

9. Technology Integration

The Vehicle Technologies Office (VTO) supports early-stage research and development (R&D) to generate knowledge upon which industry can develop and deploy innovative energy technologies for the efficient and secure transportation of people and goods across America. VTO focuses on research that industry either does not have the technical capability to undertake or is too far from market realization to merit sufficient industry focus and critical mass. In addition, VTO leverages the unique capabilities and world-class expertise of the national laboratory system to develop new innovations for significant energy-efficiency improvement. VTO is also uniquely positioned to address early-stage challenges due to its strategic public-private research partnerships with industry (e.g., U.S. DRIVE and 21st Century Truck Partnerships) that leverage relevant technical and market expertise, prevent duplication, ensure public funding remains focused on the most critical R&D barriers that are the proper role of government, and accelerate progress—at no cost to the Government.

The Technology Integration (TI) subprogram supports adoption of advanced vehicle technologies, primarily through online tools, user guides, and implementation of the regulatory State and Alternative Fuel Provider Program (S&AFP). The Alternative Fuels Data Center (AFDC) provides technically-accurate, objective, and relevant information about the costs and benefits of alternative fuels in motor vehicles. The DOE-U.S. Environmental Protection Agency (EPA) Fuel Economy Guide provides fuel economy estimates to help car buyers choose the most fuel-efficient vehicle for their needs. Through the S&AFP, DOE works with certain state government and alternative fuel provider fleets to acquire alternative fuel vehicles (AFVs) as part of their annual light-duty vehicle acquisitions. TI projects reviewed at the 2017 Annual Merit Review (AMR) included those co-funded as Alternative Fuel Vehicle Community Partners projects whose focus was to accelerate widespread introduction and adoption of commercially available advanced vehicle technologies to reduce U.S. dependence on petroleum, increase local fuel diversification, and catalyze adoption of clean transportation technologies.

Subprogram Feedback

DOE received feedback on the overall technical subprogram areas presented during the 2017 AMR. Each subprogram technical session was introduced with a presentation that provided an overview of subprogram goals and recent progress, followed by a series of detailed topic area project presentations.

The reviewers for a given subprogram area responded to a series of specific questions regarding the breadth, depth, and appropriateness of that DOE VTO subprogram's activities. The subprogram overview questions are listed below, and it should be noted that no scoring metrics were applied. These questions were used for all VTO subprogram overviews.

Question 1: Was the program area, including overall strategy, goals, and objectives adequately covered?

Question 2: Were projects and activities adequately balanced to address both vehicle and fueling/charging infrastructure deployment needs?

Question 3: Were important vehicle deployment issues, barriers, and challenges identified?

Question 4: Are plans and strategies identified for addressing issues, barriers, and challenges?

Question 5: Was progress clearly documented and tracked for various deployment activities and technology focus areas?

Question 6: Are the projects in this technology area addressing the broad problems and barriers that the Vehicle Technologies Office (VTO) is trying to solve?

Question 7: Does the program area appear to be focused, well-managed, and effective in addressing VTO's needs?

Question 8: What are the key strengths and weaknesses of the projects in this program area? Do any of the projects stand out on either end of the spectrum?

Question 9: Do these projects represent novel and/or innovative ways to approach these barriers as appropriate?

Question 10: Has the program areas engaged appropriate government/industry/community partners?

Question 11: Is the program area collaborating with them effectively?

Question 12: Are there any gaps in the portfolio of vehicle deployment activities for this area?

Question 13: Are there topics that are not being adequately addressed?

Question 14: Are there other areas or emerging vehicle technologies/market trends that this deployment program should explore to meet overall programmatic goals?

Question 15: Can you recommend new ways to approach the barriers addressed by this program area?

Question 16: Are there any other suggestions to improve the effectiveness of this program area?

Responses to the subprogram overview questions are summarized in the following pages. Individual reviewer comments for each question are identified under the heading Reviewer 1, Reviewer 2, etc. Note that reviewer comments may be ordered differently; for example, for each specific subprogram overview presentation, the reviewer identified as Reviewer 1 in the first question may not be Reviewer 1 in the second question, etc.

**Presentation Number: ti000 Presentation Title: Technology Integration Overview
Principal Investigator: Linda Bluestein (U.S. Department of Energy)**

Question 1: Was the program area, including overall strategy, goals, and objectives adequately covered?

