

7. Technology Integration

The Vehicle Technologies Office (VTO) supports research, development, deployment, and demonstration (RDD&D) of new, efficient, and clean mobility options that are affordable for all Americans. The office's investments leverage the unique capabilities and world-class expertise of the national laboratory system to develop new innovations in vehicle technologies, including: advanced battery technologies; advanced materials for lighter-weight vehicle structures and better powertrains; energy-efficient mobility technologies and systems (including automated and connected vehicles as well as innovations in connected infrastructure for significant systems-level energy efficiency improvement); combustion engines to reduce greenhouse gas (GHG) emissions; and technology deployment and integration at the local and state level. In coordination with the other offices across the Office of Energy Efficiency and Renewable Energy (EERE) and the U.S. Department of Energy (DOE), the Vehicle Technologies Office advances technologies that assure affordable, reliable mobility solutions for people and goods across all economic and social groups; enable and support competitiveness for industry and the economy/workforce; and address local air quality and use of water, land, and domestic resources.

The VTO Technology Integration (TI) subprogram covers a broad technology portfolio that includes alternative fuels (e.g., advanced biofuels, electricity, hydrogen, renewable natural gas) and energy efficient mobility systems. The successful deployment of these technologies can support the decarbonization of the transportation sector, strengthen national security through fuel diversity and the use of domestic fuel sources, reduce transportation energy costs for businesses and consumers, address the needs of underrepresented communities, and support energy resiliency with affordable alternatives to conventional fuels that may face unusually high demand in emergency situations. At the national level, the Technology Integration Program offers technical assistance, information resources, online training, and an array of data and analysis tools. At the local level, Clean Cities coalitions leverage these resources to create networks of community stakeholders and provide hands-on technical assistance to fleets.

The Technical Assistance activities support projects to provide information, insight, online tools, and technology assistance to cities and regions working to implement alternative fuels and energy efficient mobility technologies and systems. Projects will; demonstrate proof-of-concept of alternative fuel/advanced technology vehicles, charging infrastructure, new mobility systems for goods and people movement and modeling and simulation.

The Data Collection and Dissemination activity will collect and provide objective, unbiased data, information, and real-world lessons learned to inform future research needs and provide fleets and local decision makers with a suite of resources to identify and address technology barriers. This includes projects to disseminate data, information, and insights.

The EcoCar Mobility Challenge challenges 12 university teams to apply advanced powertrain systems, as well as connected and automated vehicle technology to improve efficiency, safety, and consumer appeal. In FY 2022, student teams will complete and implement their vehicle design through hardware development and engineering.

Project Feedback

In this merit review activity, each reviewer was asked to respond to a series of questions, involving multiple-choice responses, expository responses where text comments were requested, and numeric score responses (*on a scale of 1.0 to 4.0*). In the pages that follow, the reviewer responses to each question for each project will be summarized: the multiple choice and numeric score questions will be presented in graph form for each project, and the expository text responses will be summarized in paragraph form for each question. A table presenting the average numeric score for each question for each project is presented below.

Table 7-1 – Project Feedback

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Objectives	Approach	Accomplishments	Collaborations	Overall Impact	Weighted Average
ti106	Natural Gas Vehicle (NGV) UP TIME Analysis: Updated Performance Tracking Integrating Maintenance Expenses	Megan Stein (Clean Fuels Ohio)	7-5	4.00	3.50	3.25	4.00	3.25	3.53
ti107	Next Generation Natural Gas Vehicle Drive Information Systems	Devin Halliday (Gas Technology Institute)	7-9	4.00	3.75	3.25	4.00	3.5	3.60
ti108	Smart Compressed Natural Gas (CNG) Station Deployment	Jason Stair (Gas Technology Institute)	7-12	3.75	3.75	2.75	2.50	2.5	3.10
ti109	Carolina Alternative Fuel Infrastructure for Storm Resilience Plan	David Doctor (E4 Carolinas, Inc.)	7-15	3.75	3.25	3.25	3.75	3.75	3.45
ti110	Statewide Alternative Fuel Resiliency Plan	Sean White (Florida Department of Agriculture and Consumer Services)	7-18	3.50	3.50	3.75	3.50	3.5	3.60
ti111	Integration of Smart Ride-Sharing into an Existing Electric Vehicle Carsharing Service in the San Joaquin Valley	Caroline Rodier (University of California-Davis)	7-21	2.50	2.60	2.50	3.00	2.3	2.55
ti112	The Clean Rural Shared Electric Mobility Project	Kelly Yearick (Forth)	7-26	3.30	3.10	3.10	3.50	3.2	3.19

2021 VTO ANNUAL MERIT REVIEW RESULTS REPORT – TECHNOLOGY INTEGRATION

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Objectives	Approach	Accomplishments	Collaborations	Overall Impact	Weighted Average
ti113	Holistic and Energy-Efficient Rural County Mobility Platform (RAMP)	Sean Qian (Carnegie Mellon University)	7-31	3.20	3.10	2.50	2.90	2.80	2.83
ti114	Rural Open Access Development Mobility Action Plan	Sarah Conley-Ballew (Rural Action, Inc.)	7-36	3.20	2.80	3.10	3.20	3.10	3.07
ti115	Electric First/Last Mile On-Demand Shuttle Service for Rural Communities in Central Texas	Elizabeth Munger (Lone Star Clean Fuels Alliance)	7-41	3.13	3.13	3.38	3.50	3.38	3.29
ti116	East Zion National Park Electric Vehicle Shuttle System	Tammie Bostick (Utah Clean Cities Coalition)	7-45	3.33	3.50	3.00	3.33	3.33	3.23
ti117	Electrifying Terminal Trucks in Unincentivized Markets	Kelly Gilbert (Metropolitan Energy Center)	7-48	3.50	3.50	3.67	3.17	3.33	3.52
ti118	Heavy Duty EV Demonstrations for Freight and Mobility Solutions	Megan Stein (Clean Fuels Ohio)	7-50	3.50	3.33	3.50	3.33	3.00	3.40
ti119	Electric Vehicle Widescale Analysis for Tomorrow's Transportation Solutions	Brian Roy (Akimeka, LLC)	7-52	3.50	3.33	2.83	3.33	2.83	3.12
ti120	Mid-Atlantic Electric School Bus Experience Project	Alleyn Harned (Virginia Clean Cities at James Madison University)	7-55	3.50	3.00	2.83	3.33	3.16	3.08
ti121	Medium and Heavy-Duty Electric Vehicle Deployment's Data Collection	Jasna Tomic (Calstart, Inc.)	7-58	3.50	3.50	3.50	3.75	3.25	3.50

2021 VTO ANNUAL MERIT REVIEW RESULTS REPORT – TECHNOLOGY INTEGRATION

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Objectives	Approach	Accomplishments	Collaborations	Overall Impact	Weighted Average
ti122	Supporting Electric Vehicle Infrastructure Deployment Along Rural Corridors in the Intermountain West	Tammie Bostick (Utah Clean Cities)	7-60	3.83	3.83	3.50	3.67	3.50	3.65
ti123	Decentralized Mobility Ecosystem: Market Solutions for 21st Century Electrified Mobility	Megan Stein (Clean Fuels Ohio)	7-63	3.67	3.33	3.33	3.67	3.00	3.40
ti124	Developing an Electrified Vehicle Demonstration Testbed in the Upper Cumberland Region of Tennessee, an Economy Distressed Rural Region	Pingen Chen (Tennessee Tech University)	7-65	3.50	3.33	3.33	3.33	3.50	3.38
ti125	EcoCar Mobility Challenge	Kristen Wahl (ANL)	7-68	4.00	3.83	3.83	3.83	4.00	3.88
Overall Average				3.51	3.35	3.21	3.43	3.21	3.32

Presentation Number: ti106
Presentation Title: Natural Gas Vehicle (NGV) UP TIME Analysis: Updated Performance Tracking Integrating Maintenance Expenses
Principal Investigator: Megan Stein (Clean Fuels Ohio)

Presenter

Megan Stein, Clean Fuels Ohio

Reviewer Sample Size

A total of two reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer commented that this project has the potential to increase the use of not only natural gas vehicles (NGVs) but also other alternative fuel vehicles (AFVs) by documenting the maintenance costs of diesel vehicles, which would allow fleets to better understand how AFVs compare to modern diesel freight trucks. Specifically, by documenting NGV maintenance data, this will provide greater confidence to fleets without NGVs to adopt a new technology if the project shows favorable costs for those vehicles. In addition, this project could help the NGV industry by documenting best practices to lower maintenance and improve reliability.

Reviewer 2:

According to the reviewer, this project strongly supports Vehicle Technologies Office (VTO) objectives by ensuring that fleets have up-to-date information on the real cost of maintenance and repair costs of natural gas trucks in comparison to similar diesel vehicles. The lack of data on this issue and perceptions based on earlier generation vehicles are barriers to the use of more AFVs powered by natural gas so this project is important to overcoming barriers and helping fleets select fuels that will save them money.

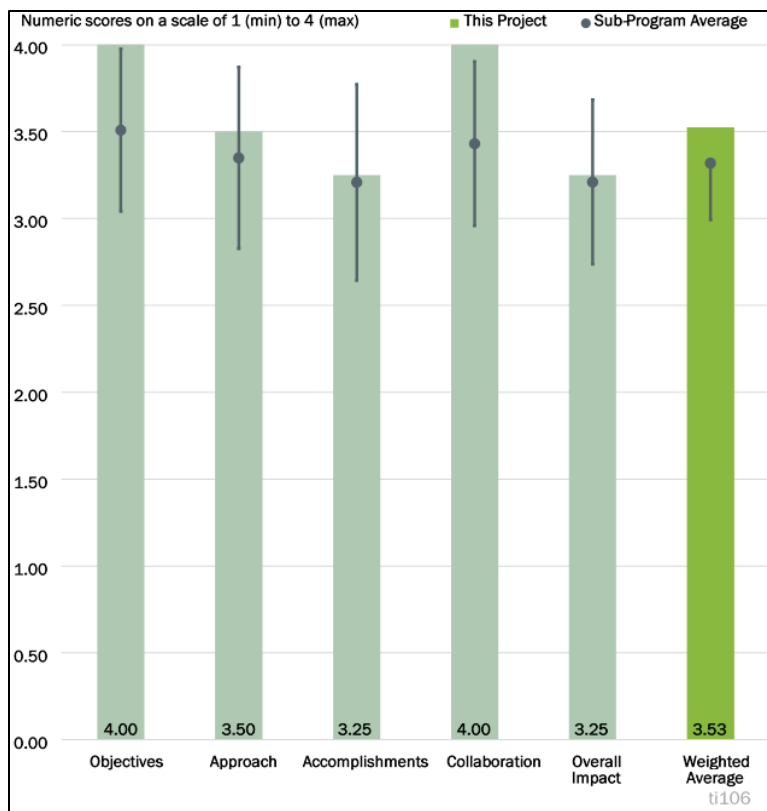


Figure 7-1 - Presentation Number: ti106 Presentation Title: Natural Gas Vehicle (NGV) UP TIME Analysis: Updated Performance Tracking Integrating Maintenance Expenses Principal Investigator: Megan Stein (Clean Fuels Ohio)

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

This reviewer indicated that the project is well designed in first securing fleet partners and setting up the data collection procedures. It is beneficial that the project is securing initial fleet partners for data collection and then continuing to add others as the project progresses. Fleets will be able to provide data even if they sign up later in the project. The major challenge that the reviewer saw as limiting is that of time for cleaning up and analyzing data prior to the end of the project.

The use of Vehicle Maintenance Reporting Standards (VMRS) data tracking will allow for a certain amount of data standardization, which will make the analysis easier and the results more robust. It is very useful that DOE, national laboratories, and universities will be given access to the anonymized dataset at the end of the project.

Reviewer 2:

The approach seemed right to the reviewer by trying to ensure that extracting data is as easy as possible and consistent with the data collection and reporting procedures used by major fleets.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

The reviewer asserted that the most important part of the project is to have data-sharing agreements with freight NGV and diesel fleets. This project has been successful in securing those agreements, likely due to the connections of the strong Clean Cities coalition partners in the project. The reviewer remarked that it is useful that the project is looking to gather additional data from other fleets, even after securing the initial agreements to get as wide of a range of fleets as possible (e.g., duty-cycle, geography, and fleet size). Hopefully, the project can secure the agreements that are “in progress” but not finalized.

One challenge identified by this reviewer is the project has is to collect data from small fleets not utilizing VMRS data tracking as it will make data clean up, analysis, and comparison difficult. However, the project team should still work to collect small fleet data as the American Transportation Research Institute (ATRI) summary cost analysis shows that fleet size does impact costs. If the project can use the sample maintenance data forms, that would be useful if the smaller fleets are willing to submit data in that manner. However, the reviewer suggested that it might be useful to minimize the burden on the small fleets and obtain raw maintenance data if the fleets are willing to provide it. While it might be difficult for the project to clean up and anonymize all these data, the reviewer said that it could still be useful data for further analysis done by DOE.

Reviewer 2:

Although it is difficult to get fleets to share data, good effort was apparent to this reviewer. It could be better if more fleets had been signed up or confirmed to date, but the reviewer realized that this is a difficult effort.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer opined that the Clean Cities coalition’s ability to identify project partners and secure agreements is paramount to the project’s success. Having 6 fleets with 2,736 vehicles secured is definitely a great start to the project.

Additionally, the reviewer stated that the project has a strong technical team for data collection and analysis, as well as an excellent Project Advisory Committee. In particular, Energetics is currently working on another DOE project collecting data that the reviewer was familiar with so that should be beneficial to the data collection, cleaning, and analysis portions of the project.

Reviewer 2:

Based on the presentation, it appeared to this reviewer that the project teams are collaborating with appropriate stakeholders and industry players.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer commented that the project has a very good approach and looks to be on track for success with it securing a significant number of fleets and vehicles. The project team is very strong and has a track record of success. The reviewer hoped that the data collection process will be smooth as that will be crucial to the project and will not begin until the latter parts of Budget Period (BP) 2. The concern would be that the pandemic will have impacted either the willingness of the project partners to participate or impacted operations that make the most recent data less applicable. Hopefully, as the project is collecting maintenance records, the project team will be able to navigate any pandemic-related operational data concerns. Additionally, this reviewer suggested that it would be beneficial if the project can continue to add fleets to make sure the dataset has a wide range of geographies, duty cycles, and fleet size.

Reviewer 2:

The reviewer found it difficult to answer this question because the results really will not be evident until the project is complete and best practices are revealed.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer believed that this project is wisely using DOE resources, as this type of public data collection would be very difficult (if not impossible) without the funding and backing of a government agency. Currently, there is not a public dataset of maintenance costs for diesel freight trucks, not to mention any AFVs. As diesel truck maintenance costs have become an important anecdotal talking point about the benefits of AFVs, it is great that the DOE is using its resources to collect, analyze, and publish findings on this topic. DOE should fund similar projects in the future, leveraging its resources and credibility to collect real-world data that will help the AFV industry document its costs and benefits. Fleets that are interested in AFVs, but hesitant because cost information is not available from unbiased sources, will definitely benefit from these types of projects.

Reviewer 2:

The reviewer responded absolutely, and added that technology fortunately continues to evolve and that means these types of reports or studies are necessary on a continuing basis. Also, as new technology remains in the field for longer time periods, it is important to understand how costs are impacted by aging of technology.

Presentation Number: ti107
Presentation Title: Next Generation Natural Gas Vehicle Drive Information Systems
Principal Investigator: Devin Halliday (Gas Technology Institute)

Presenter

Devin Halliday, Gas Technology Institute

Reviewer Sample Size

A total of two reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer noted that this project addresses an important obstacle to natural gas use—range anxiety—which also impacts the use and cost of NGVs. By focusing on information monitoring to determine more accurately how much fuel is onboard, this technology will help address concerns about using NGVs and could allow vehicles to be equipped with smaller fuel systems, saving money upfront, and improving vehicle efficiency and operational costs.

Reviewer 2:

The reviewer remarked that the project addresses the very specific concern of range anxiety by attempting to provide accurate gaseous fuel level and range information to users of NGVs. Successfully completing this project will allow users to specify vehicles properly, reduce the number of fueling stops, and operate them with confidence.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer indicated that the project approach is a cost-effective, common-sense solution with universal applications. Making a modular, easily installed sensor and recording array will allow users to analyze their

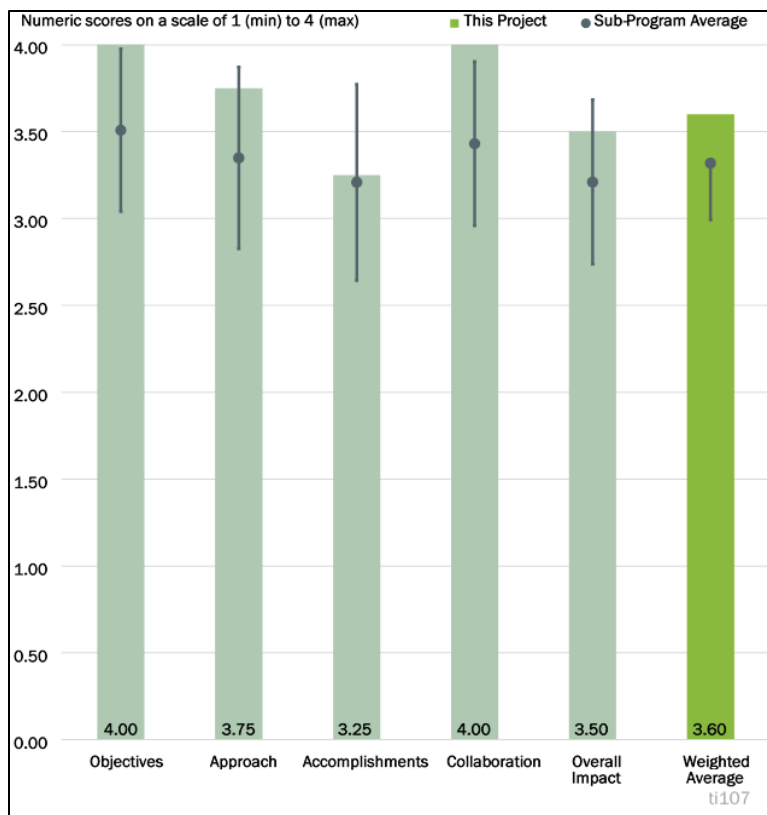


Figure 7-2 - Presentation Number: ti107 Presentation Title: Next Generation Natural Gas Vehicle Drive Information Systems Principal Investigator: Devin Halliday (Gas Technology Institute)

fuel use by accurately predicting range and fuel economy. This will remove a large barrier to adoption of gaseous fuels and encourage other fleets and end users to follow suit.

