increased fuel diversity, increased transportation infrastructure reliability, and reduced greenhouse gas emissions through the promotion of alternative fuel usage.

Project Approach

The EV Ecosystem

New EV Preparedness online courses

- Dealerships
- Installers (electricians)
- Code Officials
- Utilities
- Insurance Adjusters
- Vehicle Technicians
- Public
- Fleet Owners

Enhancements to existing courses

- Crash Reconstruction
- Tow Operators



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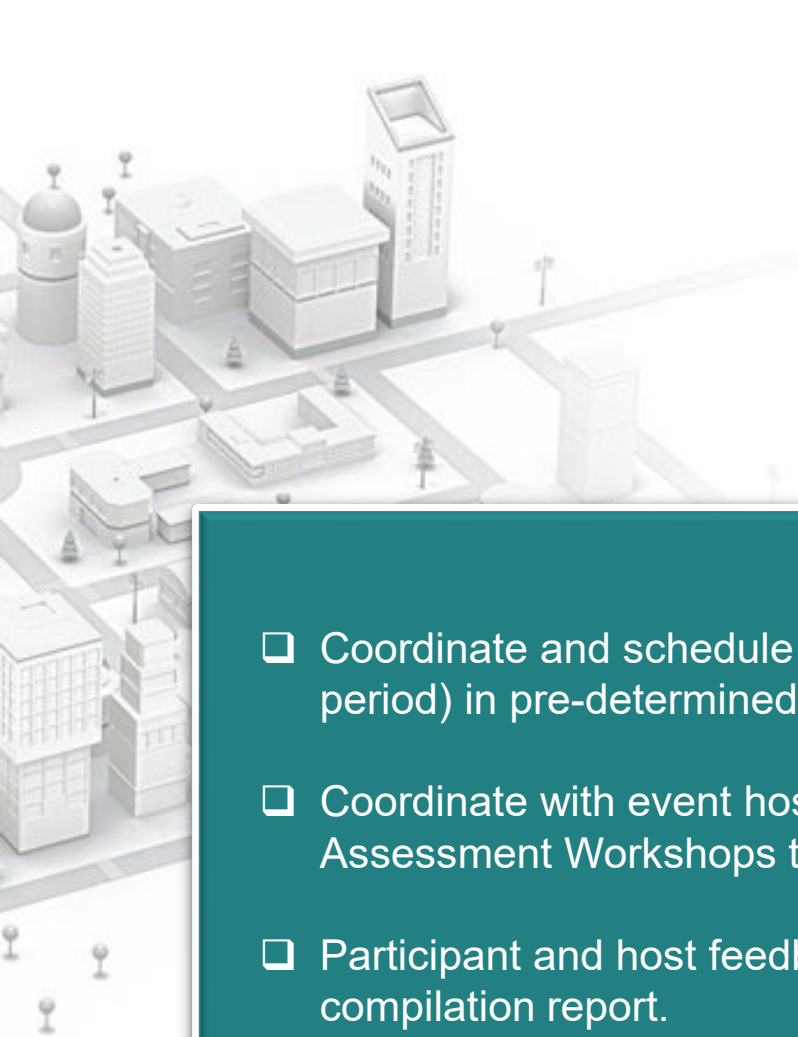
Budget Period 1: Project Initiation, Content & Curriculum Development and Workshop Planning

- ✓ Hire experienced content development and delivery team
- ✓ Conduct a project kickoff meeting to confirm scope and determining gaps in existing EV knowledge.
- ✓ Collect and refine existing EV content including research, testing, codes & standards.
- ✓ Conceptualize and build an EV Community Preparedness Assessment Workshops curriculum and toolkit
- ✓ Build comprehensive EV training video module curriculum outlines for EV Ecosystem stakeholders
- ✓ Develop scripts and storyboards for the eight (8) new video modules while also
- ✓ Revise scripts and storyboards for NFPA's existing law enforcement, and tow & salvage operator programs.
- ✓ Produce final EV Training modules including user interface, videos, graphics, scenarios, and review questions.
- ✓ Develop a nationwide EV Community Preparedness Workshop Communication & Delivery Plan