Reviewer 1:

The reviewer stated that the presenter did a very good job outlining the VTO Technology Integration (TI) program area and the three activity areas within it. The budget and funding levels for outreach, deployment, and analysis activities were clearly covered. The main strategies of the program were amply communicated, as were critical success factors for pursuing these strategies.

Reviewer 2:

The reviewer remarked that the presentation of the TI Program Overview did a very good job of describing what TI consists of and provided an excellent discussion of its strategy which is to facilitate and accelerate market transformation towards alternative fuels.

Reviewer 3:

The reviewer said that the presentation gave an excellent description of the program and the associated strategy, goals, and objectives.

Reviewer 4:

The reviewer noted that the program area and objectives were adequately covered. Although the time was short and there was a lot of material to cover, the presentation was well organized and described all the major activities. This included activities of Clean Cities to deploy alternative fuel vehicle and refueling infrastructure and build local expertise and support, student competitions (EcoCAR 3) and information dissemination via fueleconomy.gov and the AFDC. Assistance to fleets with federal alternative fuel requirements was also noted.

Reviewer 5:

The reviewer commented that the TI program area was adequately covered during the presentation. The program helps to facilitate and accelerate market transformation with visible examples, objective data, tools, and key lessons learned that benefit future users.

Question 2: Were projects and activities adequately balanced to address both vehicle and fueling/charging infrastructure deployment needs?

Reviewer 1:

The reviewer stated that the projects and activities presented were fairly well-balanced in terms of addressing both vehicle and fueling infrastructure needs. The presenter emphasized the program's broad technical scope that is focused on light-duty (LD), medium-duty, and heavy-duty (HD) vehicles, six Energy Policy Act-approved alternative fuels, as well as energy efficient mobility systems and technologies (involving both vehicles and road system infrastructure). The reviewer also noted that data and information tools were also well-balanced in addressing both vehicles (fueleconomy.gov) and infrastructure (Alternative Fueling Station Locator).

Reviewer 2:

The reviewer remarked that through the projects in this area, both vehicle and fueling/charging infrastructure are balanced.

Reviewer 3:

The reviewer noted that it appears the projects are balanced between alternative fuel and electric vehicle refueling infrastructure needs.

Reviewer 4:

The reviewer said that the projects and activities were adequately balance. The Clean Cities and related work covers both fueling/charging and vehicle deployment and was given substantial coverage. Likewise, the outstanding products and activities of the fuelconomy.gov and AFDC were also adequately described. Although the student vehicle design competition is not a large share of the budget, it has an enormous impact on university students interested in automotive engineering and sustainable transportation and well deserves the attention it was given.

Reviewer 5:

The reviewer stated that the projects, activities and tools/resources appear to be adequately balanced to address both vehicle and fueling/charging infrastructure deployment needs. Some projects/activities were focused on vehicle deployment, such as the Aggregated Purchasing and Plug-in Electric Vehicle (PEV) showcase projects, while others activities/tools such as the AFDC Alternative Fueling Station Locator are focused on infrastructure development. The reviewer concluded that it is important that both sides of the equation have the necessary resources to continue to develop markets.

Question 3: Were important vehicle deployment issues, barriers, and challenges identified?

Reviewer 1:

The reviewer noted that barriers and challenges were clearly described and addressed.

Reviewer 2:

The reviewer commented that several vehicle deployment issues, barriers, and challenges were discussed. For example, the aggregated purchasing project seeks to overcome the additional incremental cost of AFVs by pooling of purchase orders, which could allow for greater buying power of this large group versus a single fleet/entity. Additionally, the projects/activities associated with first responders and permitting officials help these officials become more comfortable with alternative fuel technologies and in turn can help to ease (instead of impede) local adoption.

Reviewer 3:

The reviewer asserted that the Clean Cities program leverages local resources to do much of this work via events like ride and drive (increasing knowledge of alternative vehicles and fuels), training programs for first responders (building human capital), and much more. The program helps coordinate the supply of technical expertise and advice provided by the national laboratories and, as important as any of its activities, it seeks out and collaborates with interested local private and government fleets to deploy AFVs and infrastructure (helping solve the chicken or egg problem). This reviewer reported that the program works with local regulatory agencies to help improve and adapt codes as well as standards and permitting (building institutional infrastructure). The TI program has also facilitated cooperation among AFV purchasers to increase scale economies for suppliers and confer some bargaining power on fleets purchasing AFV (reducing initial costs).