Reviewer 2:

The reviewer observed a very solid approach to developing a technology solution. There are some questions about cost and the ability to scale up, but those should not be significant barriers if technology proves to be accurate and deployable.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

The reviewer reported that the project has achieved its goal of developing and installing test units and is on schedule to build and install more units. The data are being generated and analyzed and have shown the potential of such a system to remove barriers to the adoption of gaseous fuels.

Reviewer 2:

According to the reviewer, the presenter stated that installations are running behind and the project is 20% complete.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The team looked strong to the reviewer, and the application (cement trucks) is probably an excellent environment to test these systems as they will need to be robust to survive in their duty environment.

Reviewer 2:

The reviewer observed that the project partners were chosen wisely to maximize their contributions to the overall project. Each partner has a vital role to play, and the workload and expertise are divided equally among the partners so no one partner is carrying the bulk of the load. Collaboration and cooperation among the partners are evident.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer called the overall impact of this project clearly promising. Measuring units have been built, tested, and installed. They are not only providing valuable data for current users, but also showing excellent potential for providing an effective solution for this particular problem. The importance of having accurate fuel usage data was clearly explained in the presentation, and the solution developed and achieved by the project partners will have an immediate and universal positive effect on the adoption and use of alternative fuels.

Reviewer 2:

Preliminary results of a single system demonstrated to the reviewer that the technology is promising and can achieve targets results for measurement and accuracy.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer indicated that this project has made appropriate use of its resources, has been cost conscious in the development of the testing prototypes, and has smartly developed a universal, modular system that can be easily installed in a variety of vehicles at a reasonable cost.

Reviewer 2:

The reviewer remarked that the project seems, to some extent, like a one-off type of project. If the technology proves feasible, then it should be deployed by manufacturers who can address cost, scaling, and other manufacturing issues.

Presentation Number: ti108
Presentation Title: Smart Compressed Natural Gas (CNG) Station Deployment
Principal Investigator: Jason Stair (Gas Technology Institute)

Presenter

Jason Stair, Gas Technology Institute

Reviewer Sample Size

A total of two reviewers evaluated this project.

Project Relevance and Resources

50% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 50% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The project addresses an important barrier to the greater use of natural gas. The reviewer indicated that this is a very targeted approach to overcoming one of the key barriers for NGVs, which is high upfront costs, and which could be better addressed if fleets were sure that they were getting a full fill on trucks.

Reviewer 2:

The cost of compressed natural gas (CNG) tanks is the major incremental cost for NGVs. For several reasons that include thermodynamics, station design, station and cylinder sensors, and communication, tanks may not fill completely. Therefore, not being able to use the entire amount of the tank volume leads to less range and can require the purchase of larger tank packages. The reviewer opined that the project objective of quantifying the amount of underfilling at existing stations and developing a cost-effective system to address this would be beneficial for the deployment of NGVs to address these issues. If fills could provide 25% more fuel consistently, that would have a large impact on CNG vehicles; however, if the amount is around 10%, then there would still be a benefit that would likely help with range, rather than allowing for less tank volume.

The presenter mentioned the impact on safety of CNG, and while not highlighted as much, the problem of overfilling comes to mind. The reviewer would assume that is going to be addressed by the equipment as well, but in further presentations it would be useful to further highlight the potential safety benefits.

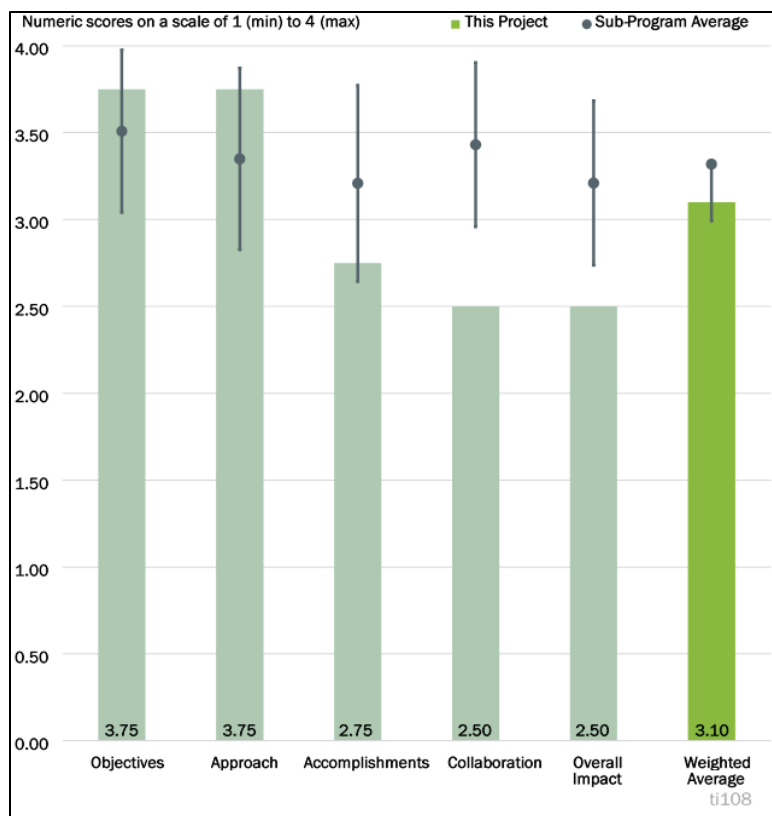


Figure 7-3 - Presentation Number: ti108 Presentation Title: Smart Compressed Natural Gas (CNG) Station Deployment Principal Investigator: Jason Stair (Gas Technology Institute)

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

Developing technology for stations and vehicles so there is simultaneous communication is critical to ensuring full fill and addresses safety issues.

Reviewer 2:

The project is well designed to first develop the data acquisition systems and deploy them for testing, although the reviewer was a bit surprised that there were not “off-the-shelf” data acquisition systems the team could have used. The reviewer explained that it will be crucial to understand the amount of underfilling based on different conditions and parameters (vehicle, station, weather, etc.); so, first testing in a controlled fashion at the Gas Technology Institute (GTI) test site and then deploying them at multiple sites is a good strategy.

The reviewer suggested that it makes sense to speak with the codes and standards committees as soon as possible and potentially reach out to NGV organizations to make sure that the algorithm and software are going to be allowed.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

This reviewer stated that systems developed, initial deployment underway, and data collection confirm the need for this technology.

Reviewer 2:

While somewhat understandable due to the pandemic, the reviewer noted that the project is behind schedule and is only about 20% complete in month 17 (April 2021) of a 39-month project. The dual data acquisition system development, while not efficient, ultimately seemed to work out as one of the options would not work. However, it seems the project timing would have been improved if the bandwidth issues had been addressed before getting too far along. The challenge of not being able to use third-generation (3G) technology and having to upgrade to fourth-generation (4G) technology looks to be another setback. The presenter said that the project has been doing better in the past few months and is reaching completion of all the milestones in BP 1. If DOE decides to continue the project after the go/no-go point, hopefully the project will continue to go more smoothly, but it will be necessary for DOE to pay close attention to project challenges and see how to resolve them quickly.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer called the project team strong. GTI is uniquely positioned to lead the effort, to test systems at its own facilities, and to use its knowledge of the key industry players.

Reviewer 2:

As the project has been delayed, it was a bit difficult for the reviewer to rate the project in this category. However, it looks like the team has challenges with two of the three partners—a new dispenser manufacturer looks to be needed to replace Kraus Global, and Clean Energy may now not want to put the equipment on their public sites and will negotiate after a dispenser partner is finalized. Hopefully, Ozinga will continue to be a strong GTI partner, and the project can use both their vehicles and stations.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer stated that it is still early in the project, but initial data indicate that this is very worthwhile effort.

Reviewer 2:

The project objectives, approach, and team (both Principal Investigator [PI] and initial partners) are all strong, but the actual implementation of the project has seen delays and loss of a partner (Kraus Global) and a second partner (Clean Energy) looks to be questioning its involvement. If the project is successful, the reviewer commented that it will definitely have potential.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The targeted funding in this project addressing a very specific issue that could have immediate impact in next 2–3 years, so the reviewer thought that this is very worthwhile and could end up as very economical solution for fleets deploying NGVs.

Reviewer 2:

The reviewer thought that this is a worthwhile project to meet DOE and VTO objectives of increasing fuel diversity through the use of alternative fuels. The GTI team has great experience in this area, and the reviewer saw why this project was selected. However, the project implementation has had significant delays and with the potential loss of two project partners, project success is in jeopardy. It is possible that if a new dispenser partner is secured, then the project can move forward, but it should be scrutinized heavily at the go/no-go decision point as that is a major concern. The loss of Clean Energy would also limit the ability of the project to test and collect data based on the initial plans of the project. It is possible that Ozinga's stations could provide sufficient data for the project, although it is unclear if Ozinga would agree to that.

While this project may not ultimately be a success, the reviewer opined that DOE should still fund projects in this vein of supporting technology development on refueling infrastructure as it is a key barrier for alternative fuels like natural gas, hydrogen, and electricity.

Presentation Number: ti109
Presentation Title: Carolina Alternative Fuel Infrastructure for Storm Resilience Plan
Principal Investigator: David Doctor (E4 Carolinas, Inc.)

Presenter

David Doctor, E4 Carolinas, Inc.

Reviewer Sample Size

A total of two reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer stated that the presenter provided a very clear description of the project plan to achieve its goals and how the project team will convene stakeholders to achieve their goals.

Reviewer 2:

According to the reviewer, the availability and use of alternative fuels and power sources in times of emergency, natural disasters, and the like have proven to be very beneficial. Assessing the readiness of any given area, creating a workable plan, and educating first responders, officials, and the general public on the use and benefits of alternative fuels in these situations have tremendous value in expanding their adoption and have tremendous potential to save lives and property in times of great need.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

Considering coronavirus disease 2019 (COVID-19) restrictions, the reviewer commented that the project appears to be on track. The team is taking a very detailed approach, and it appears all milestones were completed. There are a great number of organizations (15–20) working together on complex deliverables, including surveys for creating an inventory. All milestones for BP 2 appear to be on track so far. It is the project team’s expectations that the full resiliency plan will be drafted by the end of this year. Also, the plan for BP 3 looked realistic to the reviewer. Climate change is being considered using third-party sources like the

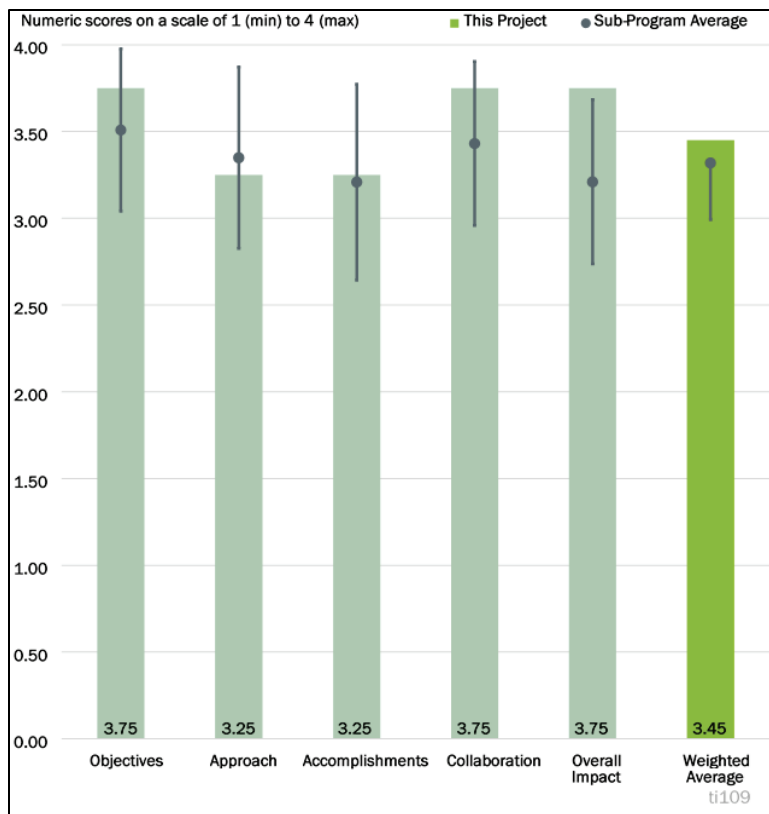


Figure 7-4 - Presentation Number: ti109 Presentation Title: Carolina Alternative Fuel Infrastructure for Storm Resilience Plan Principal Investigator: David Doctor (E4 Carolinas, Inc.)

National Oceanic and Atmospheric Administration (NOAA), and the team is aware of the serious challenges facing the region due to increased storm frequency.

Reviewer 2:

The reviewer indicated that this project is well aligned with other efforts, is looking at other parts of the country, and is learning from its successes and shortcomings. The reviewer indicated that the team is taking a measured, systematic approach to assessing the project area's current situation by identifying needs and working on a solid plan to maximize the availability and use of alternative fuels in emergency situations.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

The reviewer stated that the project team is taking an adaptive approach to reflect information as it is being learned. There is a good focus on water and flooding impacts. Climate change is being considered using third-party sources like NOAA, and the reviewer said that the team is aware of the serious challenges facing the region due to increased storm frequency.

Reviewer 2:

According to the reviewer, the inventory phase of the project was completed in 2020, and the draft plan is due to be completed in August 2021, with assessment and implementation to follow. Like many other projects, COVID-19 closures caused delays in certain practical aspects, but the team has worked to overcome these obstacles through virtual methods of interaction and remains on track to accomplish the project objectives in a timely fashion.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer found the collaboration and cooperation among the project members to be outstanding. Four working subtask groups were created, with each tackling a piece of the assessment and draft plan. Partners have a breadth of experience and areas of expertise, and the workload has been distributed evenly.

Reviewer 2:

The reviewer noted this is a very hard project requiring coordination across a large number of groups. The project team appeared to be bringing the right people together and making progress according to their plan.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

Planning for resilience is critically important as climate impacts are felt more frequently and severely. The reviewer commented that it is essential that projects like this one succeed in influencing disaster preparedness and infrastructure investments.

Reviewer 2:

The reviewer stated that the project has already contributed to the knowledge database of how AFVs are being used by first responders, utility companies, and government agencies and where infrastructure is currently deployed and available along evacuation routes. The reviewer opined that the planning, assessment, and

deployment phases will have a valuable and lasting impact on the readiness and resiliency of the Carolinas to deal with emergency and storm situations.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

According to the reviewer, this project has made smart use of its resources, has shown the flexibility and organization to overcome obstacles, and is contributing valuable information and action plans to the emergency preparedness knowledge base for the project area and other parts of the country.

Reviewer 2:

The reviewer asserted that DOE should consider focusing future projects on investment decisions, particularly around infrastructure as regions adapt to climate change.

Presentation Number: ti110
Presentation Title: Statewide Alternative Fuel Resiliency Plan
Principal Investigator: Sean White (Florida Department of Agriculture and Consumer Services)

Presenter

Sean White, Florida Department of Agriculture and Consumer Services

Reviewer Sample Size

A total of two reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

According to the reviewer, the availability and use of alternative fuels and power sources in times of emergency, natural disasters, and the like have proven to be very beneficial. Assessing the readiness of any given area, creating a workable plan, and educating first responders, officials and the general public on the use and benefits of alternative fuels in these situations have tremendous value in expanding their adoption and have tremendous potential to save lives and property in times of great need.

Reviewer 2:

The reviewer remarked that the project has a solid, broad objective that captures many aspects of resiliency. The reviewer also observed that no environmental benefit was included in the project.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer asserted that the project approach is systematic and comprehensive because it is gathering and assessing data from numerous sources and providing concrete, actionable plans and best practices for Florida and other areas to follow in preparing for, and responding to natural and man-made disasters.

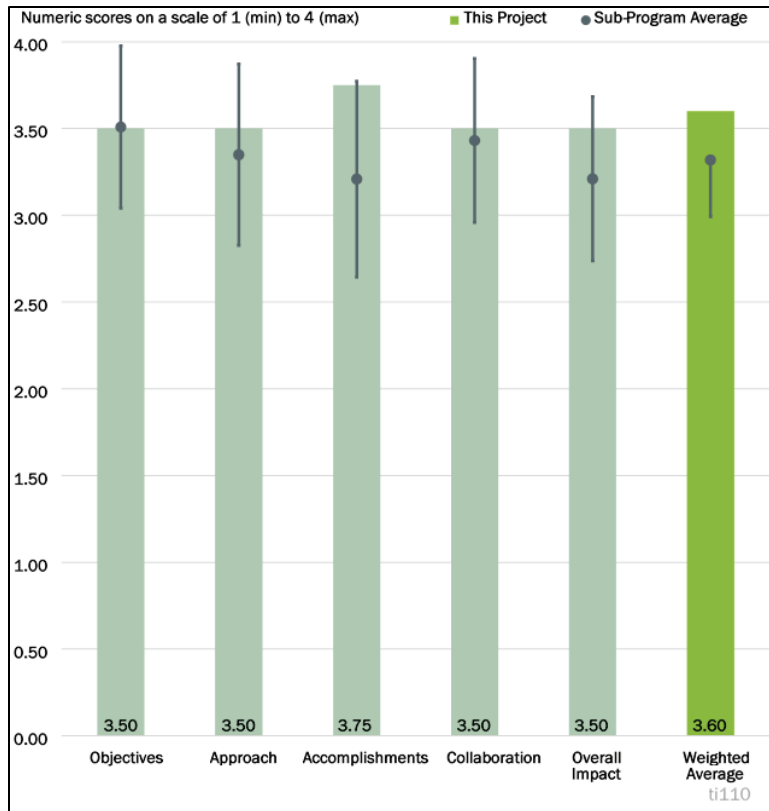


Figure 7-5 - Presentation Number: ti110 Presentation Title: Statewide Alternative Fuel Resiliency Plan Principal Investigator: Sean White (Florida Department of Agriculture and Consumer Services)

Reviewer 2:

The reviewer commented that the project is taking a thoughtful approach that includes data collection, plan development, and the sharing of best practices. It is good to see that the plan is to be implemented statewide. Understandable delays from COVID-19 restrictions caused delays in BP 1 but do not appear to affect the overall project timeline.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

Considering delays due to COVID-19 restrictions, the reviewer indicated that the project has made excellent progress. The electric vehicle (EV) roadmap is an important report on ensuring that Floridians can purchase and operate EVs.

Reviewer 2:

The project has accomplished about 25% of its goals and is on schedule to meet the intended timeline for completion of all tasks. The reviewer stated that valuable information on state of readiness and best practices has already been produced via the Florida EV Roadmap and Resilient Florida Buildings brochure, along with site visits and stakeholder workshops.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer remarked that it is good to see the project expanding stakeholder engagement with a group focused on corridors.

Reviewer 2:

The reviewer found that collaboration and cooperation among the project team have been excellent. Each partner adds to the diversity of knowledge and experience on the team, and the workload has been evenly divided among the members.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

This reviewer stated that Florida is a critically important state related to climate change, and it is essential that the state builds a resilient infrastructure that enables consumers to purchase and operate EVs without concern as extreme weather events occur more frequently in the near future. The reviewer observed that this project will hopefully help inform these investments.