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Project Approach



Budget Period 2: Electric Vehicle Community Preparedness Assessment Workshop Dissemination

2

Budget Period 3: Electric Vehicle Community Preparedness Assessment Workshop Dissemination

3

- ☐ Coordinate and schedule 30 EV Community Preparedness Assessment Workshops (15 per budget period) in pre-determined regions/locations.
- ☐ Coordinate with event host coalitions before, during, and after EV Community Preparedness Assessment Workshops to ensure successful delivery of workshops.
- ☐ Participant and host feedback/evaluations collected from each coalition host and incorporated into compilation report.



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Project Approach

Budget Period 1 Milestones	Milestone	Type	Description	Status
	✓ EV Workshop Toolkit Completed	Technical	Development of all EV Community Preparedness Assessment Workshop educational tools & resources completed	Complete
	✓ EV Training Video Outlines Approved	Technical	EV training video curriculum outlines approved for production	Complete
	✓ EV Training Video Modules Hosted on NFPA Landing Page	Technical	All final EV training video modules hosted and available online	Complete
	✓ EV Workshop Regions Identified	Technical	Regions/locations identified for ≥30 EV Community Preparedness Assessment Workshops	Complete
	✓ EV Workshop Communication & Delivery Plan Completed	Go/No Go	EV Workshop Communication & Delivery Plan completed, providing a decision point to move forward with workshop scheduling and coordination activities.	Complete
Budget Period 2 Milestones	Milestone	Type	Description	Status
	✓ First Group EV workshops scheduled	Technical	First group (≥5) EV workshops scheduled in BP2.	Complete
	❑ First Group of EV workshops completed	Technical	First group (≥5) EV workshops delivered in BP2.	On Target
	❑ Second Group of workshops scheduled	Technical	Second group (≥10) EV workshops scheduled in BP2.	On Target
	❑ Second Group of EV workshops completed	Technical	Second group (≥10) EV workshops delivered in BP2.	On Target
	❑ At least 15 total EV workshops completed	Go/No Go	≥15 Total EV workshops delivered in BP2.	On Target
Budget Period 3 Milestones	Milestone	Type	Description	Status
	❑ First Group EV workshops scheduled	Technical	First group (≥5) EV workshops scheduled in BP3.	On Target
	❑ First Group of EV workshops completed	Technical	First group (≥5) EV workshops delivered in BP3.	On Target
	❑ Second Group of workshops scheduled	Technical	Second group (≥10) EV workshops scheduled in BP3.	On Target
	❑ Second Group of EV workshops completed	Technical	Second group (≥10) EV workshops delivered in BP3.	On Target
	❑ At least 15 total EV workshops completed	Technical	≥15 Total EV workshops delivered in BP3.	On Target



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Project Milestones

Milestone

- ✓ EV training video curriculum outlines approved for production.

Task: Content Development Delivery Team Onboarded: **Complete**

EV SEMs

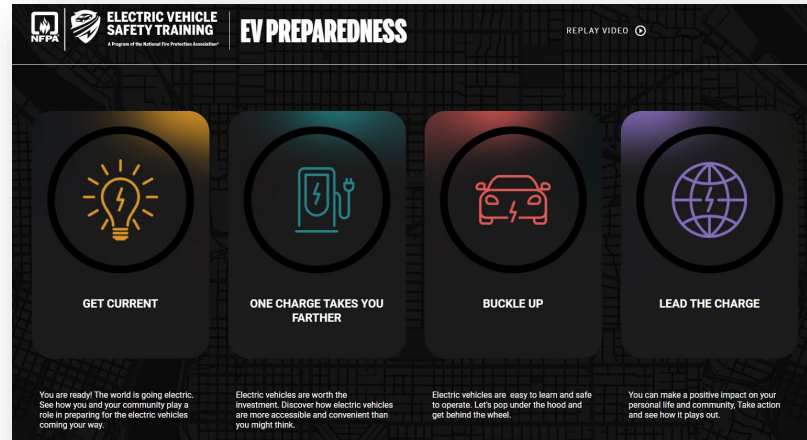
- Jason Emery, Battalion Fire Chief, Waterbury CT Fire Department
- Ronald Butler, CEO of ESSPI
- Paul Shoemaker, Aurora, CO Fire Department