The reviewer further commented that the importance of non-monetary barriers to transitioning to a low greenhouse gas (GHG) transportation system is generally under-appreciated. This reviewer explained that research has shown that the costs of subsidies and mandates can be reduced by implementing a comprehensive strategy that addresses human and institutional barriers as well as financial barriers. The benefits of such programs are difficult to measure in dollars, although it is possible to do. If done well, this reviewer opined that the benefits are generally so large compared with the costs that they may seem difficult to believe. The benefits are real, nonetheless.

Reviewer 4:

The reviewer said that vehicle deployment issues/barriers/challenges were identified through inference, but not covered in great detail. The presentation focused more on program activities, rather than detailed discussion on technical vehicle deployment issues.

Reviewer 5:

The reviewer noted that the barriers and challenges did not seem to be explicitly covered during the discussion.

Question 4: Are plans and strategies identified for addressing issues, barriers, and challenges?

Reviewer 1:

The reviewer stated that the presenter/presentation identified numerous strategies, tactics, and activities being undertaken to advance vehicle and infrastructure deployment.

Reviewer 2:

The reviewer commented that the overall deployment program including new efforts of Living Labs, technical assistance to help fleets and infrastructure providers, and continuing the strong Clean Cities effort helps to address the issues and challenges in this program area.

Reviewer 3:

The reviewer noted that within the funding constraints of the program, a well-balanced strategy was identified to address barriers and challenges associated with alternative fuel and electricity infrastructure needs.

Reviewer 4:

The reviewer remarked that the plans and strategies were identified. This was clearly explained in the presentation and much of the strategy has been described via answers to other questions. This reviewer commented that Clean Cities addresses all of the non-monetary barriers to AFV transition and leverages local resources while simultaneously building local expertise and knowledge. Student competitions address education and inspiration of the automotive engineers of the future. Information programs increase consumer awareness and knowledge and provide technical expertise to fleets and local governments. The reviewer indicated that overcoming non-monetary barriers to the sustainable energy transition is an enormous and enormously important task. This reviewer further opined that TI could do significantly more with a larger budget.

Reviewer 5:

The reviewer said that the Technical and Problem-Solving Assistance activity is an important use of resources to assist local fleets and stakeholders on overcoming issues, barriers and challenges. Under this activity, the program captures lessons learned and best practices, organizes technical forums and user groups, addresses unforeseen permitting and safety issues, identifies chronic vehicle or infrastructure field problems as well as assisting in incident investigations. All are important strategies to address and overcome barriers.

Question 5: Was progress clearly documented and tracked for various deployment activities and technology focus areas?

Reviewer 1:

The reviewer said that program area progress was well covered by the presenter/presentation. Progress was outlined broadly in terms of total petroleum displaced, vehicles deployed, and share of fuels dispensed. Precise metrics were also provided for use of digital resources (e.g., AFDC tools and data downloads, fueleconomy.gov access, etc.).

Reviewer 2:

The reviewer noted that the 2016 results and progress of the data information and AFDC Alternative Fueling Station Locator, data trends, data impact, Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) Tool, and fuel economy information was presented very clearly and effectively.

Reviewer 3:

The reviewer said the presentation provided an historical, present day, and future look at infrastructure support provided by the program.

Reviewer 4:

The reviewer commented that progress in all areas was described and quantified, as appropriate. The reviewer chose to focus on fuelconomy.gov and the AFDC. Fuelconomy.gov is a highly successful website that provides information about new and used vehicle fuel economy (and a lot more) to tens of millions of users each year. The website is in the top 1% of government websites (including Medicare and Social Security, and a lot more great websites of importance to U.S. citizens). The reviewer relayed an anecdote where a luncheon talk in Nashville, Tennessee was given two weeks ago. The reviewer asked how many in the audience had used the website fuelconomy.gov. Roughly half the audience raised their hands. The AFDC is an enormously valuable resource for AFV owners and users, automobile manufacturers and for the internet community. The Station Locator app and data are not only widely used by individuals but are made available to other web developers and are intensively used. The AFDC gets no direct credit for that but the impact is huge when an entity like Google takes the data and purveys it to millions of its users. This also illustrates the spirit of these programs, which is service to the U.S. public first and foremost.

Reviewer 5:

The reviewer noted that the major program metric is the goal of saving 2.5 billion gallons of petroleum per year by 2020. The Deployment Program Metric slide shows that the program appears to be on track to meet this goal.