Reviewer 2:

The reviewer commented that this project should make a tremendous impact for Florida and other areas, not only in education about the benefits of fuel diversity, but also in practical planning for responding to natural and man-made disasters.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer indicated that this project has made excellent use of its resources and has already delivered valuable tools and best practices information that can benefit first responders, municipalities, and utility companies immediately.

Reviewer 2:

The reviewer asserted that DOE should consider making sure that environmental benefits and infrastructure investments are core parts of future resiliency projects.

Presentation Number: ti111
Presentation Title: Integration of Smart Ride-Sharing into an Existing Electric Vehicle Carsharing Service in the San Joaquin Valley
Principal Investigator: Caroline Rodier (University of California-Davis)

Presenter

Caroline Rodier, University of California-Davis

Reviewer Sample Size

A total of five reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 0% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer indicated that partners Miocar (e-carshare) and Mioride (e-rideshare) already promote AFVs in the area. Assisting a disadvantaged population by allowing volunteers to transport them via Miocar EVs to appointments and errands will contribute a small amount to fuel diversity (a VTO objective). The reviewer stated that the success of the project is dependent on the number of riders, the number of rides, and whether a passenger would have walked or biked if not for this option (no petroleum reduction in these cases).

Reviewer 2:

This reviewer commented that the Project Objective and Overview slides describe the project’s specific objectives and barriers addressed, as well as how the project supports the DOE VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency. The project addresses several of VTO TI goals, such as national security, fuel diversity, affordability, mobility enhancements, reliability, and resiliency, through the design and operation of a volunteer ridesharing pilot with e-carshare to fill access gaps in low-income, rural communities. Project objectives appeared to the reviewer to be generally effective for the planned scope.

Reviewer 3:

This reviewer asserted that the project’s stated objectives of designing and operating a volunteer ridesharing pilot within an existing e-carshare service to fill access gaps in low-income rural communities and evaluating

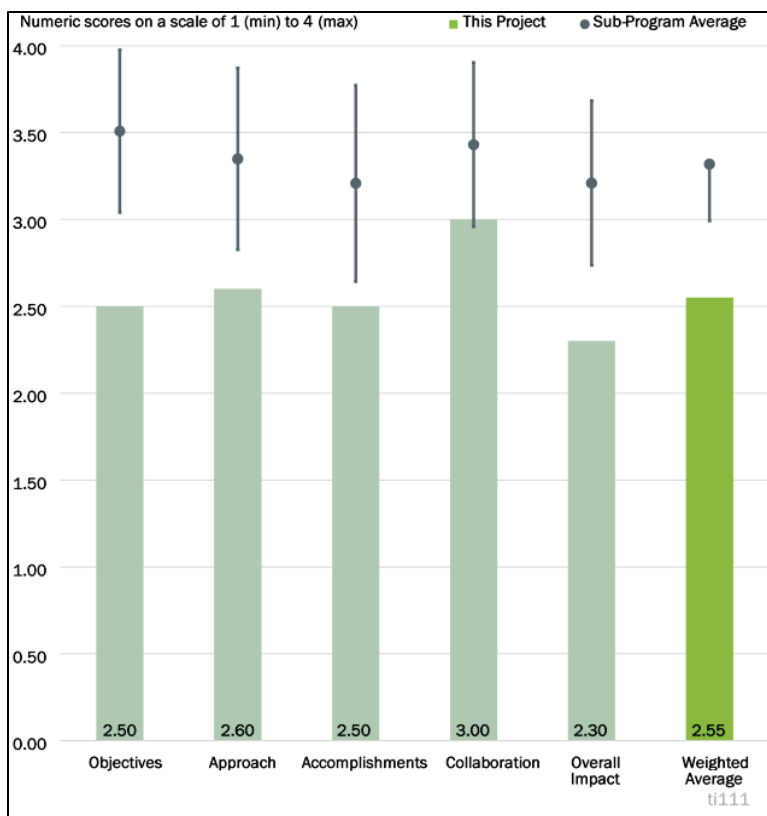


Figure 7-6 - Presentation Number: ti111 Presentation Title: Integration of Smart Ride-Sharing into an Existing Electric Vehicle Carsharing Service in the San Joaquin Valley Principal Investigator: Caroline Rodier (University of California-Davis)

performance on a number of factors aligns with DOE VTO objectives of increasing fuel diversity through the use of alternative fuels (electricity) and increasing transportation efficiency (ridesharing). The degree to which this is done, however, seems limited given the fact that the e-carshare service was already in existence and the novel factor of this project is getting individuals to volunteer to provide other individuals with rides in the existing electric vehicles.

Reviewer 4:

The project is focused on low-income and rural communities, which aligns with DOE VTO goals; however, it was unclear to the reviewer how the project increases fuel diversity since it is a modification of an existing EV ridesharing program. In addition, it is unclear how the project would effectively increase transportation efficiency.

Reviewer 5:

The reviewer noted that the project addresses rural mobility barriers and the difficulties of presenting a business case for electric ridesharing services in low-income, rural areas. The use of EVs aligns with project objectives; however, the project heavily leverages an existing electric car sharing ecosystem, and the reviewer noted that the presenter was not able to elucidate how exactly this project is substantially changing the status quo for this operation nor how it would influence projects in other rural parts of the country.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer said that the project provides a sensible approach. Some tasks were delayed but are in progress now that states are opening.

Reviewer 2:

This reviewer found the Project Approach section provides a satisfactory methodology to accomplishing the project objectives and supporting the integration of advanced transportation technologies and practices. The Project Approach is divided into three project periods (Development, Implementation, and Continuation and Evaluation), each containing associated tasks. Adequate detail is provided on the Approach and Milestone slides regarding the planned tasks and activities. The technical concept and project site map slides should better clarify the specific framework of the project. However, it was difficult for the reviewer to determine the hierarchy of this project in terms of how it interfaces with existing programs (i.e., the ownership and use of the vehicles and charging was unclear).

Reviewer 3:

This reviewer remarked that the market and types of trips have not been determined, and the project team is still trying to figure it out. A utility was not engaged initially in the project, but discussions have begun, which is good. Using volunteers to reduce insurance costs is a good approach as insurance can be a significant long-term cost. However, volunteer drivers are compensated with use of the vehicle, which in the long run will increase other costs. It was unclear to the reviewer who pays for the electricity, but for long-term sustainability, this cost needs to be factored in. No marketing metrics were identified to assess the success or failure of efforts. It does not appear that focus testing or surveys were performed in the initial launch period to test rider interest or desirability. It was unclear to the reviewer how volunteer and rider targets will be reached.

Reviewer 4:

The reviewer observed that project design, deliverables, and milestones lack some important details about what exactly this project is hoping to accomplish. It is clearly aligned with an existing program, but it struggles to

differentiate itself from what already exists. The concept of providing ride credits for being a volunteer driver is an interesting concept and incentive for use of EV carshare vehicles. The reviewer would have liked to hear more about that element.

Reviewer 5:

The sustainability of this concept appears to be limited from the reviewer's perspective. The fact that only four volunteers have been trained and recruited as of this review indicates that the project concept may not have been well designed. The project approach does contribute to achieving some project objectives and the pandemic apparently has delayed success of the project milestones. The researcher's plans for sharing best practices or lessons learned from this project with regional transportation organizations or similar planning organizations was unclear to this reviewer.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

This reviewer asserted that much was accomplished, even with the COVID-19 delays. The project appears to be ahead of schedule in many milestones and tasks. With states opening, the reviewer opined that more volunteers and hopefully more riders would come forward.

Reviewer 2:

The reviewer noted the marketing plan and strategy tasks are well on track. The Miorides tasks are behind schedule along with rider and driver targets being unmet due to COVID-19 restrictions. The reviewer noted that the revised timelines are ambitious and will require a dedication to making volunteers and clients feel safe in the ridesharing environment post-COVID-19. Collection and analysis of data will hopefully lead to some meaningful findings.

Reviewer 3:

This reviewer indicated that satisfactory progress has been made toward achieving project goals, taking into account the unforeseen delays associated with the COVID-19 pandemic. The project has made progress on several key activities: SNAP software development and testing; rider and driver data collection and evaluation; and marketing of the Miorides program. Delays associated with COVID-19 restrictions have impacted the launch of the operational pilot, as well as limiting the number of potential pool riders (i.e., riders are concerned about sharing the ride with others).

Reviewer 4:

Although the project has some accomplishments, the lack of progress to date with executing rides was concerning to this reviewer. While some blame can be placed on the societal impact of COVID-19, individuals using this service would, in theory, need rides regardless of the state of the pandemic. The researcher describes the marketing aspect of this activity as a success; however, that seems inaccurate given that marketing has resulted in only four volunteer drivers and otherwise promoted a program that is not yet accessible to users.

Reviewer 5:

The reviewer reported that key components—finding volunteers and riders—have not been achieved. The reviewer thought that the presenter said only four volunteers have been recruited. COVID-19 restrictions impacted this; so, it is unclear if targets will be reached as the community opens back up and travel increases. The reviewer suggested that it would be good to know how the number of riders compares to the number of drivers over the previous year who utilized the primary platform (carsharing) from which this project is built;

this would have been a good comparison. This reviewer further commented that additions to SNAP and administration functionality seem beneficial.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

This reviewer commented that the project indicates an effective collaboration process, including community-based operators, planning, and research organizations.

Reviewer 2:

The reviewer asserted that this project could not have happened without the PI's eight partners, particularly the rideshare, carshare, volunteer, and mobility partners, who are all very involved in the implementation of the project.

Reviewer 3:

This reviewer observed an effective project team of academia, community groups, public agencies, private industry, and the local Clean Cities coalition has been assembled to carry out this project and provide an appropriate mix of expertise among team members. Collaboration and communication among project partners appeared to be appropriate for the project of this scope.

Reviewer 4:

The reviewer commented that the project team includes diverse members, and the team meeting cadence is robust. The reviewer would have liked to hear more about the roles of the various team members and how the team was formed, particularly the genesis of the involvement of the affordable housing provider. The presenter did not elaborate on specific roles for team members.

Reviewer 5:

Check-in and collaboration seem sufficient among the project team. There are a wide variety of partners, but it was not clear to the reviewer if the partners are the right mix to increase or recruit volunteers and riders.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

This reviewer remarked that, as the pilot gains momentum, it has the potential to be a welcome addition to the community and a model to be replicated. It will have a small impact on fuel diversity, but it will undoubtedly foster goodwill in the service areas. Miocar and Mioride marketing is already in place, and it appeared to the reviewer that the purpose of this project is more to provide transportation options to the disadvantaged than to increase fuel diversity or provide outreach on AFVs. The current project will have minimal impact unless it can be replicated nationwide.

Reviewer 2:

The reviewer commented that the project has good potential to contribute to increasing transportation efficiency by building knowledge associated with the development and implementation of a volunteer ridesharing program with e-carsharing in low-income, rural communities. The ability to potentially reduce the current \$50 cost per one-way trip to \$5-\$12 per trip will significantly lower the cost of on-demand transit services in these rural communities. However, until the deployment of the project is up and running at full capacity and the anticipated results are documented, it is difficult to evaluate the effectiveness of this research at this time.

Reviewer 3:

The reviewer was not sure how this project advances rural e-carsharing services because the service existed prior to the project and a number of project tasks have yet to launch in a meaningful way.

Reviewer 4:

Based on progress to date and a lack of evidence of this model’s sustainability, it did not appear to the reviewer that the project has a high degree of likelihood of increasing fuel diversity or increasing transportation efficiency.

Reviewer 5:

It was unclear to the reviewer if the project will be able to recruit sufficient volunteers and what the degree of interest from the community in the project is so that sufficient drivers will utilize the platform. It is unclear as to whether the volunteer program will fill access gaps above the current programs. It is also unclear as to how the project will meet VTO objectives of advancing alternative fuels and increasing transportation efficiency.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

This reviewer reported that ridesharing and carsharing programs with EVs currently exist here, and those programs are generous and integral partners in the project. The project piggybacks on their efforts, as an assistive transport program for communities with limited access and options for transportation. The reviewer noted that this project will promote fuel diversity on a very small scale and, because of that, falls within the goals of VTO. However, the effort shines more as community assistance for those needing rides.

Reviewer 2:

The reviewer commented that use of DOE funding to identify activities that foster the adoption of energy-efficient mobility solutions is a critical strategy and activity to increase transportation system efficiency. Projects that serve as “living labs” are important to test new ideas, collect data, and inform research on energy-efficient transportation technologies and systems. Subsequently, it was hard for the reviewer to judge the merits of funding additional e-carsharing projects until this project has been completed to determine its effectiveness.

Reviewer 3:

The reviewer acknowledged that increasing awareness and providing access to EVs in low-income, rural communities are important. However, it was unclear what the overall program value is versus the program from which it is being built, what need it is filling, and what the actual interest in the community is to utilize it.

Reviewer 4:

It is possible that this project will yield a meaningful finding about the feasibility of providing volunteer drivers to existing rural EV carsharing services, but the reviewer opined that it is not yet far along enough to demonstrate those findings.

Reviewer 5:

Although the identified 50/50 cost share was satisfactory, this reviewer recommended that DOE should not fund similar projects in the future, particularly when additionality or impact is unclear.

Presentation Number: ti112
Presentation Title: The Clean Rural Shared Electric Mobility Project
Principal Investigator: Kelly Yearick (Forth)

Presenter

Kelly Yearick, Forth

Reviewer Sample Size

A total of five reviewers evaluated this project.

Project Relevance and Resources

40% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 60% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer remarked that the project objectives—developing and launching an EV carshare program, collecting and analyzing data, determining a model for financial sustainability and replicability, and disseminating learnings—supports the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 2:

The reviewer stated that the project has selected sites that will provide visibility of EV charging and could help to raise awareness of EVs, which have the potential to increase EV adoption in the community. It will install chargers on five sites in the community, including one in an area where tourists visit.

Reviewer 3:

The project is located in an area with low EV adoption and addresses limited access to EVs in this community along with the business case for carsharing services in rural areas. The reviewer commented that the goal is to develop a model for financially sustainable EV carsharing services in rural areas.

Reviewer 4:

The reviewer indicated that the project supports the VTO objective of increasing fuel diversity (in a measurable, but small amount) by launching an EV carshare program in areas that are underserved for AFV use and transportation options. Success of this effort could allow more transportation options to a diverse population.

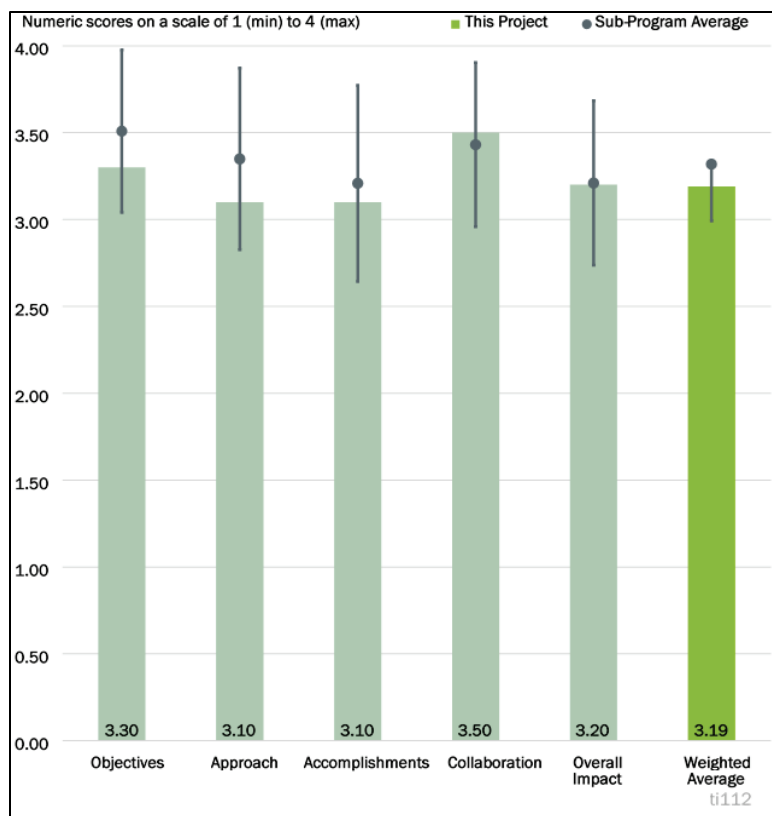


Figure 7-7 - Presentation Number: ti112 Presentation Title: The Clean Rural Shared Electric Mobility Project Principal Investigator: Kelly Yearick (Forth)

Reviewer 5:

This reviewer commented that the Project Objective and Overview slides describe the project’s specific objectives and barriers addressed, as well as how the project supports the DOE VTO objectives of increasing transportation efficiency. The project addresses several VTO TI goals, such as national security, economic growth, affordability for businesses and consumers, reliability, and resiliency through the development and deployment of an EV carshare service in a rural community (Hood River, Oregon). Project objectives appeared to the reviewer to be generally effective for the planned scope.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

This reviewer described the project as appearing to be well designed and well thought out. Community feedback has been incorporated and the team has worked to overcome obstacles and barriers. However, the reviewer expressed concern about the final objective of determining a financial model for sustainability and replicability because the charger and vehicle costs are not being factored in.

Reviewer 2:

The reviewer found that providing vehicles and charging to distinct user groups in a single project—tourists, low-income, and non-English speakers—and targeting the approach for each is quite remarkable. It will be interesting to see the extent to which this project can be replicated with Clean Cities coalitions in other areas of the country. The project is strongly aligned with the local community and has a focus on documenting lessons learned.

Reviewer 3:

The reviewer noted that the approach is well thought out and added that tasks are clear, to the point, and quite feasible. COVID-19 restrictions delayed the project, but it appears little needs to be changed on the timeline. The reviewer indicated that the presentation conveys steps that are easy to adjust to changes.

Reviewer 4:

This reviewer observed a generally well-designed project. A weakness is that the slow launch and challenges regarding EV charging station installation indicate that the project leads did not adequately plan a timeline and potential installation sites in a manner that permitted a timely demonstration launch.

Reviewer 5:

The reviewer commented that the Project Approach section provides a satisfactory methodology to accomplish the project objectives and supporting the integration of advanced transportation technologies and practices. The approach is divided by project periods, each containing relevant tasks and activities. Good detail is provided on the Milestone slides regarding the planned tasks and activities and progress to date. The presentation makes several references to the three distinct user groups but never defines them. Also, it was unclear to the reviewer if vehicle and charger costs are included in the project budgets and how these costs could affect replication efforts.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

The reviewer found good progress toward achieving project goals. The presentation highlighted progress related to site location selections and preparation, vehicle delivery, charging station installations, and initial

data collection. Project launch and data collection appear to be on track. No significant concerns have been identified.