eLearning Developer

- Allen Communications, Salt Lake City, Utah

Task: Collect Existing EV Content, Research, & Testing Data: **Complete**

- Collected existing EV content from the prior 12 years, including more than 4 terabytes of research, testing results, training videos and raw footage, photos, animations, storyboards and scripts.
- Conducted industry research on EV websites, repositories, and databases, as well as conducting interviews and speaking to respective stakeholder organizations, identifying what useful, pertinent, and relevant information was desired.



Project Accomplishments and Progress

Objective: Develop EV web-based learning modules



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Milestone

- ✓ EV training video curriculum outlines approved for production

Task: Develop/Revise Curriculum Outlines for EV Training Video

Modules: Complete

- Allen Communications delivered a comprehensive design brief, high-level instructional design map, and 10 detailed content outlines, one for each of the identified audiences. Approved 200+ pages of content outlines including:
 - ✓ Key learning objectives
 - ✓ Content recommendations
 - ✓ Video and graphic recommendations
 - ✓ Testimonials
- Developed web-based module prototypes, and activity storyboards. The self-paced courses include:
 - ✓ Interactive menu navigation
 - ✓ Educational videos
 - ✓ Learning activities
 - ✓ Knowledge checks
- All 8 new courses receive approximately 30 minutes of shared EV and EVSE education, and 15 minutes of role specific guidance.



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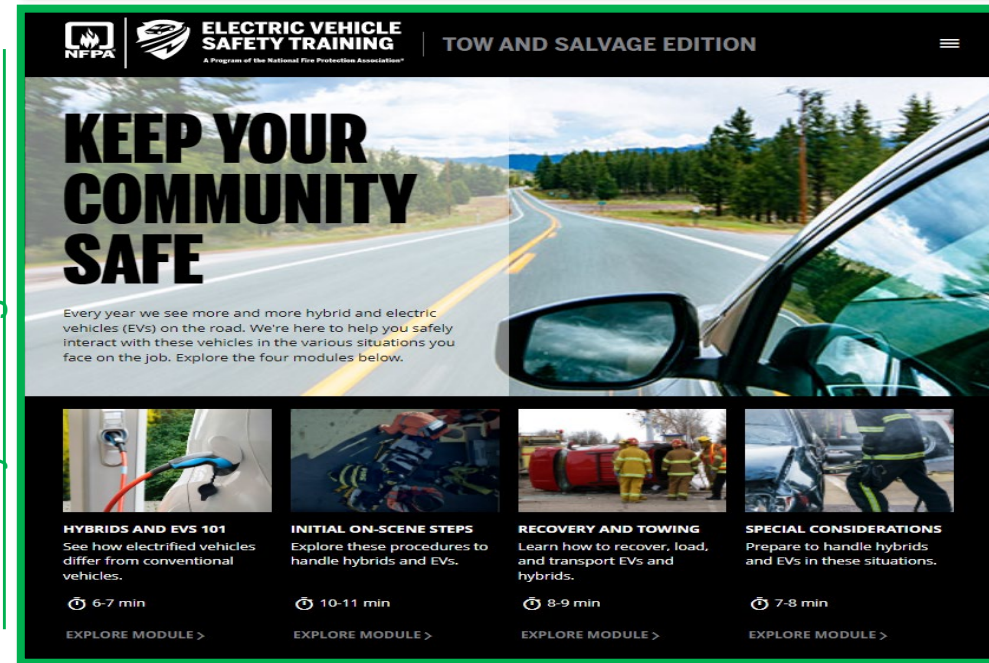
Project Accomplishments and Progress

Objective: Develop EV web-based learning modules

EV Community Preparedness



EV Safety Training – Tow Edition





Milestone

- ✓ All final EV training video modules hosted and available online.