Question 6: Are the projects in this technology area addressing the broad problems and barriers that the Vehicle Technologies Office (VTO) is trying to solve?

Reviewer 1:

The reviewer stated that the projects in this technology area are very important for helping advance VTO's work. These projects serve to validate research and assumptions of earlier-stage VTO work, and transfer VTO technologies to the marketplace. The projects help expose the public to new vehicle and fuel technologies, which is critical for moving them from laboratory to practical use, deployment, and societal adoption.

Reviewer 2:

The reviewer said the projects in this area show how reduction in petroleum use through the use of alternative fuels is being accomplished and therefore is addressing the broad problem that VTO is trying to solve.

Reviewer 3:

The reviewer remarked that the projects were addressing the broad problems and barriers. The projects in this program provide a platform for newly developed technologies, developed by VTO, to be demonstrated in a comfortable well supported venue. The "early adopters" are provided support during first trial demonstration activities.

Reviewer 4:

The reviewer commented that the projects were "definitely" addressing the broad barriers. While VTO technology R&D attempts to reduce costs and improve the performance of vehicle and fuel technologies, TI works on overcoming the non-financial barriers to making that transition happen. These barriers are large and important and addressing them can greatly reduce the cost of transition.

Reviewer 5:

The reviewer commented that VTO supports R&D and deployment of efficient and sustainable transportation technologies that will improve energy efficiency, fuel economy, and enable America to use less petroleum. These technologies, which include advanced batteries and electric drive systems, lightweight materials, advanced combustion engines, alternative fuels, as well as energy efficient mobility systems. The TI activities support the deployment of the majority of these technologies.

Question 7: Does the program area appear to be focused, well-managed, and effective in addressing VTO's needs?

Reviewer 1:

The reviewer said that the program area is well-developed, managed, and effective, and provides substantial benefit to VTO/DOE.

Reviewer 2:

The reviewer affirmed that the TI program area is very well managed and definitely supports VTO's overall objectives.

Reviewer 3:

The reviewer said the program appears to be focused, well managed, and effective in its support of VTO technology development activities.

Reviewer 4:

The reviewer referred to the program as an "expert program," that is, it has been in existence and its staff have personally accumulated sufficient experience to be experts in what they do. The program staff know their customers, they know their subject matter, they have built networks, and they know how to get things done. The reviewer asserted that the program needs a larger budget, given the challenges being addressed, but what the program is able to do with the resources they have is very effective.

Reviewer 5:

The reviewer noted that the TI program area appears to be focused, well-managed, and effective in addressing VTO's deployment needs.

Question 8: What are the key strengths and weaknesses of the projects in this program area? Do any of the projects stand out on either end of the spectrum?

Reviewer 1:

The reviewer commented that Clean Cities stands out as an excellent example of leveraging local resources and working cooperatively with local authorities and individuals to achieve a common goal. DOE should protect and enhance this effort. This reviewer asserted that Fueleconomy.gov is a winner as the tens of millions of user sessions it hosts each year attest. The website is the only comprehensive source of fuel economy information for the great majority of car buyers who purchase used vehicles. The reviewer further explained that the website contains a lot more than just fuel economy; it is the authoritative source of information in the United States on driving and maintenance tips to maximize fuel economy, for example. It is the largest source of data on in-use, real world fuel economy, and more.

The reviewer stated that the AFDC is also a winner. The Station Locator alone is widely used but is also a basic data source for commercial app developers who provide AFV users with information about where to refuel. The website is also so much more, asserted this reviewer, who highlighted authoritative information about AFVs and fuels; comprehensive information about federal, state, and local incentives; and significantly more. This information is used in studies and published in peer-reviewed journals as well as in the popular media.

The reviewer further commented on the student competitions. The reviewer has met with participants from several universities who have participated and are motivated by EcoCAR 3. The reviewer opined that this has to be the best investment of all.

Reviewer 2:

The reviewer stated that a key strength of the TI program continues to be the vast numbers of Clean Cities Coalitions (CCCs) that exist across the country. This project provides an extreme amount of information and data and helps get the word out regarding alternative fuels to local areas.

Reviewer 3:

The reviewer noted that the strength of this activity is that it provides an opportunity for early adopters to move into an area of higher risk with assurance that they will be provided support in their activities.