Reviewer 2:

This reviewer reported that three out of five vehicles have been launched, and three out of five charging stations have been installed. Results and findings are limited at this time based on the recent launch of the program to the public at three of five sites. The presenter acknowledges some delays from the initial schedule due to COVID-19 restrictions; however, the project seemed to the reviewer to be on-track for gathering results in the coming months and following through on the described deliverables.

Reviewer 3:

The reviewer described project accomplishments as good and on track. Even given setbacks with COVID-19 restrictions, the team was able to install three of the five chargers. Finding site hosts can be a significant barrier, and the team has identified hosts for all sites. The reviewer reported that the tool has been developed and added that new capabilities in BP 2 are defined and will enhance value. The reviewer expressed concern about community interest, given the number of responses to a survey. Sometimes, community interest can grow by having a visible network and charging locations.

Reviewer 4:

The reviewer noted the project has had numerous accomplishments including at least one vehicle that is now available to the public. One significant weakness is the fact that only nine responses were received for the survey, representing a very inadequate sample size for this aspect of the research.

Reviewer 5:

The reviewer chose “Good” on Question 3 because of the COVID-19 delay. In fact, the progress made since Slide 6 (Milestones) was created—electric vehicle supply equipment (EVSE) installation—is impressive. It looks like milestones are being met quickly now that states are opening back up and people are moving about. The reviewer described the number of returns on the survey as disappointing and hoped that there will be more people completing the survey in the future.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer remarked that partners represent a broad cross-section of the community and were described as making “invaluable contributions” throughout the project. The PI appears to have done a good job of eliciting feedback and input from this team to inform all stages of the project. The presenter also did a thorough job of explaining the roles of key project team members with clear attention paid to assigning roles based on the strengths and capabilities of each partner.

Reviewer 2:

The reviewer commented that involvement of the key partners stands out in this presentation. Each partner appeared to be enthusiastic about bringing their assets, strengths, and services to this project.

Reviewer 3:

This reviewer observed that an effective project team of academia, community groups, public agencies, industry partners, and the local Clean Cities coalition has been assembled to carry out this project and provide an appropriate mix of expertise among team members. Collaboration and communication among project partners appeared to be appropriate for the project of this scope.

Reviewer 4:

Project collaboration appeared effective to this reviewer.

Reviewer 5:

Collaboration and partners are good; however, the reviewer suggested that the project may benefit from adding other community partners who are trusted within the community and could better reach the target audience.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer commented that the project has good potential to contribute to increasing transportation efficiency through the launch and demonstration of a financially sustainable, replicable model for EV carsharing in a rural community. The project will incorporate technological upgrades to remove barriers for low-income and non-English speaking community members by establishing alternate payment mechanisms and a Spanish version of the Envoy app.

Reviewer 2:

According to the reviewer, the project has a good opportunity to raise awareness about EVs within the community.

Reviewer 3:

The reviewer stated that there was no doubt that the project will contribute in the near future, particularly now that people are starting to move about. The level of impact on fuel diversity and transportation efficiency will not be great with just a few cars and neighborhoods. AFV champions will need to continue this project in the future, and projects like this will need to become popular nationwide to truly make a difference.

Reviewer 4:

The partnership with existing transportation options and the local government is a key element of project success. The reviewer indicated that data on the pricing strategies that are palatable to the community will be a key finding once it is ready; however, pricing strategies will need to be sensitive to local conditions for transportation costs in other areas of the country. This project has good potential, but its full impact is yet to be determined, pending finalization of results and its ability to be replicated.

Reviewer 5:

The reviewer indicated that the project impact may lie primarily in the thoughtful and thorough planning of best practice sharing and lessons learned distribution. Financial sustainability of the program appears questionable; the fact that charging station costs are not factored into the costs that need to be recovered by the financial model is particularly concerning.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

Funds appeared to be wisely used and well leveraged from this reviewer's perspective.

Reviewer 2:

The reviewer indicated that this project has the strong potential to develop a rural ridesharing model.

Reviewer 3:

Overall, the reviewer found this to be a well-designed, well-thought-out project. There could be some modifications to help increase participation and data collection. Regarding criteria for sustainability and replicability, one might want to consider what it means that cars and chargers were not included.

Reviewer 4:

The reviewer commented that use of DOE funding to identify activities that foster the adoption of energy-efficient mobility solutions is a critical strategy and activity to increase transportation system efficiency. Projects that serve as “living labs” are important to test new ideas, collect data, and inform research on energy-efficient transportation technologies and systems. Subsequently, it was hard for the reviewer to judge the merits of funding additional e-carsharing projects until this project has been completed to determine its effectiveness.

Reviewer 5:

The reviewer remarked that providing transportation options to lower income neighborhoods can also fall within the social services realm. Using AFVs for this service puts the project within the scope of VTO; the project still has the markings of a community and good neighbor effort.

Presentation Number: ti113
Presentation Title: Holistic and Energy-Efficient Rural County Mobility Platform (RAMP)
Principal Investigator: Sean Qian (Carnegie Mellon University)

Presenter

Sean Qian, Carnegie Mellon University

Reviewer Sample Size

A total of five reviewers evaluated this project.

Project Relevance and Resources

40% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 60% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The project objective of developing and demonstrating affordable, accessible, sustainable, and replicable mobility service in a rural area supports the DOE objective of increasing transportation efficiency.

Reviewer 2:

This reviewer reported that this project aims to demonstrate a mobility services platform for an economically disadvantaged rural community that could be broadly replicable for other similar counties nationwide. The reviewer noted that transportation services in the project area are insufficient, inefficient, unaffordable, and inaccessible, resulting in most trips occurring in single-occupant vehicles and over long distances. This is further complicated by a lack of broadband service in the area. The project is examining CNG shuttle service, which aligns with alternative fuel goals of the program.

Reviewer 3:

The reviewer found that this project is primarily focused on the DOE objective of increasing transportation efficiency by providing alternatives to current transportation services in a rural community. The approach includes the use of volunteer drivers and a shuttle service.

Reviewer 4:

Addressing the transportation and mobility needs in a rural environment falls within VTO objectives to increase transportation efficiency. This reviewer stated that this project, once completed, will provide a tool

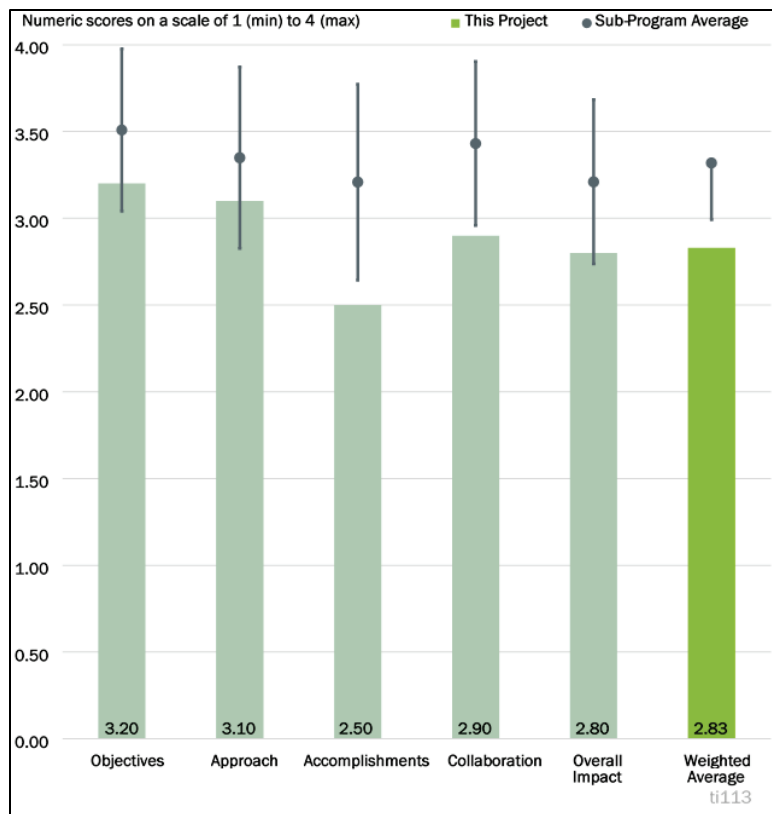


Figure 7-8 - Presentation Number: ti113 Presentation Title: Holistic and Energy-Efficient Rural County Mobility Platform (RAMP) Principal Investigator: Sean Qian (Carnegie Mellon University)

from which to plan and launch smart transportation services. Using natural gas shuttles will provide fuel diversity, which also falls within VTO objectives.

Reviewer 5:

The reviewer noted that the Project Objective and Overview slides describe the project’s specific objectives and barriers addressed, as well as how the project supports the DOE VTO objectives of increasing transportation efficiency. The project addresses several VTO TI goals, such as economic growth, affordability for business and consumers and reliability, and resiliency, through the development and demonstration of a mobility service in rural Greene County, Pennsylvania, which is supported by data collection, analysis, sharing, and public dissemination of results. Project objectives appeared to the reviewer to be generally effective for the planned scope.

Question 2: Project Approach to supporting the Integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer indicated that the project is focused on understanding the mobility needs of residents specific to their trips for food access, healthcare, work, and community services. The reviewer stated that the tasks focused on data collection are leveraging survey methods of an existing shuttle service at Waynesburg University (WU) and other existing datasets to generate a network model to assist in the analysis. The project leverages the volunteer culture of the community where many residents want to help their neighbors get where they need to go.

Reviewer 2:

The reviewer indicated that the project seemed well designed, though its feasibility will depend on the impending success of volunteer participation. Additionally, the project appears to be a novel concept for Greene County but it is unclear how novel the concept is nationwide.

Reviewer 3:

The reviewer found the project approach to be sound, and the overall objective for the transportation service leverages existing opportunities of volunteer drivers and a shuttle service into an integrated system designed to be more efficient than current operations.

The diagram on “Conceptual work flow for RAMP” on Slide 17 was extremely useful in understanding the concept as shown moving from “Day 1” to “Day 10.” The reviewer indicated that it may also be beneficial to show WU on the diagram to better understand how this critical component from WU fits into the concept.

As mentioned during the presentation, overcoming legal and liability issues for volunteer drivers using their own vehicles to transport people (instead of food) is going to be a key, non-technical challenge to the approach. The reviewer asked whether there are any examples that the PI can use from transportation network companies (TNC), such as Uber, Lyft, etc., to overcome this challenge.

Reviewer 4:

The reviewer remarked that collection of data and creation of systems and models in the approach is appropriate. Once more progress is made on the project (and surveys received), there will be a better understanding of what else is necessary in the development of the platform. That the project seeks also to create a phone-based system as well as an online platform for ridesharing and shuttle services, indicated to the reviewer that the team is looking closely at the unique needs of rural communities.

Reviewer 5:

The reviewer reported that presentation slides covering the Project Approach and Milestones only covered the activities associated with BP 1. It can be assumed the other budget periods were not covered due to lack of progress, but it was difficult for the reviewer to access the project approach, effectiveness, and progress without the information related to the entire project. Finally, while the presentation stated the current cost of the trips was \$26, the reviewer was unclear what the project is targeting for a reduced trip cost through this project implementation and when asked during the presentation, the PI did not have a specific answer on the target.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

The reviewer commented that the presenter outlined significant project impacts due to declining demand for transportation services during COVID-19 closures, which impacted the team's ability to design the system, particularly for access to community services that were not necessarily available during COVID-19 restrictions.

The project survey has been designed, and the volunteer program is largely established. The team focused on understanding existing volunteer pools versus starting from scratch. The reviewer commented that the community has an interesting network established to pair volunteers to move food across the community to various food bank locations. The translation of this food movement operation into one that can also move people is a very interesting concept. Working through training, background checks, and insurance requirements to make that shift will be a challenge for the team.

Reviewer 2:

The reviewer noted that the project saw delays due to COVID-19 closures. The team is working on milestones. BP 1 shows progress with development of the simulation model. BP 2 milestones were not presented. As universities open up and people start to move about, progress will be made.

Reviewer 3:

This reviewer stated that the project has made satisfactory progress toward accomplishments of objectives and goals; however, the project is still very early stage.

Reviewer 4:

As mentioned in the presentation, the reviewer did not see many accomplishments being made due to COVID-19 restrictions.

Reviewer 5:

This reviewer reported that minimal progress has been made toward achieving project goals due to delays associated with the COVID-19 pandemic and that only 5% of the project is complete. It was unclear to the reviewer why this project was included for presentation due to the lack of progress beyond initial surveys and modeling.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

This reviewer observed a strong collaboration among the technical team on the surveying, modeling, and simulation aspects of the project. The technical team is ultimately hoping to match supply and demand for

volunteer drivers and passengers through this project, which will require good collaboration and technical translation between this technical team and the community.

Reviewer 2:

The reviewer indicated that, so far, collaboration appeared to be going well with regular stakeholder meetings.

Reviewer 3:

Involvement of partners will soon ramp up with the country opening back up and universities back in session. The reviewer asserted that WU is a brilliant choice for this project as it can provide volunteer drivers, and as mentioned in the presentation, students also need shuttles to get around.

Reviewer 4:

The project team assembled appeared to the reviewer to provide an appropriate mix of expertise among team members, with academia, community organizations, local planning agency, a micro-transit provider, and the local Clean Cities coalition included. Team members appear to be qualified for this project work, and their working relationships appear to be appropriate for the project of this scope.

Reviewer 5:

The reviewer commented that the focus of effort to date demonstrates solid coordination regarding project research and analysis. Coordination success among the Project Principal Investigator (PI), municipal/community organization, and Waynesburg University during the implementation phase of work is to be determined.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

This reviewer reported that the project is very early in implementation and remarked that the overall project impact is highly dependent on success of the volunteer aspect of this program. According to the presenter, 412 Food Rescue has demonstrated successful volunteer operations in the past; so, likelihood seems favorable.

Reviewer 2:

The reviewer indicated that this project has the potential to have a high impact in the Greene County region. Its ability to be replicated may be predicated on the described strong “volunteer culture” of this particular location and their existing familiarity with the food distribution volunteer model.

Reviewer 3:

This reviewer commented that the contribution to date is hard to assess because the project was delayed and work started just 6 months ago, although the team is working on milestones and the presenter brought the audience up to speed. According to the reviewer, the platform has the potential to contribute markedly to the planning of shuttle, rideshare, and other transportation efficiency efforts.

Reviewer 4:

The reviewer noted that the project has the potential to contribute to increasing transportation efficiency by quantifying the benefits of system-level strategies to improve mobility and energy efficiency. However, until the project has progressed to point of demonstration, it was difficult for the reviewer to evaluate the effectiveness of this research at this time.

Reviewer 5:

This reviewer remarked that the project has made little impact so far due to the lack of accomplishments. Also, very little detail was provided in the presentation related to specific upcoming work. The reviewer suggested it would be good if the upcoming work areas that are presented were tied to project tasks and schedule.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer found this to be a very interesting project with good potential to improve rural mobility in this specific location.

Reviewer 2:

The reviewer affirmed that DOE funds are being leveraged and used wisely.

Reviewer 3:

The reviewer stated that the project's methodology and partner choice are thoughtful, and the potential for a successful tool and pilot here is good. The reviewer expected there will be much more to present on this project at the next Annual Merit Review (AMR).

Reviewer 4:

The reviewer indicated that it is too soon to tell as no significant budget has been spent to date. However, cost share appears to be good.

Reviewer 5:

The use of DOE funding to identify activities that foster the adoption of energy-efficient mobility solutions is an important strategy and activity to increase transportation system efficiency. Subsequently, it was hard for this reviewer to judge the merits of funding similar projects until this project has been completed to determine its effectiveness.

Presentation Number: ti114
Presentation Title: Rural Open Access Development Mobility Action Plan
Principal Investigator: Sarah Conley-Ballew (Rural Action, Inc.)

Presenter

Sarah Conley-Ballew, Rural Action, Inc.

Reviewer Sample Size

A total of five reviewers evaluated this project.

Project Relevance and Resources

40% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 60% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer asserted that the project definitely supports DOE VTO objectives and will provide good insights into barriers and opportunities in rural communities. The reviewer added that the project would increase awareness of EVs in the region and help promote economic development through increased access.

Reviewer 2:

This reviewer asserted that the project’s objective to develop and demonstrate an EV shuttle service in rural Ohio supports DOE objectives of increasing fuel diversity through alternative fuel use and increasing transportation efficiency.

Reviewer 3:

The reviewer reported that the project is focused on closing rural mobility gaps and addressing EV readiness in rural areas. The project team will be evaluating strategies for EV and autonomous (AV) rural transportation and collecting best practices along with assessing reliability and resiliency of these services.

Reviewer 4:

This reviewer commented that developing an “affordable, accessible, sustainable, and replicable” transportation option for rural America is directly in line with VTO objectives to increase transportation efficiency. The project includes EV shuttles and an AV portion (Tesla automated driving in rural conditions), which is in line with VTO fuel diversity objectives.

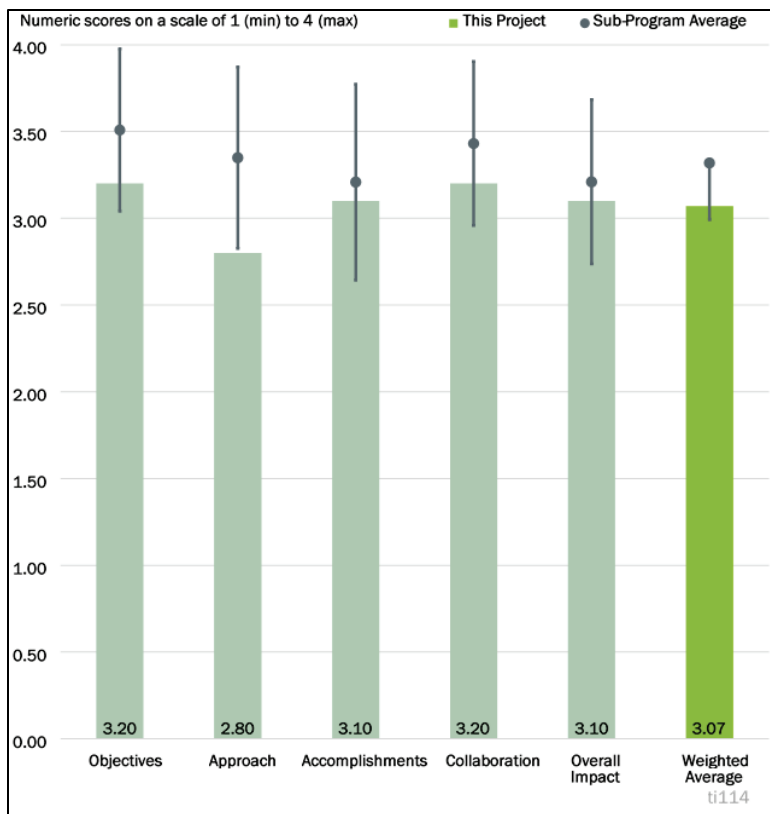


Figure 7-9 - Presentation Number: ti114 Presentation Title: Rural Open Access Development Mobility Action Plan Principal Investigator: Sarah Conley-Ballew (Rural Action, Inc.)