Topics Covered

All Audiences

- Basic EV and charging station operation
- Benefits of EVs over ICE vehicles
- Common concerns and myths regarding EVs:
 - **Upfront costs**: Is it worth the investment?
 - **Range anxiety**: How far can you really go without worrying?
 - **Charging challenges**: What are the 3 charger types and the evolving infrastructure?
 - **Safety**: What are the potential risks and what safety features are built in?
 - **Life of ownership costs**: Do the savings outweigh the costs over time?



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Project Accomplishments and Progress

Objective: Develop EV web-based learning modules

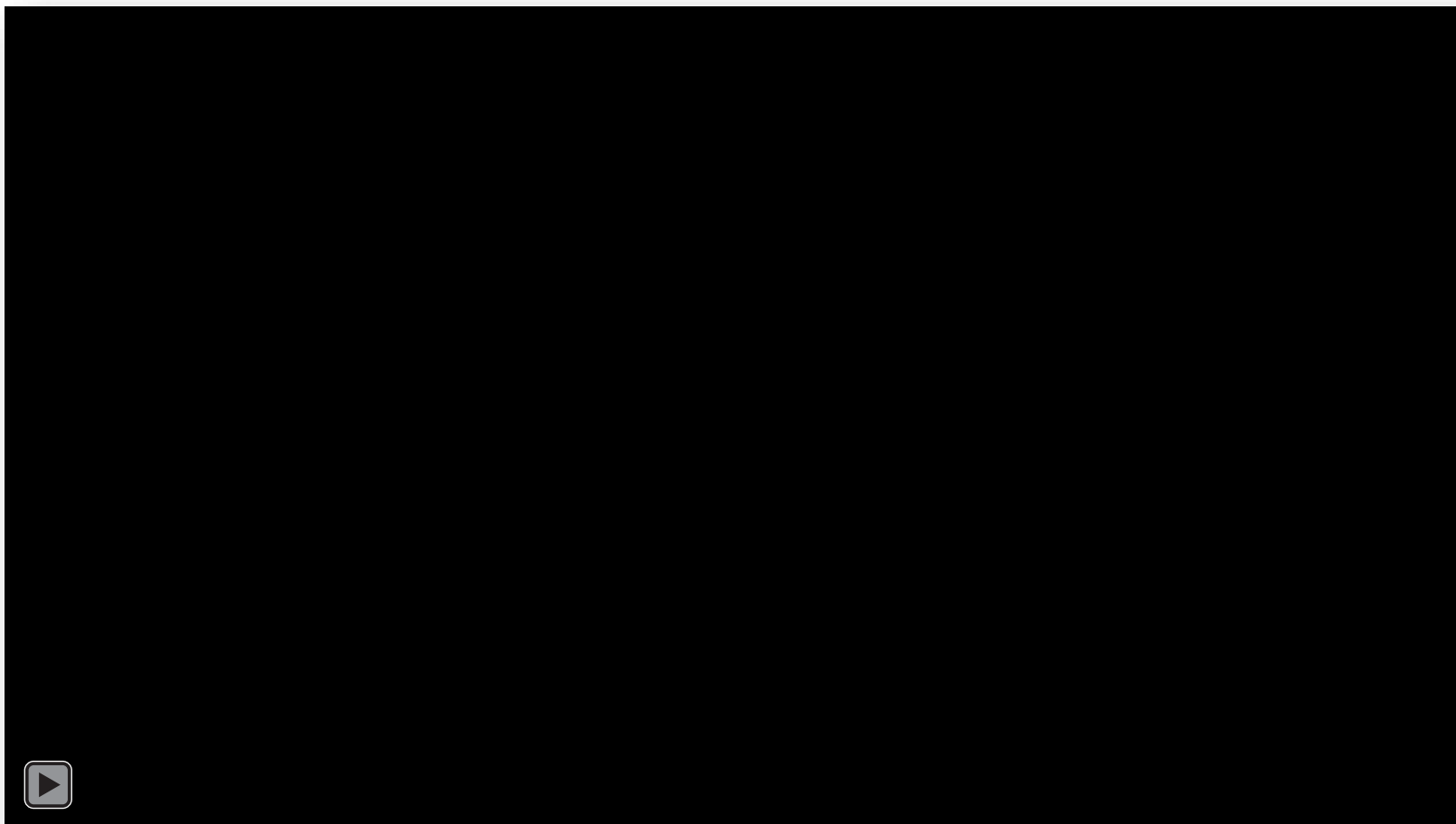


Milestone

- ✓ All final EV training video modules hosted and available online.