Reviewer 4:

The reviewer said that CCC offers several key strengths, including robust public/private partnerships, a deeply extensive stakeholder network, strong knowledge sharing/transfer among stakeholders, transportation technology deployment, among others. The AFDC has key strengths in terms of tool offerings, industry-standard data and information (particularly on refueling stations), impressive traffic/user base, and ease of access.

Reviewer 5:

The reviewer stated that the strengths associated with the TI program area appear to be tools and resources developed by the national laboratories, such as the AFDC, the fueleconomy.gov website, and the AFLEET tool. Weaknesses in this area stem from the lack of funding for hardware, such as vehicles and fueling infrastructure, which were an important feature of the program for many years.

Question 9: Do these projects represent novel and/or innovative ways to approach these barriers as appropriate?

Reviewer 1:

The reviewer stated that several projects under the program are particularly innovative. Examples include the AFLEET tool, technical assistance in the form of a “Technologists in Cities” expert, EcoCAR 3, Energy-Efficient Mobility Systems (EEMS) Living Lab projects, and others.

Reviewer 2:

The reviewer noted that the Clean Cities project has proven over the years to be an extremely innovative way to promote the use of alternative fuels and to provide information to the public.

Reviewer 3:

The reviewer said that projects did represent novel and/or innovative ways to approach the barriers, through cost share requirements and community-based partnerships are also formulated to address barriers.

Reviewer 4:

The reviewer noted that innovation was present. The AFDC and fueleconomy.gov websites are constantly finding new ways to reach the public, from web services to new mobile apps. Clean Cities is inherently a problem-solving organization. EcoCAR 3 is all about stimulating university students to come up with new ideas and new designs for AFVs (and working with our auto companies in the process). The reviewer would like to see TI do more basic research on the barriers to energy transition and energy efficiency and how best to overcome them. The budget should be increased and basic social science, economic, and governance research should become an important part of their effort.

Reviewer 5:

The reviewer commented that projects, such as the Aggregated Purchasing, represent an innovative way to help address cost barriers with AFVs.

Question 10: Has the program area engaged appropriate government/industry/community partners?

Reviewer 1:

The reviewer commented that the program area is solidly built on strong public/private partnerships through the CCCs, major fleet and industry partners, other federal agencies, states, and communities, academia, non-profits, and others. External partnerships are the bedrock of this VTO program area.

Reviewer 2:

The reviewer remarked that the TI program continues to have excellent collaboration with community partners, industry, and government. The nearly 100 CCCs is an excellent example of public-private partnerships.

Reviewer 3:

The reviewer said that the program area has engaged appropriate partners. CCCs engage at the state and local levels forming partnerships with governments and industry.

Reviewer 4:

The reviewer said that the program area has “absolutely” engaged partners. This engagement is well documented in the presentation. Partnering with governments, industry, and communities is the fundamental TI strategy.

Reviewer 5:

The reviewer noted that the program has been able to engage with a broad network of government/industry/community partners through its focus on community based public-private partnerships with the CCC network as well as engaging with directly with national fleets with the National Clean Fleets Partnership.

Question 11: Is the program area collaborating with them effectively?

Reviewer 1:

The reviewer said the program area has been collaborating with partners effectively to deploy alternative fuel and advanced technology vehicles and infrastructure, primarily through the Clean Cities program. The results of this long-sustained collaboration are evident through substantial petroleum reduction volumes and vehicle and infrastructure deployments. The new EEMS activity is where the program is in an earlier stage of developing new stakeholders and partnerships. The program should make focused efforts to actively develop and grow relationships with new EEMS partners, and expand relationships with existing partners (i.e., U.S. Department of Transportation [DOT], state DOTs, etc.).

Reviewer 2:

The reviewer stated that the program is very effective in the way it coordinates with stakeholders associated with the program.

Reviewer 3:

The reviewer noted that the Clean Cities program continuously assesses the collaboration efforts of the coalitions to ensure that they remain focused on real time issues.

Reviewer 4:

The reviewer stated that the program is collaborating with partners effectively.

Reviewer 5:

The reviewer remarked that, based on the results of continued increase in petroleum displacement, it appears the program is effectively leveraging/collaborating with their partners and stakeholders.

Question 12: Are there any gaps in the portfolio of vehicle deployment activities for this area?

Reviewer 1:

While no gaps were identified, the reviewer noted that the addition of the Living Lab and Aggregated Purchasing projects should prove to be very useful to the program area.