Reviewer 5:

The reviewer noted that the Project Objective and Overview slides describe the project’s specific objectives and barriers addressed, as well as how the project supports the DOE VTO objectives of increasing transportation efficiency. The project addresses several VTO TI goals, such as economic growth, affordability, reliability, and resiliency through the demonstration of EV and AV mobility service applications in rural environments (Appalachian Ohio) through qualitative and quantitative approaches. Project Objectives appeared to the reviewer to be generally effective for the planned scope.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer commented that the project is well defined and is making good progress. It was unclear to the reviewer how taxi and other fleets will be utilized and the information they will provide. The rural electrification study will provide good information for further electrification efforts in the area. One challenge is the uncertainty of whether EV and AV technologies are compatible with rural conditions, but this will provide good information for future project development.

Reviewer 2:

The reviewer stated that the project approach is divided into five tasks and three budget periods, with each budget period having a specific focus: project development, pilot demonstration, and data analysis and dissemination. While the first budget period is well on track, the second and third budget periods are behind schedule awaiting vehicle delivery. The full scope of the project was a bit unclear to the reviewer with respect to the multiple forms of transportation presented—the EV shuttle, the AV, the EV taxi/TNC pilot, etc.

Reviewer 3:

Although the project appeared feasible to this reviewer, deployment of the aftermarket retrofit electrified van has been delayed due to procurement issues. Testing a commercially-available Tesla vehicle on rural roads seems to be a novel activity for community/municipal organizations. The reviewer suggested that the value of data gathered from such testing to other rural communities should be identified in future reviews.

Reviewer 4:

The reviewer indicated that the project uses a simple and direct approach, tapping useful information from existing databases. Each budget period is clearly presented, and the approach is designed to easily be replicated in other rural areas. The reviewer noted that the AV portion of the project is not exactly in line with providing an EV shuttle to rural riders, but noted that the study will yield usable information.

Reviewer 5:

While the Approach and Milestone slides provided a list of planned tasks, activities, and progress to date, it was difficult for this reviewer to determine how the various pieces of this project come together. The exact role of the EV shuttle was unclear as was the purpose of using a Tesla for AV testing. The presenter made a reference to an EV taxi, but no details are provided.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

The reviewer reported that the project has made significant progress: the study is complete; the direct-current fast charger (DCFC) has been installed; a forum took place to gather stakeholders to discuss rural mobility

strategies; a shuttle vehicle has been purchased and being delivered; an AV test plan is in place; and the test run has been completed.

Reviewer 2:

The reviewer asserted that the draft report on EV penetration in rural Ohio is useful for understanding the types of vehicles being adopted in rural areas. The team hosted the first of three Appalachian Clean Transportation (ACT) Forums to engage with the target community and link them to subject matter experts. The public DCFC station has been installed and will have a dedicated charging port for the EV transit vehicle, which is still on order.

Reviewer 3:

This reviewer reported that satisfactory progress has been made toward achieving project goals. The project is 48% complete, and many of the BP 1 and BP 2 milestones and tasks have been completed, such as the installation of the DCFC and ordering of the EV shuttle, as well as starting the AV Test Plan and drafting of the Rural Electrification Report. The remaining work of BP 2 appears to be on track to finish on time. The reviewer identified no significant concerns.

Reviewer 4:

The reviewer noted that the project has made satisfactory progress in BP1/BP2, including installation of a DC fast charging station that will be used by the electric van shuttle.

Reviewer 5:

The reviewer noted that the project is on schedule (possibly ahead of schedule), and milestones were clearly presented for the three budget periods. The shuttle is due to arrive later this year and, if received when expected, will allow the project to continue as planned. To adequately measure the benefit of the EV shuttle pilot, the reviewer said that it will be necessary to estimate how many riders would have taken a gasoline- or diesel-powered vehicle if not for the shuttle (versus opting instead to walk or bike).

With respect to Slide 7, accomplishments indicate an ACT Forum presentation to be held this November, but the reviewer observed that the date may be incorrect as narrative indicates it already occurred (perhaps November 2020).

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer remarked that the project team has good representation from a variety of disciplines with project roles clearly delineated.

Reviewer 2:

This reviewer observed an effective project team of non-profits, community groups, public agencies, a national laboratory, and the local Clean Cities coalition has been assembled to carry out this project and provide an appropriate mix of expertise among team members. Team members are well suited to the project work, and their working relationships appeared to be appropriate for the project of this scope.

Reviewer 3:

This reviewer commented that collaboration between municipal and non-profit organizations appears to be solid within this project.

Reviewer 4:

The reviewer asserted that the partners' roles vary, with Clean Fuels Ohio, Rural Action, and the Ohio Department of Transportation (ODOT) doing most of the “heavy lifting”. The reviewer stressed that it is imperative that these partners, and Hocking-Athens-Perry Community Action (HAPCAP) and the City of Athens, continue their enthusiastic participation once the shuttle arrives and the pilot begins.

Reviewer 5:

There are good project partners and effective collaboration, according to the reviewer. The project could benefit from including a utility partner.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

Although not yet developed, the library of best practices being developed during this project—including the identification of bottlenecks for EV and AV adoption and fleet forums to increase the confidence of rural fleet managers to pursue these technologies—shows good promise. According to this reviewer, the final Rural Mobility Action Plan report, Playbook, and Technology Transfer Plan will be welcome additions to the toolbox for rural states in addressing these challenges.

Reviewer 2:

This project's structure is designed for ease of replication in other rural communities. The reviewer noted that the setting in which the shuttle will be operating is not unlike that in thousands of communities. If it is simple and successful, the initiative will be put forth elsewhere many times.

Reviewer 3:

The reviewer indicated that this is a great project that will provide significant insights on transportation electrification in rural America.

Reviewer 4:

The reviewer stated that the project has the potential to contribute to increasing transportation efficiency by quantifying the benefits of system-level strategies to improve mobility and energy efficiency. At this point, the progress to date has not delivered any measurable results. However, once the project work has been completed, the reviewer indicated that it will be a more appropriate time to evaluate the effectiveness of this research.

Reviewer 5:

The reviewer indicated that the project has not yet made impactful contributions to increasing fuel diversity through alternative fuel use and increasing transportation efficiency. It is not clear what aspects of this project are novel beyond commercially available technologies.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer was looking forward to seeing the final deliverables of this project as the reviewer believed they will have good replicability for other rural areas struggling with sustainable mobility options for residents.

Reviewer 2:

The reviewer affirmed that this is a good project. Funding similar projects in other areas could be beneficial.

Reviewer 3:

According to the reviewer, the shuttle pilot project is exciting and holds promise for other communities. Replication has the potential to remove mobility gaps in many small towns. The AV portion still seems like a bit of a “tack on” to this effort, but will also provide useful information.

Reviewer 4:

The reviewer noted that use of DOE funding to identify activities that foster the adoption of energy-efficient mobility solutions is an important strategy and activity to increase transportation system efficiency. Subsequently, it was hard for this reviewer to judge the merits of funding similar projects until this project has been completed to determine its effectiveness.

Reviewer 5:

Although DOE resources appear to be leveraged well, this reviewer stated that the project is too early in progress to provide recommendations on funding similar, future work.

Presentation Number: ti115
Presentation Title: Electric First/Last Mile On-Demand Shuttle Service for Rural Communities in Central Texas
Principal Investigator: Elizabeth Munger (Lone Star Clean Fuels Alliance)

Presenter

Elizabeth Munger, Lone Star Clean Fuels Alliance

Reviewer Sample Size

A total of four reviewers evaluated this project.

Project Relevance and Resources

25% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 75% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer remarked that the project objective of developing and demonstrating affordable, accessible, sustainable, and replaceable LSEV first/last mile (FLM) shuttle applications aligns with DOE objectives.

Reviewer 2:

The reviewer stated that the project utilizes low-speed electric vehicles (LSEVs) for on-demand, first- and last-mile transportation to address limited understanding of these vehicles, limited data on their usage, and identification of barriers to more widespread usage. The project team aims to gather quantitative and qualitative research and to identify and disseminate best practices.

Reviewer 3:

The project’s objective to “demonstrate and refine affordable, accessible, sustainable” transportation for first- and last-mile mobility needs falls directly under VTO’s goal of increasing transportation efficiency, according to this reviewer. That LSEVs are available for demonstration ties into VTO’s goal of fuel diversity.

Reviewer 4:

The reviewer remarked that Project Objective and Overview slides describe the project’s specific objectives and barriers addressed, as well as how the project supports the DOE VTO objectives of increasing fuel diversity through alternative fuel use and increasing transportation efficiency. The project addresses several VTO TI goals, such as national and energy security, economic growth, affordability for businesses and

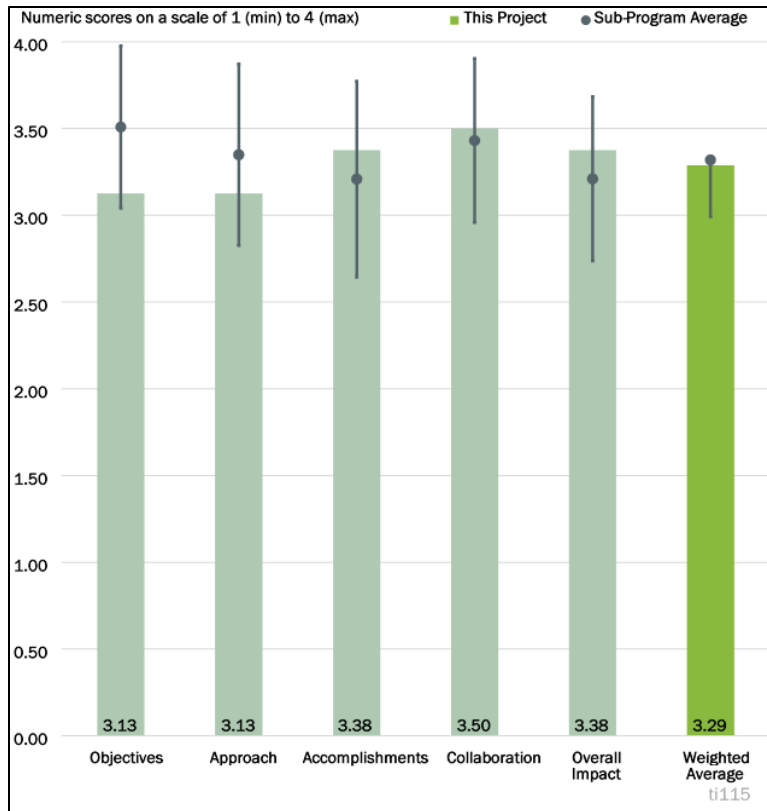


Figure 7-10 - Presentation Number: ti115 Presentation Title: Electric First/Last Mile On-Demand Shuttle Service for Rural Communities in Central Texas Principal Investigator: Elizabeth Munger (Lone Star Clean Fuels Alliance)

consumers, reliability, and resiliency through the demonstration of LSEV first- and last-mile shuttle applications for rural communities in Central Texas. Project Objectives appeared to the reviewer to be generally effective for the planned scope.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer asserted that the project approach is logical and supports stated goals. The reviewer noted that the team is leveraging existing datasets along with generating new data associated with users of the first- and last-mile service with data sharing happening in real time via the Livewire data platform.

Reviewer 2:

The reviewer found the approach to be simple and straightforward with all budget periods shown in the presentation. The project clearly outlines how data are collected and how the results will be disseminated.

Reviewer 3:

The Project Approach section provides a satisfactory methodology for accomplishing the project objectives and supporting the integration of advanced transportation technologies and practices. The reviewer indicated that the approach is divided by project periods, each containing relevant tasks and activities. The Milestone slide provides adequate detail regarding the planned tasks and progress to date.

Reviewer 4:

This reviewer observed a well-designed and clearly feasible project approach. One important missing element of the rider survey is that riders are not asked what their e-cab trip is replacing. Without this baseline data, it is inconceivable that the researchers could calculate fuel displaced by the e-cab, a metric that seems essential to this work.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

The reviewer observed that the project got off to a strong start with the ability to acquire vehicles and do community outreach prior to the pandemic. The project team provided nearly 800 rides to 955 passengers in the first four months of the project while taking into account COVID-19 social distancing protocols. Rides have increased since then. Data collection is already yielding some interesting findings after only a few months of service. The vehicles are highly visible in the community, and initial surveys suggest the community is developing a positive impression of this service along with larger concepts of EV and AV technology.

Reviewer 2:

This reviewer commented that—with the help of the acquisition of shuttles by Capital Area Rural Transportation System (CARTS), Bastrop’s local transportation provider—the LSEVs are currently providing transportation throughout the city’s center, allowing for project data to be gathered. The project is on time and the presentation provided the number of total trips to date and a map of route stops, which allowed the audience to see the progress. Provided the data show that riders would have used a gas or diesel vehicle for first- and last-mile transport and not walked or biked, the results will show this to be a more efficient transportation plan. The reviewer indicated that another benefit of this project is the addition of these shuttles to mobility options—another way to get around town—which can boost the local economy.

Reviewer 3:

Given 799 rides and 955 passengers in the first few months of operation, the reviewer asserted that this project's electric cab system has achieved considerable accomplishments.

Reviewer 4:

The reviewer observed good progress made toward achieving project goals. The presentation included five slides to highlight project progress, which included deployment of the eCab vehicle, service, and associated data collection along with user surveys. The remaining work of BP 2 appears to be on track to finish on time. The reviewer commented that no significant concerns have been identified.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer observed an effective project team assembled that provides an excellent mix of expertise among team members, with a rural transit agency, national laboratory, non-profit community group, and Clean Cities coalition partners involved. Team members are well suited for this project work, and their working relationships appear to be appropriate for a project of this scope.

Reviewer 2:

The reviewer reported that the project lead and four partners each hold key positions in this project. The reviewer also stated that all partners are enthusiastic participants and bring this program together.

Reviewer 3:

According to the reviewer, the project team is strong and appears to be collaborating well.

Reviewer 4:

Collaboration was identified by this reviewer as an essential part of this project's success, particularly collaboration with CARTS, the Rural Transportation System operating the LSEV within its existing network.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The dedicated partners, the simple and direct tasks, and the fact that the vehicles are currently in use allowed the reviewer to start seeing the project benefits. There is no doubt that the project will continue to provide useful information and a replicable formula in the months to come.

Reviewer 2:

The reviewer asserted that the project is generating excellent qualitative and quantitative data on a highly specialized service that should be valuable for informing how these vehicles can be successfully utilized elsewhere.

Reviewer 3:

This reviewer stated that the project is making good, quantifiable progress toward its objectives and has solid potential to contribute to increasing fuel diversity through alternative fuel use.

Reviewer 4:

The reviewer stated that the project has good potential to contribute to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency by building knowledge associated with the development and implementation of LSEVs first- and last-mile shuttle applications for rural communities.

However, until the project is closer to completion, it was difficult for the reviewer to determine the potential of deploying LSEVs for first- and last-mile service.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer indicated that the project has made excellent use of DOE resources to date and is a well-coordinated research and demonstration endeavor.

Reviewer 2:

The reviewer noted that this project is generating very useful data and sharing it widely for maximum impact.

Reviewer 3:

The reviewer found this project to be exciting and had no doubt that LSEVs will soon be in rural settings based on this program. LSEVs are now popping up in small communities that are near bigger cities, so the interest is already there. Future funding of similar projects would be appropriate but with this momentum, it will not be necessary for long.

Reviewer 4:

This reviewer indicated that using DOE funding to identify activities that foster the adoption of energy-efficient mobility solutions is a critical strategy and activity to increase transportation system efficiency. The reviewer stated that projects that serve as “living labs” are important to test new ideas, collect data, and inform research on energy-efficient transportation technologies and systems.

Presentation Number: ti116
Presentation Title: East Zion National Park Electric Vehicle Shuttle System
Principal Investigator: Tammie Bostick (Utah Clean Cities Coalition)

Presenter

Tammie Bostick, Utah Clean Cities Coalition

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer said that this is an important project for the following reasons: promoting consumer awareness and building support for the use of EVs among visitors to Zion National Park (ZNP); developing a relationship to promote the use of electric vehicles with the National Park Service (NPS); improving transportation efficiency and reducing vehicle emissions in ZNP; and encouraging the use of EVs in rural areas and destination points.

Reviewer 2:

This is a very visible project in a very popular and highly visited ZNP. The reviewer believed that currently a bus-shuttle system exists at Zion. The reviewer thought that it would be helpful to establish a baseline analysis for non-alternative fuel vehicles versus traditional-fueled buses. The objective could be to improve efficiency, emissions, capacity, customer experience, etc. Evaluating the performance of the vehicles in this difficult environment (steep grades, small tunnels, and four seasons) will make for very useful data for other demonstration and deployment efforts.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer reported that the project approach includes the assessing needs and barriers; developing a best strategies plan; mapping the system route and infrastructure for the shuttle; issuing the request for proposals

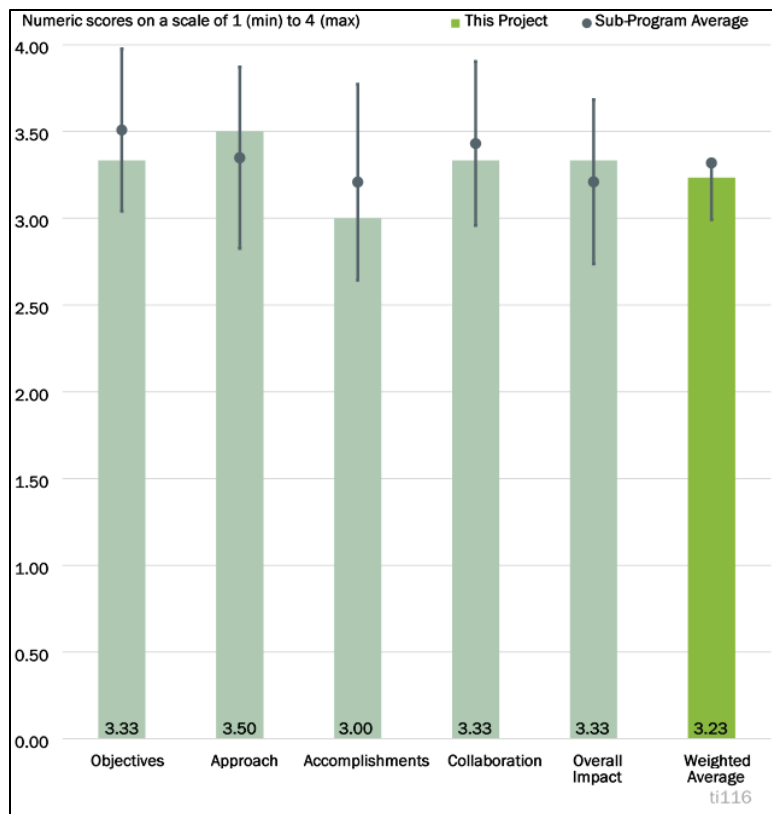


Figure 7-11 - Presentation Number: ti116 Presentation Title: East Zion National Park Electric Vehicle Shuttle System Principal Investigator: Tammie Bostick (Utah Clean Cities Coalition)

(RFP) for both the shuttle and infrastructure; developing shuttle stops; and fulfilling the project objectives via the actual demonstration. In addition, the reviewer commented that the full year of data collection as a result of the demonstration will lead to valuable information and “lessons learned” for other state and national parks looking to deploy electric shuttles/vehicles and associated infrastructure.