Audience Specific Content

- **Professional development:**
 - Example – How dealership sales staff should talk with car buyers regarding EV benefits.
- **Additional training needs:**
 - Example – What vocational/electrical safety training is available to vehicle technicians
- **Code requirements:**
 - Example – How electricians and code officials can prepare for increased EV charging station installation demand.



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Project Accomplishments and Progress

Objective: Develop EV web-based learning modules

Task: Develop EV Workshop Toolkit: **Complete**

Workshop Goal: Enable communities nationwide to construct and implement a collaborative plan to significantly increase knowledge, safety, and incentives for EV ownerships and charging station installations.

Audience: EV Ecosystem Members

Length & Delivery Method: 4 hours, virtually or in-person

Structure

- Designed to be delivered by DOE Clean Cities Coalition staff with contributions from NFPA's EV SMEs.
- Curriculum & toolkit incorporates content from the 10 online training modules. **Online training module completion is suggested prior to attendance.*

Course Materials

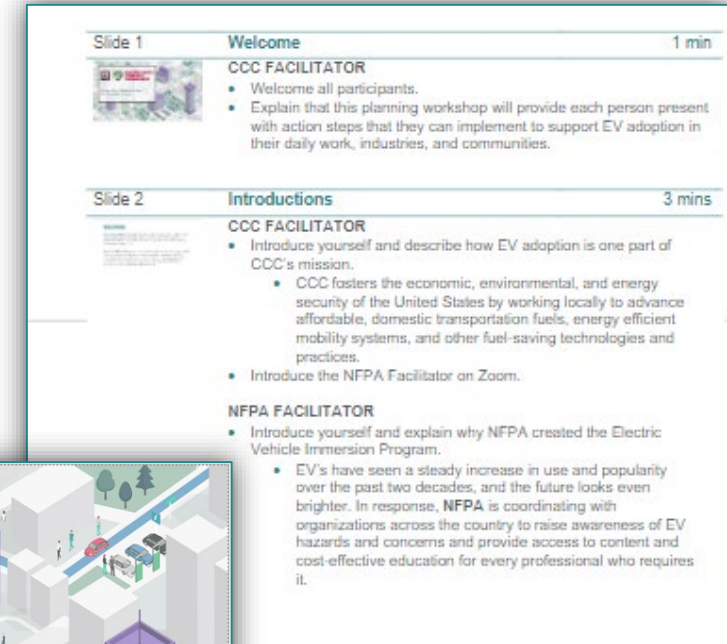
- Facilitators Guide – 22 Pages
- Participant Journal – 23 Pages
- Trainer Guide – 12 Pages
- PowerPoint Presentation – 33 Slides

Workshop Outline

- Section 1: Welcome and EV Basics – 90 minutes
- Section 2: Your Community EV Adoption Strategy – 60 minutes
- Section 3: Action Steps in Your Community – 90 minutes

Milestone

- ✓ Electric Vehicle Community Preparedness Assessment Workshop educational tools & resources developed.



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Project Accomplishments and Progress