Reviewer 2:

The reviewer stated that more could always be done. However, within funding constraints, the program area is delivering on the realistic goals set by the program.

Reviewer 3:

The reviewer said that TI should do more to help deploy hydrogen refueling infrastructure. TI should be a key member of H2USA, bringing the Clean Cities infrastructure and approach to helping plan and deploy hydrogen infrastructure. While the program is already working on this, the scale of effort should be greatly increased and plans should be developed to assist not only California and the states that have opted in to zero emission vehicle (ZEV) mandates, but also other states with an interest in transitioning to clean transportation.

The reviewer further commented that the national laboratories and universities have now developed valuable databases and analytical tools that could be adapted to assist states and local governments in planning charging and hydrogen refueling infrastructure deployment. This is happening to some extent but on a small and embryonic scale. This reviewer suggested that TI could lead an effort to develop and enhance existing tools to ensure that they meet state and local needs to efficiently and effectively plan and coordinate refueling infrastructure deployment.

Finally, the transition to low-GHG energy is an enormous and enormously important challenge. The reviewer recommended that additional resources should be devoted to addressing the non-financial transition barriers.

Reviewer 4:

The reviewer remarked that, pending availability, specific funding for hardware, such as vehicles and fueling infrastructure could be added to the portfolio.

Question 13: Are there topics that are not being adequately addressed?

Reviewer 1:

The reviewer commented that all of the necessary topics are being addressed appropriately.

Reviewer 2:

The reviewer noted that within funding constraints, the program focusses on targeted topics that are of most importance.

Reviewer 3:

The reviewer stated that all topic areas were adequately addressed.

Reviewer 4:

The reviewer said the program area needs to be more closely tied to economic development benefits and opportunities. Because all of the alternative fuels under the program involve domestic supply chains and mostly domestic jobs (that cannot be shipped overseas), clear economic benefits stem from the development and growth of these supply chains. Perhaps a new metric, tracking monetary benefits, could be added alongside the standard petroleum displacement metric.

The reviewer further noted that training activities should also be tied to economic development with deep-dive analysis on workforce development benefits, job placement, and earnings. EcoCAR 3 needs to be better tied to

U.S. original equipment manufacturer (OEM) competitiveness (related analysis and messaging could be crafted in conjunction with OEMs).

Reviewer 5:

The reviewer reiterated that deploying hydrogen refueling infrastructure should become a central focus of the Clean Cities program. This will take time and resources, of course. Also, basic research is needed to better understand the barriers to energy efficiency and transition to alternative energy.

Question 14: Are there other areas or emerging vehicle technologies/market trends that this deployment program should explore to meet overall programmatic goals?

Reviewer 1:

The reviewer stated that the new EEMS area captures most of the emerging vehicle technologies that this program area should be most concerned with. Although, technology and practices are changing rapidly in this space, which VTO will need to closely monitor.

Reviewer 2:

The reviewer said it seemed that the portfolio of projects in the TI area adequately address the programmatic goals.

Reviewer 3:

The reviewer referenced the “Systems and Modeling for Accelerated Research in Transportation (SMART) Mobility” concept and would appreciate seeing more of this overlay built into the future activities.

Reviewer 4:

The reviewer noted that research to date has shown that if connected and automated vehicles (CAVs) are to have a beneficial impact on petroleum use and GHG emissions, two things must happen: travelers must be willing to share vehicles; and even more importantly, travelers must be willing to share rides. At this point, it is not at all clear how to nudge the transformation to CAVs in these directions. This will require research and will require coordination with and the active participation of state, local, and other federal authorities. This appears to be a good fit with TI’s mission and expertise.

Reviewer 5:

The reviewer commented that the new focus on EEMS related deployment activities should allow the Clean Cities network to stay relevant in the rapidly evolving connected and autonomous vehicle area.

Question 15: Can you recommend new ways to approach the barriers addressed by this program area?

Reviewer 1:

The reviewer stated that the challenges in this program area are addressed very well.

Reviewer 2:

The reviewer noted that the Clean Cities approach has and continues to be a work in progress which continuously makes strategy adjustments to meet VTO objectives.

Reviewer 3:

The reviewer suggested revisiting opportunities to collaborate with Google on AFDC data. Leveraging private partner technology and market exposure would be a good thing. The reviewer also remarked that MotorWeek is an outstanding partner. It would be neat to work with them on producing new video content on EEMS technologies.