Reviewer 2:

As this reviewer previously stated, the project is very visible, well conceived, and should have substantial benefits in its geographical area. If the project requires a unique vehicle to handle the two-way tunnel challenge, it may not be scalable.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

Accomplishments and progress to date are impressive with the preliminary shuttle route mapped, the RFP distributed to vendors, and the Best Practices Strategy Plan completed. It appeared to the reviewer that work is well underway for this project, and milestones and deadlines will be met.

Reviewer 2:

Although accomplishments to date include procuring vehicles, planning routes, identifying barriers, and building Hubs, the reviewer wanted to know how the remaining barriers are being addressed.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer reported that various organizations involved in this project include representatives from the federal, state, and local perspectives. To date, the amount and degree of collaboration and coordination impressive. The involvement and participation of the National Association of State Energy Officials (NASEO) will help to give this project a national audience and will assist other state and national parks with similar efforts.

Reviewer 2:

Although many collaborators are listed, this reviewer noted that the process of collaboration was missing. The presentation mentions developing relationships and the importance of working with local, state, and regional governments. The reviewer asked whether there is a unique approach to doing this.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer suggested that the overall impact of this project will be substantial, especially in the area of replicability. If other state and national parks adopt this approach, it will reduce GHG and criteria air pollutants on a national scale. In addition, it will vastly improve the visitor experience and expose the public to EVs.

Reviewer 2:

This reviewer hoped that all the operational barriers can be eliminated and asserted that well-documented results and lessons learned will be useful for others.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer believed that this project is an excellent use of DOE government resources and will help to promote the use of EVs.

Reviewer 2:

The reviewer indicated that this project should have a large impact on the health of national parks and the visitor experience. If successful, the reviewer asserted that it can be scaled and replicated.

Presentation Number: ti117
Presentation Title: Electrifying Terminal Trucks in Unincentivized Markets
Principal Investigator: Kelly Gilbert (Metropolitan Energy Center)

Presenter

Kelly Gilbert, Metropolitan Energy Center

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

This reviewer explained that freight emissions are a significant source of overall transportation-related air pollution. This project is focused on the electrification of freight yard terminal trucks, which usually are located near underserved communities. The project addresses many of the DOE VTO objectives and barriers, including promotion of fuel diversity and increasing transportation efficiency. The reviewer stated that documenting the cost savings and “lessons learned” associated with the project will assist other communities interested in the electrification of terminal fleets.

Reviewer 2:

The reviewer said that the objectives are well aligned with VTO’s objectives of increasing fuel diversity through alternative fuel use.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer remarked that the application is very specific to demonstrate feasibility of electric freight yard terminal trucks. The approach is good in that it involves a large number of fleets having access to the demonstration trucks. Conducting workshops and demonstration surveys are very important.

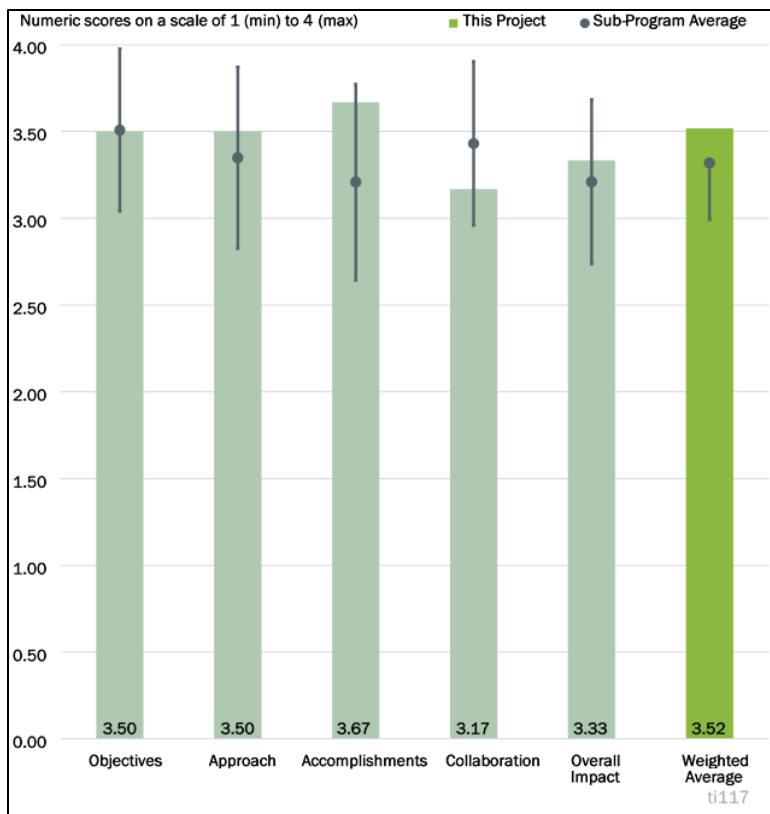


Figure 7-12 - Presentation Number: ti117 Presentation Title: Electrifying Terminal Trucks in Unincentivized Markets Principal Investigator: Kelly Gilbert (Metropolitan Energy Center)

Reviewer 2:

This reviewer commented that the project approach will help to achieve the project objectives. Further, the community outreach and data monitoring in FY 2021 will be key to ensuring success and helping to replicate the project in other areas of the country.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

The reviewer praised the accomplishment and progress as excellent. The demonstration vehicles are being deployed and evaluated. Some results are already being generated.

Reviewer 2:

Project accomplishments to date are on track and in some instances ahead of schedule. The reviewer noted that 100% of the subrecipient contracts have been executed, the data collection process has been initiated, and 100% of the vehicles have been procured. There is no reason to believe that this project will not meet the stated accomplishments on time.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

According to the reviewer, there is excellent collaboration and coordination. Use of roundtables and surveys keeps the project focused and moving forward rapidly.

Reviewer 2:

Although the collaboration is good, the reviewer would have liked to see more collaboration with state environmental, energy, and transportation agencies.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer noted that the overall impacts and outcomes of this project should be very useful because it covers nine states in different geographical areas with various climates and user experiences. Both surveys being used for company and driver input will yield some valuable information that could be used in other applications across the country.

Reviewer 2:

The reviewer asserted that this project should generate a lot of data and experience that can show the true benefit of alternative fuels in these fleet applications.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

It appeared to the reviewer that DOE funding is being used efficiently and effectively with a good match from locals.

Reviewer 2:

The reviewer observed a good project with broad participation.

Presentation Number: ti118
Presentation Title: Heavy Duty EV Demonstrations for Freight and Mobility Solutions
Principal Investigator: Megan Stein (Clean Fuels Ohio)

Presenter

Megan Stein, Clean Fuels Ohio

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

This reviewer remarked that one of the most critical issues surrounding the future of EVs is the electrification of medium-duty (MD) and heavy-duty (HD) vehicles, which is what this project addresses. The reviewer asserted that the deployment of MD and/or HD vehicles in fleets and proving the financial business case to fleet owners will address one of the largest gaps to the future of EV adoption.

Reviewer 2:

The reviewer noted that the project objectives support VTO objectives of increasing fuel diversity through the use of alternative fuels in a number of MD/HD truck applications.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer observed an excellent approach to obtaining and deploying information.

Reviewer 2:

The project approach appeared to the reviewer to meet the objectives and address barriers. The collection of data and development of a model will yield valuable information for use across the country. Utilizing the Clean Cities coalitions to connect fleet partners is a very good approach and will help to speed replication.

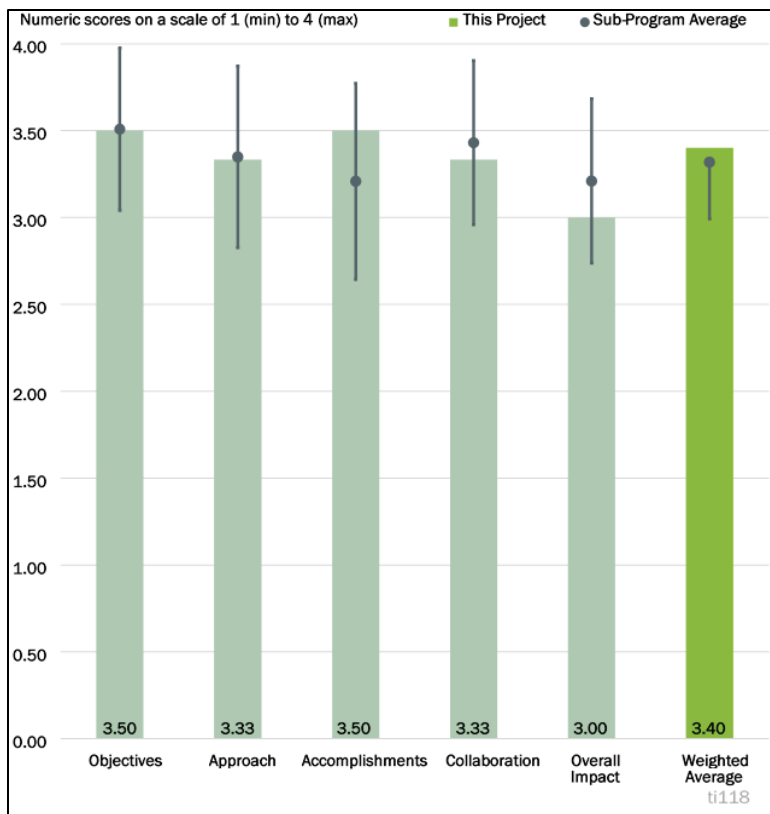


Figure 7-13 - Presentation Number: ti118 Presentation Title: Heavy Duty EV Demonstrations for Freight and Mobility Solutions Principal Investigator: Megan Stein (Clean Fuels Ohio)

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

This reviewer described project accomplishments and progress to date on this effort as impressive. The majority of milestones have been achieved, and the others are in progress. It appeared to the reviewer that this project is now in the data collection and model development phase with all vehicles having been deployed and in operation.

Reviewer 2:

Although the project has been affected by COVID-19 restrictions, the reviewer said that it is still making good progress and the progress is well documented. Getting upfront commitment for data from original use manufacturers (OEMs) is very smart.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

According to the reviewer, the presentation shows specific roles and data responsibilities for various collaborators.

Reviewer 2:

The collaboration with private industry, OEMs, and other Clean Cities coalitions is important. However, the reviewer opined that it would be beneficial to have some state and local partners involved as well as state transportation, energy, and environmental agencies.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The project is very well organized as it moves toward data collection and analysis. The reviewer expected to see good results next year.

Reviewer 2:

The reviewer stated that the overall impact of this project should address the stated barriers and improve data collection and modeling for the electrification of MD/HD vehicles.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

It appeared to the reviewer that this project is a very good use of DOE resources and will result in valuable information, which can be shared with other Clean Cities coalitions and stakeholders across the country.

Reviewer 2:

The reviewer's expectation was that good value will be delivered next year.

Presentation Number: ti119
Presentation Title: Electric Vehicle Widescale Analysis for Tomorrow's Transportation Solutions
Principal Investigator: Brian Roy (Akimeka, LLC)

Presenter

Brian Roy, Akimeka, LLC

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

According to the reviewer, the project seeks to establish a national database of EV and EVSE performance data to answer critical questions about how EVs and EVSE are being used in the real world.

Reviewer 2:

This reviewer indicated that the Project Objective and Overview slides describe the project’s specific objectives and barriers addressed, as well as how the project supports the DOE VTO objectives of increasing transportation efficiency. The project addresses several VTO TI goals, such as national security, economic growth, affordability for businesses and consumers, reliability, and resiliency by collecting and analyzing real-world use data from 1,600 plug-in electric vehicles (PEVs) and 10,000 EVSE to support research at the DOE labs and other institutions. Project objectives also appeared to be generally effective for the planned scope.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer commented that the project approach section provides an effective methodology to accomplishing the project objectives and supporting the integration of advanced transportation technologies and practices. The project approach involves securing data partners, collecting raw data, transferring dataset quarterly to DOE labs, sharing summary results through an online interactive dashboard, and posting the

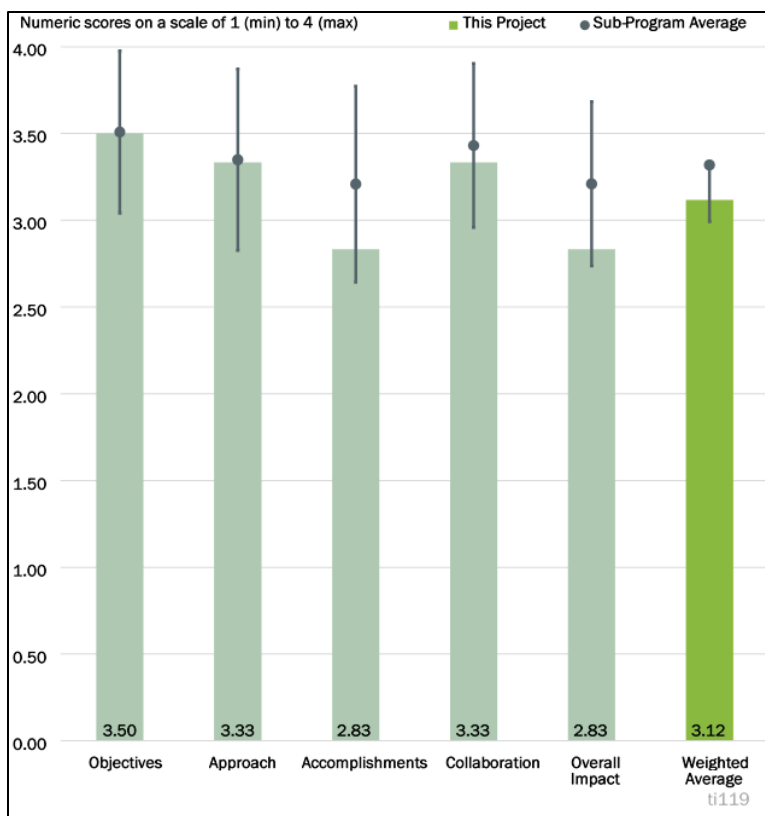


Figure 7-14 - Presentation Number: ti119 Presentation Title: Electric Vehicle Widescale Analysis for Tomorrow's Transportation Solutions Principal Investigator: Brian Roy (Akimeka, LLC)

dataset at the end of the project. The reviewer asserted that excellent detail is provided on the Approach and Milestone slides with regard to the planned tasks and activities and progress to date.

Reviewer 2:

The reviewer described the project approach as comprehensive and well structured. The presenter did a great job of explaining all phases of the project and how various partners are working together to achieve the project objectives. The reviewer also appreciated the inclusion of a project advisory committee.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

This reviewer reported that good progress has been made toward achieving project goals. The project has almost met its goal of collecting data from 10,000 EVSE; however, due to the pandemic, the project team is behind on its goal of including data from 76 PEVs. The presentation included five detailed slides to highlight the project progress. The remaining work of BPs 2 and 3 appeared to the reviewer to be on track to finish on time. No significant concerns have been identified.

Reviewer 2:

The reviewer indicated that the project is somewhat behind schedule regarding collection of certain data types due to COVID-19 restrictions; however, the combination of executed agreements plus leads for future agreements appear to put the project back on track for achieving the final milestones.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer found that the project team is well structured and includes a good variety of diverse stakeholders. The collaboration with the CALSTART award in this same category is such that Akimeka is collecting light-duty data and CALSTART is collecting MD/HD data is significant and prevents duplication of effort. It is great to hear that the projects are actively collaborating to prevent inundating fleets with data requests and creating competing databases.

Reviewer 2:

This reviewer noted an effective project team assembled that provides an excellent mix of expertise among team members, with a charging network provider, national laboratories, industry advocacy organizations, and numerous Clean Cities coalition partners involved. Team members are well suited for this project work, and their working relationships appeared to be appropriate for a project of this scope.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

This reviewer noted that the presentation was largely focused on the nuts and bolts of project initiation and data collection. However, impact of the seemingly mundane work of putting information into a database is tremendous for what that database will enable—namely, understanding real-world use and performance in this market to influence future decisions, designs, and policies that enable long-term success of the EV market.

Reviewer 2:

The reviewer remarked that the project has good potential to contribute to the following: increasing fuel diversity through alternative fuel use; and increasing transportation efficiency by collecting data on real-world operations of EVs and charging infrastructure to support research at DOE and other institutions. The reviewer noted that the lack of a national database of EVs and EVSEs has been a barrier to the electrification of the transportation system. The data collected in this project will inform decision makers, both from the private and public sectors, on the various strategies and priorities needed to deploy these technologies in an efficient and cost-effective manner.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer stated that this is an excellent project and a great use of the convening power of Clean Cities combined with the technical capabilities of the national laboratories to create insightful information that advances an alternative fuel market.

Reviewer 2:

The reviewer acknowledged that the use of DOE funding to collect, validate, and collate real-world use data and datasets from PEVs and EVSE to inform future research and deployment planning is appropriate. The data collected in this project will inform decision makers, both from the private and public sectors, on the various strategies and priorities needed to deploy these technologies in an efficient and cost-effective manner to assist in the market transformation needed to electrify our transportation sector.

Presentation Number: ti120
Presentation Title: Mid-Atlantic Electric School Bus Experience Project
Principal Investigator: Alleyn Harned (Virginia Clean Cities at James Madison University)

Presenter

Alleyn Harned, Virginia Clean Cities at James Madison University

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer said that the project supports DOE objectives in alternative fuels by educating school districts on electric school buses (ESBs), establishing ESB deployments, and communicating lessons learned from ESB deployments.

Reviewer 2:

This project is engaging in a multistate effort to get buses and educational tools out to users in regional demonstrations and deployments, document and analyze ESB deployment lessons learned, and distribute lessons learned to benefit future regional and national deployments. The reviewer asserted that this is an ambitious project in execution but narrowly and properly focused on one important area of alternative fuel adoption.