Objective: Build EV Community Preparedness Assessment Workshop curriculum

Go-No-Go

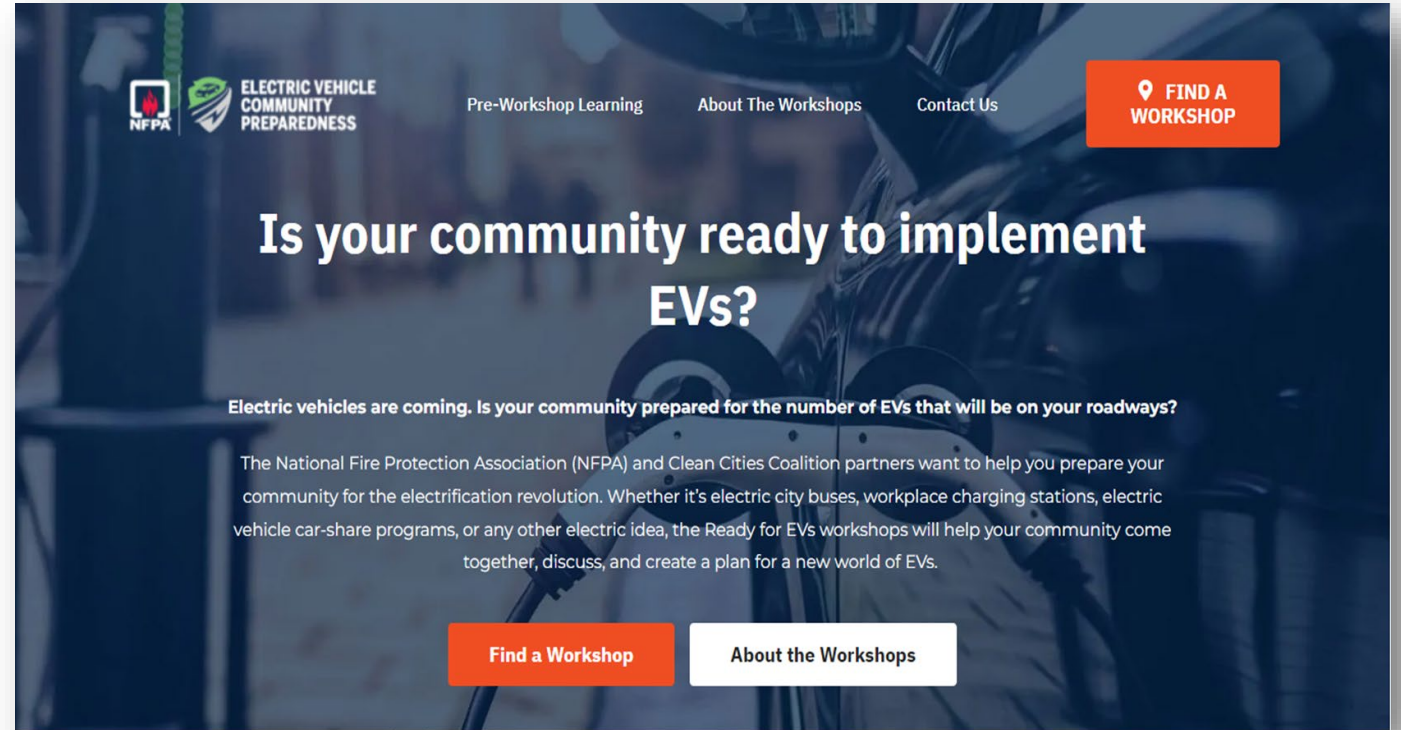
✓ EV Workshop Communication & Delivery Plan Completed

Task: Develop EV Workshop Communication & Delivery Plan: **Complete**

Developed by project partner, East Tennessee Clean Fuels, the plan details all steps, actions, and resources needed to successfully coordinate and execute 30 virtual EV Community Preparedness Workshops during period 2 & 3 of this project. It includes the following:

- ✓ Host coalition outreach and selection process
- ✓ List of 30+ selected host Clean Cities Coalitions
- ✓ Website design and development
 - Forward facing site: www.ReadyForEVs.com
 - Back-end site: For communicating with and sharing workshop materials & resources with host coalitions.
- ✓ Event branding guidelines
- ✓ Registration processing
- ✓ Marketing and outreach
 - Each event has a paid outreach stipend: \$600

Now Live: www.ReadyForEVs.com



Milestone

- ✓ Identify ≥30 Electric Vehicle Community Preparedness Assessment Workshop regions/hosts



EV Workshop Impact Area

Population	Number of Communities Reached
<10,000	4
10k-50k	18
50k-100k	12
100k-250k	20
>250k	21



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Project Accomplishments and Progress