Reviewer 3:

The reviewer commented that the Project Objective and Overview slides describe the project’s specific objectives and barriers addressed, as well as how the project supports the DOE VTO objectives of increasing transportation efficiency. The project addresses several VTO TI goals, such as national energy security, economic growth, affordability for businesses, reliability, and resiliency by providing school districts in three states an opportunity to arrange an ESB demonstration in various school districts. Project objectives appeared to be generally effective for the planned scope.

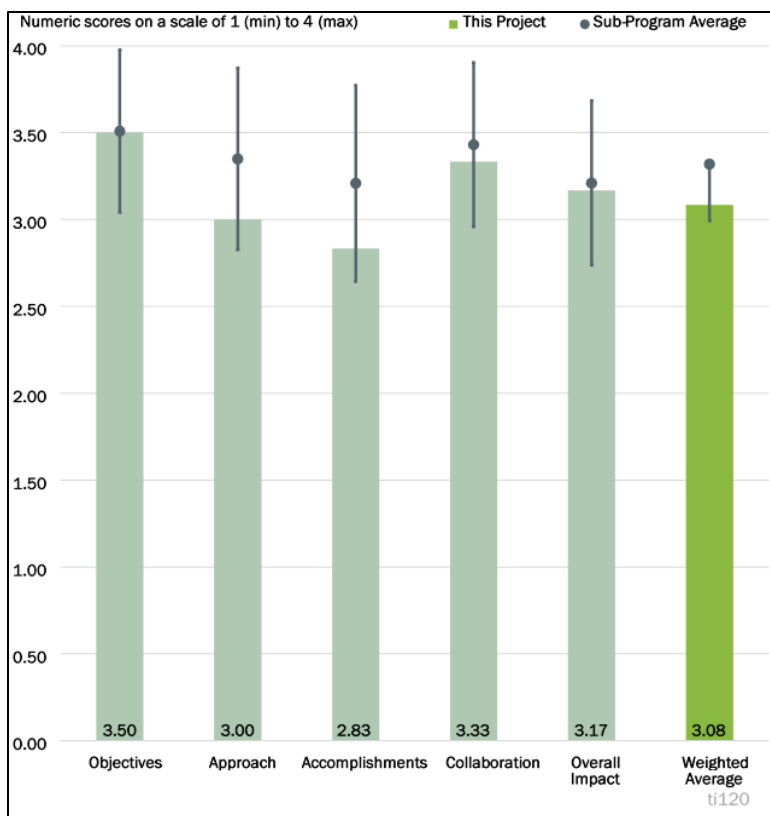


Figure 7-15 - Presentation Number: ti120 Presentation Title: Mid-Atlantic Electric School Bus Experience Project Principal Investigator: Alleyn Harned (Virginia Clean Cities at James Madison University)

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

This reviewer explained that seeing is believing and that showcasing the many benefits of ESBs through real-world, onsite demonstrations is a solid way to increase the adoption and use of this technology.

Reviewer 2:

The project approach appeared to be straightforward and good to this reviewer.

Reviewer 3:

The reviewer noted that the project presentation slide covering the project approach and milestones provided very little detail or documented progress. It can be assumed that the lack of progress is due to delays associated with the pandemic, but the reviewer remarked that a revised timeline and milestones should have been included to assess the new schedule.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

Despite tremendous barriers posed by COVID-19 restrictions, not least of which was the disruption of in-person schooling, the reviewer asserted that this project has accomplished a tremendous amount. Switching to virtual training through online webinars during the pandemic was a nimble adaptation and holding five real-world ride-and-drive demonstration events during this time is no small accomplishment.

Reviewer 2:

The reviewer commented that the project has been delayed due to COVID-19 restrictions, but progress is now being made. The team has held several demonstration events, web events, and webinars. Virginia is now committed to 100 vehicles, and Dominion Power is offering free fast charging and fast chargers for school districts participating in the project.

Reviewer 3:

This reviewer remarked that slow progress has been made toward achieving project goals, due to delays associated with COVID-19 restrictions. The project presentation does not contain any information related to how much funding has been spent to date. While the Project Accomplishments slide does indicate that some progress has been made, it was difficult for the reviewer to judge the progress to date without any milestones or schedule provided. Additionally, project goals (e.g., how many ESB demonstrations are being targeted) are not provided; so, once again, it was hard for this reviewer to determine progress.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer indicated that collaboration and coordination is strong with 36 virtual team meetings having been held along with successful engagement with stakeholders and partners.

Reviewer 2:

This reviewer reported that the project team assembled appears to provide an appropriate mix of expertise among team members, with school bus OEMs, utilities, transportation advocacy groups, and Clean Cities

coalitions included. Team members are well suited for this project work, and their working relationships appeared to be appropriate for a project of this scope.

Reviewer 3:

The project held 36 virtual team and stakeholder meetings and participated in four ESB Manufacturer Open House web events during the pandemic, keeping project partners engaged throughout and allowing significant progress to be made. The reviewer commented that the project assembled a broad group of partners on both the supplier and user side of the ESB market, allowing the expertise of each to contribute to reaching project goals.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

Especially considering the significant barriers imposed by the pandemic, the reviewer indicated that this project has accomplished a great deal and should end up having a tremendous impact on the adoption and use of ESBs in the region. The District of Columbia and four states have already announced ESB programs, at least partially as a result of this project.

Reviewer 2:

The project has already contributed to making an impact through the demonstrations and outreach events. According to the reviewer, the presentation did not really provide many specifics with respect to future planned research work.

Reviewer 3:

The project has good potential to contribute to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency by offering pilot demonstrations of ESBs in various school districts in Virginia, Maryland, and Pennsylvania. At this point, until the deployment of the project is up and running at full capacity and the anticipated results are documented, it was difficult for the reviewer to evaluate the effectiveness of this project at this time.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

According to the reviewer, this project represents an excellent use of DOE resources. The project has accomplished much already and has the potential for tremendous impact on the adoption and use of ESBs throughout the region by direct action and across the country by example.

Reviewer 2:

The reviewer affirmed that the resources are being used wisely and similar projects would assist in promoting ESB use across the country.

Reviewer 3:

This reviewer indicated that using DOE funding to demonstrate ESB deployment is an appropriate use of federal funds. As more school districts are moving toward the deployment of electric buses (either through mandates or by choice), it will be critical to incorporate strategies and approaches that will facilitate the transition of the fleet turnover of these buses from diesel to electric.

Presentation Number: ti121
Presentation Title: Medium and Heavy-Duty Electric Vehicle Deployment's Data Collection
Principal Investigator: Jasna Tomic (Calstart, Inc.)

Presenter

Jasna Tomic, Calstart, Inc.

Reviewer Sample Size

A total of two reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

According to the reviewer, the project seeks to address the lack of data on MD/HD EV deployments and to understand the utility and grid impacts of charging for this sector. Upon completion of this project, the database will be useful in identifying and eventually addressing barriers to EV adoption in the MD/HD sector.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer asserted that this project is appropriately scoped and structured. The three project phases to establish the framework, implement data collection, and analyze, share, and report on the collected data makes sense. The PI did a thorough job of planning for the project. The reviewer explained that the ability to get a wide variety of MD/HD vehicles from diverse geographic areas included in the database will be very challenging, especially getting a statistically significant sample in order to draw sound conclusions. Additionally, the national laboratory advisory group was a strong contributor in early phases of the project.

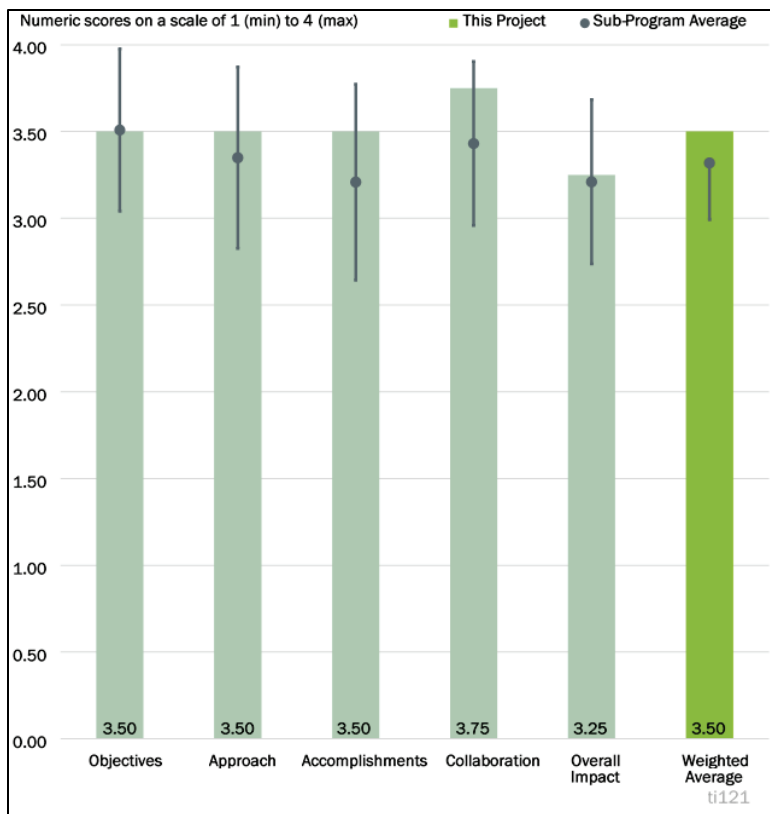


Figure 7-16 - Presentation Number: ti121 Presentation Title: Medium and Heavy-Duty Electric Vehicle Deployment's Data Collection Principal Investigator: Jasna Tomic (Calstart, Inc.)

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

The project accomplishments through BP 1 were very strong with a large number of fleets agreeing to contribute data. The structure of the data collection platform itself, along with the data parameters being collected, is also strong. The quantity of data being added to the platform in BP 2 is not as strong; however, the pipeline of additional fleets considering participation plus the involvement of Clean Cities coalitions to assist with fleet outreach should help increase data collection numbers going forward. The presenter noted some challenges the team has been addressing regarding fleet participation, and a continued steady yet flexible approach to continue bringing on new fleets seemed prudent to this reviewer.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

This reviewer stated that project roles are well defined and appropriate, and that the PI has done an excellent job of structuring and advancing the overall project. Participation from the national laboratories has helped to refine which data are collected and how they will be shared broadly with the research community. Participation from Clean Cities has helped the project team achieve additional diversification of data within its database, and the reviewer suggested that the PI should continue to leverage those relationships to grow the database.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer noted that the ability to collect statistically significant numbers of vehicles from diverse geographic areas is a huge challenge for the project team. While collecting any data (and clean, usable data) is better than collecting no data, the team will need to continue to vigorously pursue additional fleet participation for this to be as impactful as the complimentary light-duty database being developed by Akimeka. The ability to collect clean and relevant data is also important, but quantity will also be highly valuable.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

This reviewer observed an interesting project that bridges research, national laboratory expertise, and the reach of Clean Cities coalitions. No single entity would be able to do this project on its own, and the reviewer saw this as a model for how DOE should aim to collect research data on AFV deployments going forward.

Presentation Number: ti122
Presentation Title: Supporting Electric Vehicle Infrastructure Deployment Along Rural Corridors in the Intermountain West
Principal Investigator: Tammie Bostick (Utah Clean Cities)

Presenter

Tammie Bostick, Utah Clean Cities

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer commented that the project supports DOE VTO objectives of increasing fuel diversity through alternative fuel use and increasing transportation efficiency. This project addresses a big barrier for EVSE installation for states in the Intermountain West, mainly the problem of covering a substantial amount of Interstate and corridor mileage with EV infrastructure every 50 miles. The reviewer described use of off-grid solar and FreeWire technologies as an innovative solution for installing EVSE in areas where there is little or no electricity. Overcoming this barrier will determine the success of this project in building regional and cross border EV corridors in the Intermountain West.

Reviewer 2:

According to the reviewer, the effort meets many DOE VTO objectives and will help establish EV fueling along rural corridors by providing EV customers with confidence when traveling. The reviewer added that having some of the locations in high visibility areas will help to raise EV awareness. The report on demand charges will be valuable for addressing a key barrier for station economics.

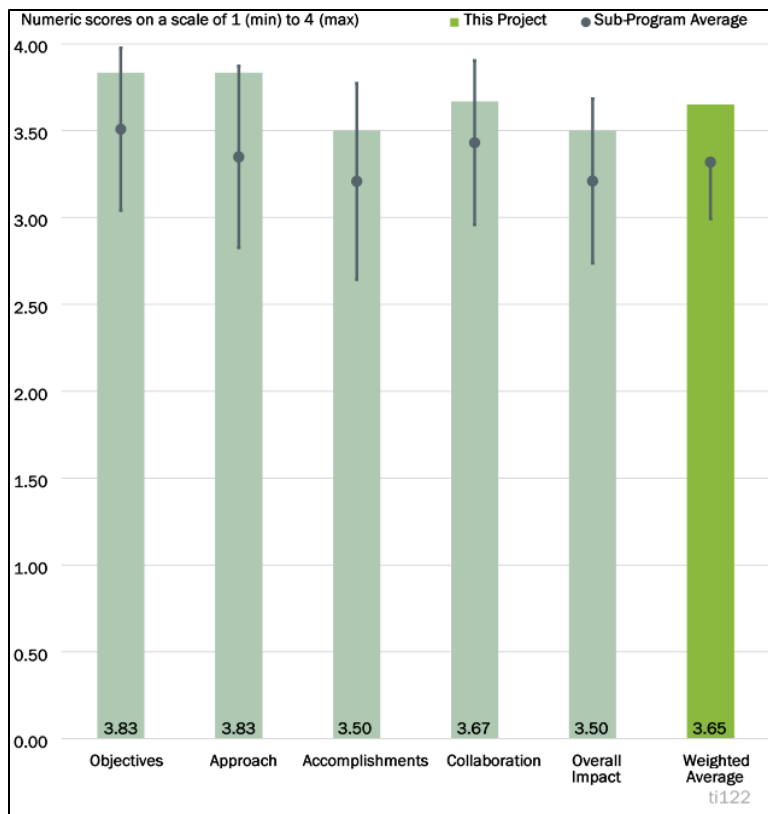


Figure 7-17 - Presentation Number: ti122 Presentation Title: Supporting Electric Vehicle Infrastructure Deployment Along Rural Corridors in the Intermountain West Principal Investigator: Tammie Bostick (Utah Clean Cities)

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer said that the team has a well-defined and effective approach, beginning with a needs assessment and engaging with utilities across the region to address barriers. Planned future work is significant and attainable given the timeframe and funding levels.

Reviewer 2:

The approach supports the objectives and supports and compliments the Regional Electric Vehicle West effort being led by NASEO. In addition, the reviewer noted that the rural focus of this project is extremely timely with the priorities of the Biden Administration and will provide valuable information, lessons learned, and insight to other rural areas around the country looking for assistance with the installation of EVSE facilities.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

Significant project progress has been made from this reviewer’s perspective. Collaboration among partners is strong, and the team is leveraging the partnerships to develop resources and promote awareness of work products. Engaging utilities early in the project was essential, according to the reviewer, and has proven beneficial to developing new solutions and reducing barriers.

Reviewer 2:

The reviewer commented that EV corridors that have been established in both Utah and Nevada indicate a very good start to connecting other corridors in the Intermountain West. The team has developed a website, branding assessment, and educational materials to raise awareness and for use by stakeholders. Accomplishments to date and planned activities demonstrate effective progress toward meeting overall goals and objectives. In addition, this project is informing the development of an EV rural toolkit as part of the U.S. Department of Transportation (DOT) Rural Opportunities to Use Transportation for Economic Success (ROUTES) Program.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer commented that there is great collaboration and coordination on this project. There are 75 partners involved, which will provide a wide range of support for the project. In addition, support from national organizations like NASEO and regional organization like the Western Governors’ Association, will help to convey findings and outcomes to a wide audience of stakeholders throughout the country.

Reviewer 2:

This reviewer noted that the project put together a great team with key partners. The reviewer had been worried that utilities were not listed in the partner list, but the PI explained their involvement, which seems appropriate. Hopefully, the team can further leverage the utilities to help promote awareness and disseminate results. The reviewer suggested that another key partner that the team should work with is National Rural Electric Cooperative Association (NRECA), as they will be essential for further raising awareness of successes and lessons learned. NRECA could also provide introductions to statewide electric cooperative associations, specifically the North Carolina Electric Membership Corporation (NCEMC). NCEMC is working with North

Carolina electric cooperatives on EVs and is finding it challenging. Collaboration with the PI and the project team could prove beneficial and would further leverage federal funding dollars.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer found that the overall impact of this project is significant, which will help to overcome barriers being experienced by other states interested in deploying EV infrastructure. The information, lessons learned, and knowledge gained from this project will help other states interested in establishing EV corridors and connecting corridors across state boundaries. Overall, the project will help to encourage EV infrastructure deployment and in turn the uptick of EVs in the country.

Reviewer 2:

This is a great project, according to the reviewer, who hoped that the team will work with NRECA and other electric cooperative associations to further disseminate information. It also might be beneficial if the team worked with other state coalitions (e.g., Florida) and corridor efforts (Electric Highway Coalition).

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

It appeared to this reviewer that DOE resources are being leveraged and used wisely and efficiently in this project. The reviewer encouraged DOE to fund other projects like this one, especially when the project addresses a specific barrier to EV adoption and/or the deployment of EV infrastructure.

Reviewer 2:

The reviewer affirmed that there is good use of funding.

Presentation Number: ti123
Presentation Title: Decentralized Mobility Ecosystem: Market Solutions for 21st Century Electrified Mobility
Principal Investigator: Megan Stein (Clean Fuels Ohio)

Presenter

Megan Stein, Clean Fuels Ohio

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The reviewer stated that the project supports the DOE objective of fuel diversity by locating, installing, and assessing the use of three EV mobility hubs in central Ohio.

Reviewer 2:

The reviewer found the project to be very well aligned with VTO objectives of increasing fuel diversity through the use of EVs in the greater Columbus area.

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The approach is a well-thought-out plan that addresses acquisition, vehicle deployment, ordering, hub deployment, and data analytics. The reviewer noted that the project focuses on existing stakeholders, transportation service fleets, and major parking providers.

Reviewer 2:

The reviewer observed a strong approach using data-driven methods to identify appropriate locations for EV charging hubs. The approach currently does not include an investigation into alternative business models for EV hub sustainability (e.g., the fee and/or pricing structure for users of the hub). The reviewer asked whether this is something that can be included into future work.