Objective: Deliver 30 virtual EV Community Preparedness Workshops



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Project Sponsor

Department of Energy
Vehicle Technology Office

Project Lead/Principal Investigator



Project Partners



Design & Development Team

- Jason Emery, Emergency Training Solutions
- Ron Butler, Energy Storage Safety Product International
- Paul Shoemaker, Next Level Extrication
- Allen Communications



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Project Team & Collaboration



NFPA believes that the future of electric vehicles is a part of everyone's future

Through this proposed project, NFPA intends to develop EV educational offerings that increase community preparedness planning and collaboration among EV ecosystem stakeholders regardless of the community's socio-economic status. To ensure these materials are accessible to all and do not create undue burden, NFPA has taken the following steps:

ReadyForEVs.com

- The program website, ReadyForEVs.com will be hosted and maintained by ETCF beyond the grant period, providing a freely accessible portal for anyone interested in learning more about the benefits of EVs.

Online EV Courses

- All EV Community Preparedness online course modules will be freely available via the program website well beyond this grant performance period.

EV Community Preparedness Workshops

- The selected EV Community Preparedness Workshops, occurring in 30 regions, enable us to reach more than 75 communities across the US during performance period 2 & 3 ranging from small towns/cities in North Dakota, to large cities like Dallas, Texas.
- By hosting these EV Community Preparedness Workshops, the Clean Cities Coalition network will establish greater local stakeholder engagement and ties with the entire EV ecosystem in the communities they serve, thus increasing future opportunities for community collaboration and sustained coalition involvement.
- Beyond the grant period, we believe these workshops will begin a cascading effect, so that every Clean Cities Coalition around the U.S. will be able to implement such workshops in their own communities.

Summary

Project Goal

Increased community preparedness planning and collaboration among EV ecosystem stakeholders will result in greater understanding of electric vehicles and their benefits, more incentives for ownership, increased safety, and a more accommodating infrastructure.

Project Objectives

- ✓ Develop EV **web-based learning** modules that address the needs of all stakeholders in the Electric Vehicle Ecosystem.
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- ❑ Deliver 30 virtual **EV Community Preparedness Workshops** nationwide to kickstart planning and preparedness for EV adoption.



EV Web Based Learning

- ⑧ 8 45-minute EV Community Preparedness self-paced online trainings launched
- ⑩ 2 self-paced online EV safety trainings launched
- ⑩ 10 video testimonials produced

EV Workshop Curriculum

- ④ 4-hour EV Community Preparedness Workshop curriculum produced including facilitators guide, participant journal, trainer guide, & PowerPoint presentation



EV Workshop Delivery

- ⑧ Workshop Communication and Dissemination Plan complete
- ⑩ 30+ Clean Cities Coalition hosts identified
- ⑩ EV community preparedness website launched
- ⑩ Workshop scheduling underway



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Technical Backup Slides



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Confirmed EV Community Preparedness Workshop Host Coalitions

Alabama Clean Fuels	East Bay Clean Cities	North Dakota Clean Cities
Central Florida Clean Cities	East Tennessee Clean Fuels	Northern Colorado Clean Cities
Central Kansas Clean Cities	Eastern Pennsylvania Alliance for Clean Trans.	Pittsburgh Region Clean Cities
Central Oklahoma Clean Cities	Empire Clean Cities	St. Louis Clean Cities
Centralia Clean Fuels	Georgia Clean Cities	Triangle Clean Cities
Chicago Area Clean Cities	Granite State Clean Cities	Tulsa Area Clean Cities
Clean Communities of Central New York	Kansas City Regional Clean Cities	Utah Clean Cities
Clean Fuels Ohio	Kentucky Clean Fuels Coalition	Virginia Clean Cities
Dallas-Fort Worth Clean Cities	Land of Sky Clean Cities	Western Riverside County (CA)
Delaware Clean Cities Coalition	Louisiana Clean Fuels	Wisconsin Clean Cities
Drive Clean Colorado	Michigan Clean Cities	Yellowstone-Teton Clean Cities
Drive Clean Indiana	Middle-West Tennessee Clean Fuels	