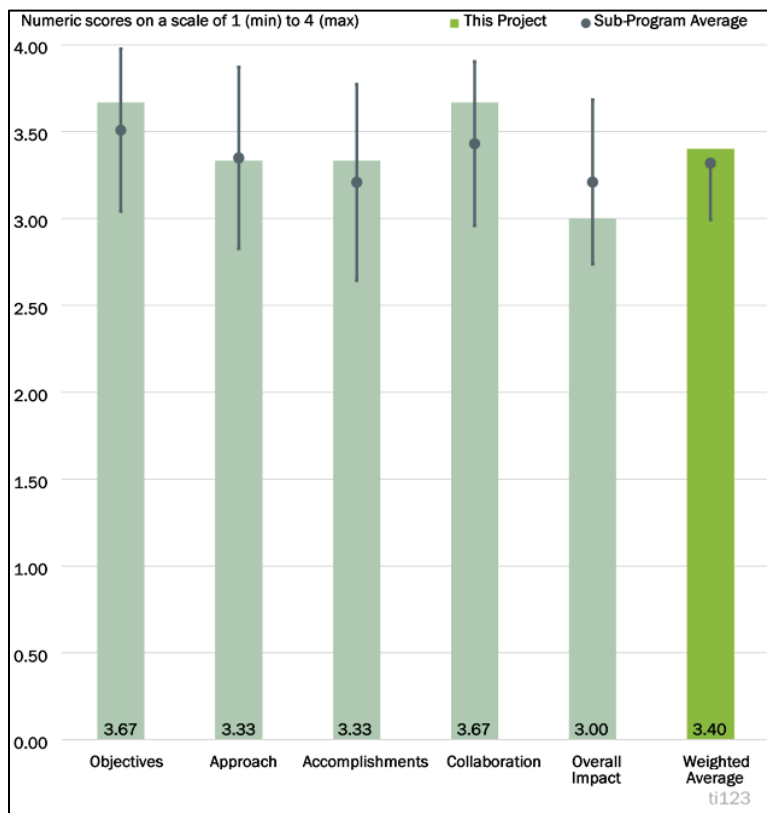


Figure 7-18 - Presentation Number: ti123 Presentation Title: Decentralized Mobility Ecosystem: Market Solutions for 21st Century Electrified Mobility Principal Investigator: Megan Stein (Clean Fuels Ohio)

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

Overall, the reviewer indicated that the project seems to have made good progress with all BP 1 milestones achieved and BP 2 milestones in progress. Development of the mobility hub geospatial planning tool is an achievement that could have application to other locations that are analyzing the best locations for EV mobility hubs.

Reviewer 2:

The reviewer remarked that the deployment of EVs and EVSE is well underway, the Project Advisory Committee is in place and meeting, and the geospatial planning tool has been developed and demonstrated.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

This reviewer remarked that the team appeared to be working well together. In addition to the team members, a Project Advisory Committee has been established and is meeting on a quarterly basis.

Reviewer 2:

The reviewer noted excellent collaboration between Columbus Yellow Cab (CYC), Mobikit, and the City of Columbus. Clean Cities coalition Replication Partners are very important for broadened deployment.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

According to the reviewer, the team is making good progress with CYC.

Reviewer 2:

This reviewer stated that the project has already made an impact through the development of the EV mobility hub location tool and the deployment of one EV mobility hub at the Yellow Cab location. The planned future research seemed reasonable to the reviewer. However, there does not seem to be any type of assessment or evaluation of the effectiveness of the mobility hubs, including the hub location tool and the reservation system. As mentioned previously, there also does not appear to be any development of business plans for mobility hub sustainability or pricing models.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer indicated that the project would provide significant information for other cities.

Reviewer 2:

The reviewer affirmed that DOE resources are being used wisely. Similar projects are appropriate but should continue to explore mobility hubs that serve a variety of populations, such as commercial fleets, campuses, rest stops, shopping locations, attractions, etc.

Presentation Number: ti124
Presentation Title: Developing an Electrified Vehicle Demonstration Testbed in the Upper Cumberland Region of Tennessee, an Economy Distressed Rural Region
Principal Investigator: Pinggen Chen (Tennessee Tech University)

Presenter

Pinggen Chen, Tennessee Tech University

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The 2-week test drive of the EVs and hybrid-electric vehicles allows for a real-life experience, and the reviewer indicated that such a trial is what will move the needle toward EV adoption. The data gathered will provide a clearer view of EV operation and use in a rural setting. Both are in line with VTO objectives of increasing fuel diversity and transportation efficiency.

Reviewer 2:

The reviewer commented that the project supports DOE objectives and directly addresses barriers related to EV adoption in rural communities. The project is exposing rural communities to EV and allowing individuals to use an EV as their personal vehicle for a 2-week period. The project is also conducting outreach within the community.

Reviewer 3:

According to the reviewer, the project directly supports VTO objectives to increase fuel diversity through the use of alternative fuels and increasing transportation efficiency in rural areas.

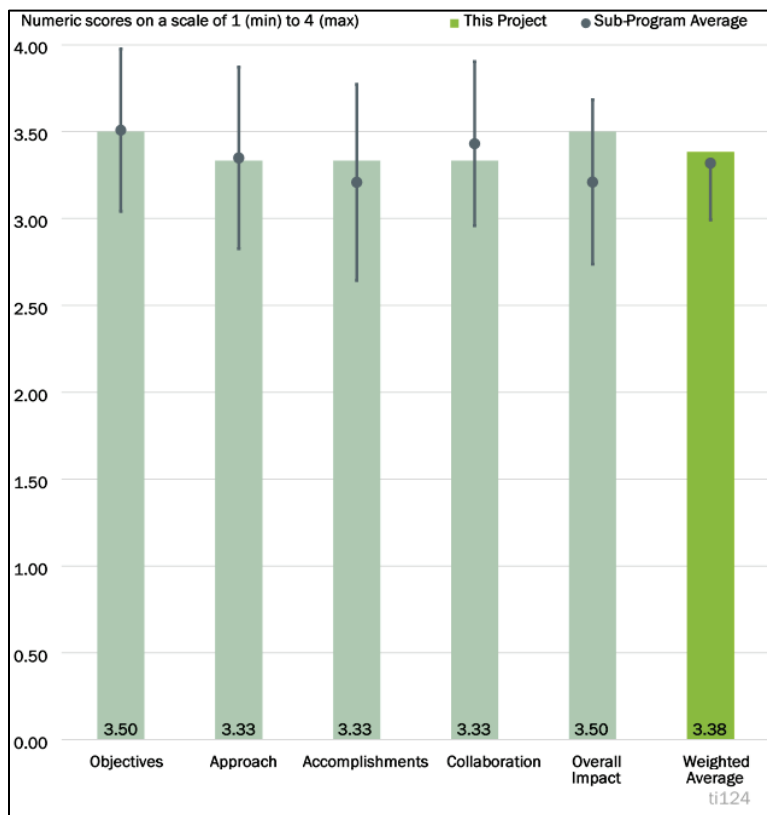


Figure 7-19 - Presentation Number: ti124 Presentation Title: Developing an Electrified Vehicle Demonstration Testbed in the Upper Cumberland Region of Tennessee, an Economy Distressed Rural Region Principal Investigator: Pinggen Chen (Tennessee Tech University)

Question 2: Project Approach to supporting the integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer stated that the tasks are direct and appropriate. The formula is simple, with BP 1 and 2 milestones similar, almost identical. The presentation was impressive in the area of “Establishing Public Charging,” emphasizing that to accelerate adoption of EVs in a rural setting by offering test drives, EVSE installation would need to be there.

Reviewer 2:

According to the reviewer, the approach is good to give a “hands-on,” 2-week experience of using an EV for accomplishing travel needs and to conduct outreach on EVs. The reviewer had a question on the approach related to the 2-week volunteering using the EV at no cost (as shown on the flyer image on Slide 10) and stated that this could have some minor impact on the questionnaire results. The reviewer wanted to know whether the volunteers are given some estimate of what their charging expenses would have been during the 2-week period and what typical expense for a gasoline-powered vehicle would have been.

From the presentation, the approach is for using the electric bus at Upper Cumberland Human Resource Agency during the project was not clear to the reviewer. For example, the reviewer asked if the bus will be used on regular routes, for demonstration purposes, or some combination of both.

Reviewer 3:

The reviewer indicated that this is a traditional approach to creating a demonstration public charging network and conducting EV demonstrations and evaluation.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

The reviewer observed that the 2-week demonstration periods seem to have generated a lot of good data and market exposure.

Reviewer 2:

The reviewer said that the project has made very good progress so far—deployment charging stations, hosting outreach events, and providing EVs to a number of volunteers for 2 weeks each.

Reviewer 3:

With the vehicles and charging stations currently operational, the reviewer remarked that the project can continue its course with analysis of data and continuing education and outreach. It was not obvious how this project will “reduce rural transportation costs,” as indicated on Slide 3-Impacts. In fact, a new F250 with an XL plug-in electric upfit would initially be costly for many, and the reviewer was unsure what the breakeven point would be for the long-distance commuter.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer found excellent overall collaboration between OEMs, EVSE providers, and universities.

Reviewer 2:

Based on the excellent progress and accomplishments to date and looking at the role of the various team members as shown on Slide 17, it appeared to this reviewer that the collaboration and coordination are going very well.

Reviewer 3:

Although the project relies on its partners for demonstrations and analysis, and while Slide 17 shows their tasks, the reviewer did not recall mention of them all in the presentation.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

This reviewer described the data contributed as a result of this project (as shown in presentation slides) as excellent.

Reviewer 2:

The reviewer remarked that the project is generating exactly what the team set out to do—rural information on EVs.

Reviewer 3:

This reviewer indicated that the project has already contributed through exposing the community to EVs during outreach events, deploying charging stations, and allowing volunteers to use an EV as their vehicle for 2-week periods. For future work, additional information could be provided on how the electric bus is going to be used in the project because this was not clear to the reviewer in the presentation. Also, the project team mentioned that it may need to adjust the approach to make sure that there are enough volunteer EV users from the most remote locations in the project area. So, adjustments to the current approach may be necessary.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer affirmed that DOE funds are being used wisely and DOE should continue to sponsor similar projects in the future. This project could definitely encourage those in rural communities to consider purchasing an EV in the future.

Reviewer 2:

The key to the adoption of EVs or any advanced technology vehicle is exposure. This program puts the vehicles out there in the hands of potential owners. The reviewer suggested that there is a need for more programs like this if furthering the fuel diversity objectives of VTO is to continue.

Reviewer 3:

This reviewer observed a good project, although this is a difficult part of the market in which to generate interest and enthusiasm about EVs.

Presentation Number: ti125
Presentation Title: EcoCar Mobility Challenge
Principal Investigator: Kristen Wahl (Argonne National Laboratory)

Presenter

Kristen Wahl, Argonne National Laboratory

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

0% of reviewers felt that the use of resources might be used wisely, 0% of reviewers felt that the use of resources were not being used wisely, 100% of reviewers felt that the use of resources were being used wisely, and 0% of reviewers did not indicate an answer.

Question 1: Project Objectives—the degree to which the project objectives support the DOE/VTO objectives of increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The project objectives seek to prepare students for a career in design and implementation of advanced technology vehicles. The reviewer commented that the project is key to the promotion of more efficient transportation and tomorrow’s vehicle and fuel options.

Reviewer 2:

The reviewer stated that the EcoCAR Mobility Challenge and its predecessors have a long history of success in bringing new thinking to the development of AFVs, as well as fostering and encouraging the next generation of clean vehicle engineers and advocates.

Reviewer 3:

According to the reviewer, creating and educating new engineers and scientists for this new transportation future is essential to the industry and society.

Question 2: Project Approach to supporting the Integration of advanced transportation technologies and practices to support overall project objectives—the degree to which the project is well-designed, feasible, and aligned with other efforts.

Reviewer 1:

The reviewer found the multi-year approach to creating real vehicles with world-class mentors to be outstanding.

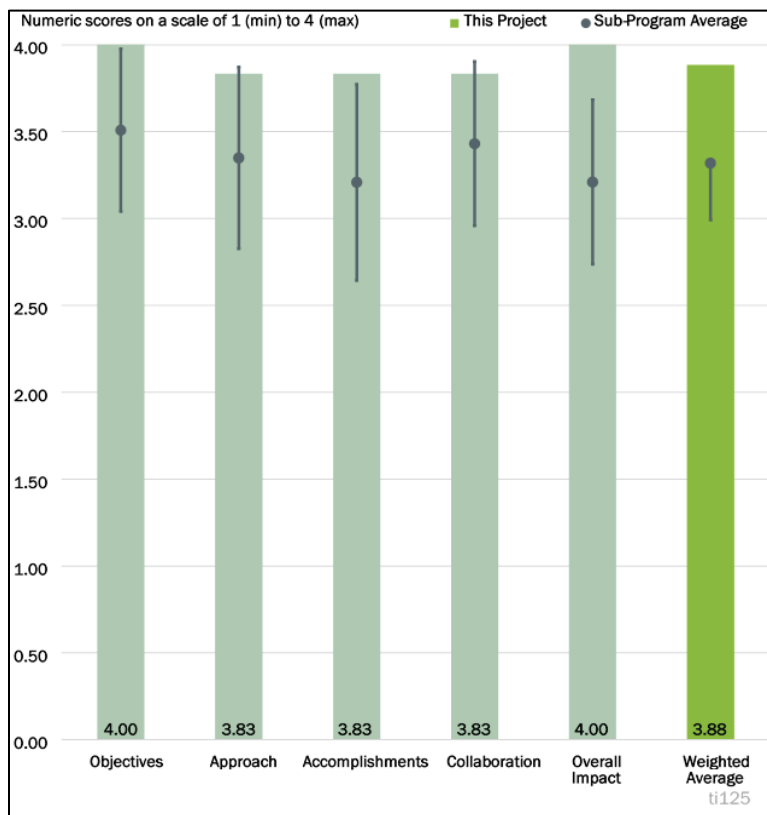


Figure 7-20 - Presentation Number: ti125 Presentation Title: EcoCar Mobility Challenge Principal Investigator: Kristen Wahl (Argonne National Laboratory)

Reviewer 2:

This reviewer reported that the project supports classes, curricula, hands-on labs, and competitions through technical goals. When COVID-19 restricted the implementation of the tasks associated with these goals, the reviewer indicated that the team adapted by launching a virtual learning series and allowing students to be evaluated at regional sites.

Reviewer 3:

The reviewer indicated that providing a hands-on challenge, industry experts for tutoring, and the resources to succeed is a goldmine for developing the next generation of engineers and vehicles, and benefits the vehicle manufacturers and future car buyers just as much as it does the students.

Question 3: Project Accomplishments and Progress toward overall project and DOE objectives and goals—the degree to which progress/significant accomplishments have been achieved, measured against performance indicators and demonstrated progress toward project objectives.

Reviewer 1:

Although the program was slowed by the COVID-19 pandemic, this reviewer asserted that it achieved significant results from all teams.

Reviewer 2:

This reviewer commented that the pandemic did not appear to interfere significantly with year 3 goals. Slide 6 – Milestones identifies the pathway, and although the presenter indicated that some tasks were delayed, the overall program made it through fairly unscathed.

Reviewer 3:

The reviewer stated that EcoCAR has faced significant obstacles due to the pandemic, but creatively found ways for the teams to continue progressing on the design of their vehicles. A series of 16 educational videos was developed to train teams to self-inspect vehicles when travel and social distancing restrictions prevented in-person inspections and were not permissible. Identifying individual test sites for each team to have its vehicle evaluated was a key accomplishment this year, and the competition remains on track for wrapping up in year 4.

Question 4: Collaboration and Coordination Among Project Team—the degree to which the appropriate team members and partners are involved in the project work and the effectiveness of the collaboration between and among partners.

Reviewer 1:

The reviewer observed that the presenter put great emphasis on the partners and their dedication to the program's success. "Headline Sponsor" General Motors is perhaps the most notable, given the number of students it has hired out of the program.

Reviewer 2:

This reviewer explained that EcoCAR brings together a huge number of partners and stakeholders and does an excellent job of keeping them all engaged and contributing at a high level. The reviewer indicated that adapting to a virtual environment without delaying the overall project timeline, showed the strength and flexibility of this program.

Reviewer 3:

The reviewer asserted that there was outstanding collaboration and coordination within teams and industry experts.

Question 5: Overall Impact—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to increasing fuel diversity through the use of alternative fuels and increasing transportation efficiency.

Reviewer 1:

The overall impact of the EcoCAR Mobility Challenge will likely be felt for years, according to this reviewer, as the next generation of vehicle engineers continues to grow and develop skills fostered by this project. EcoCAR has impacted more than 2,000 students to date, enriching them and the workforce with valuable experiential training.

Reviewer 2:

The reviewer indicated that this program has been promoting education and opportunities in the advancement of fuel diversity and advanced technology vehicles for 5 years with extraordinary results.

Reviewer 3:

The reviewer asserted that this program is creating the young engineers who are our future.

Question 6: Use of Resources. Are DOE resources being leveraged and funds being used wisely? Should DOE fund similar projects in the future?

Reviewer 1:

The reviewer remarked that EcoCAR is an excellent use of resources. Project management at Argonne has honed its program through years of trial and error, and the program provides an unparalleled level of experience and training to these students. Contributions of the manufacturer and component supplier stakeholders is significant and adds tremendous value to this project.

Reviewer 2:

The program is a proven success and an integral part of training tomorrow's designers, inventors, alternative fuel, and fuel efficiency champions. The reviewer hoped that curricula and specialized degrees would soon be offered in many more colleges and universities as a matter of course.

Reviewer 3:

The reviewer suggested that this program should continue each year.

Acronyms and Abbreviations

3G	Third generation
4G	Fourth generation
ACT	Appalachian Clean Transportation
AFV	Alternative fueled vehicle
AMR	Annual Merit Review
ATRI	American Transportation Research Institute
AV	Autonomous vehicle
BP	Budget Period
CARTS	Capital Area Rural Transportation System
CNG	Compressed natural gas
COVID-19	Coronavirus disease 2019
CYC	Columbus Yellow Cab
DCFC	Direct-current fast charger
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
e	Electric
EERE	Office of Energy Efficiency and Renewable Energy
ESB	Electric school bus
EV	Electric vehicle
EVSE	Electric vehicle supply equipment
FLM	First/last mile
GHG	Greenhouse gas
GTI	Gas Technology Institute
HAPCAP	Hocking-Athens-Perry Community Action
HD	Heavy-duty
LSEV	Low-speed electric vehicle
MD	Medium-duty
NASEO	National Association of State Energy Officials
NCEMC	North Carolina Electric Membership Corporation
NGV	Natural gas vehicle
NPS	National Park Service

NOAA	National Oceanic and Atmospheric Administration
NRECA	National Rural Electrification Association
ODOT	Ohio Department of Transportation
OEM	Original equipment manufacturer
PEV	Plug-in electric vehicle
PI	Principal Investigator
RDD&D	Research, development, demonstration, and deployment
RFP	Request for proposals
SNAP	Rideshare software interface
TI	Technology Integration
TNC	Transportation network company
VTO	Vehicle Technologies Office
WU	Waynesburg University
ZNP	Zion National Park