Reviewer 4:

The reviewer reiterated prior comments on the need for basic research on the nature of transition barriers and ways to overcome them, like the risk aversion of the majority of consumers, the value of fuel and recharging availability to vehicle purchasers and owners and so on. Also, tools for planning infrastructure deployment such as those developed at National Renewable Energy Laboratory and University of California-Irvine but other places as well could be adapted to serve the needs of state and local authorities.

Question 16: Are there any other suggestions to improve the effectiveness of this program area?

Reviewer 1:

The reviewer noted that the program area as it stands now is quite effective and comprehensive.

Reviewer 2:

The reviewer would like to see a push towards the utilization of neighborhood electric vehicles.

Reviewer 3:

The reviewer reiterated that the size of the problem requires more resources.

Reviewer 4:

The reviewer suggested establishing SMART Mobility training for Clean Cities coordinators with delivery by “Technologist in Chief” experts. The reviewer also suggested developing a partnership with the Bioenergy Technologies Office on renewable natural gas and renewable diesel. Areas for collaboration include data sharing, education, demonstrations, project development, and market development. The reviewer further stated a desire to continue to champion Clean Cities coordinators as having the proper skillset and local knowledge needed to demonstrate, test, and deploy new transportation technologies, which will increasingly include EEMS-based technologies, connected vehicles (CVs), autonomous vehicles, and CAVs.

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 9-1 – Project Feedback

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page #	Objectives	Approach	Accomplishments	Collaboration	Market Impact	Weighted Avg.
ti071	Midwest D.R.I.V.E.S.	Sam Spofforth (Clean Fuels Ohio)	9-15	3.50	3.40	3.30	3.50	3.30	3.38
ti072	Penske Truck Leasing Alternative Fuel Vehicle (AFV) Demonstration and Enhanced Driver Experience Project	Dean Stapleton (Penske Truck Leasing Co.)	9-20	3.30	3.30	2.50	3.10	2.90	2.92
ti073	Southeast Alternative Fuels Demonstration Initiative (SADI)	Andrea Eilers (Triangle J Council of Governments)	9-25	3.30	3.20	2.70	3.20	2.70	2.97
ti074	Filling Critical Gaps Through Innovative Cradle-To-Grave Training	Pamela Burns (North Central Texas Council of Governments)	9-30	3.40	3.30	3.30	3.60	3.20	3.34
ti075	Creating an Alternative Fuel Training Network for Florida	Colleen Kettles (U. of Central Florida)	9-35	3.40	3.50	3.40	3.40	3.30	3.41
ti076	Increasing Nationwide ZEV Adoption—Enhanced Joint Procurement Process for Public Fleets	Jasna Tomic, (CALSTART)	9-40	3.40	3.30	3.30	3.50	3.00	3.31

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page #	Objectives	Approach	Accomplishments	Collaboration	Market Impact	Weighted Avg.
ti077	Aggregated Alternative Technology Alliance	Leslie Wollack (NARC)	9-45	3.50	3.25	3.50	3.38	3.50	3.44
Overall Average				3.40	3.32	3.13	3.38	3.12	3.25

Presentation Number: ti071
Presentation Title: Midwest D.R.I.V.E.S.
Principal Investigator: Sam Spofforth (Clean Fuels Ohio)

Presenter
 Matt Stephens-Rich, Clean Fuels Ohio

Reviewer Sample Size
 A total of five reviewers evaluated this project.

Question 1: Project objectives—the degree to which the project objectives support the DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. This includes the impact the project has on addressing goals and barriers identified in the 2016-2020 EERE Strategic Plan previously listed.

Reviewer 1:
 This reviewer commented that the project’s objectives are strongly geared towards reducing market barriers (a primary VTO deployment strategy). These objectives include demonstrating, evaluating, and promoting alternative fuel and advanced vehicle technology systems and vehicles; data capture and dissemination; and reducing consumer reluctance to purchase new vehicle technologies.

Reviewer 2:
 The reviewer stated that this project is highly responsive to the VTO objectives. The use of data to understand fleet activities is well thought out and offers fleets verifiable information about what fuels are options for them. The data will also help create a business case and educate decision makers who may be reluctant to purchase new technologies. The multiple state execution has the potential to connect activities among the states. The reviewer noted that the multi-pronged approach of in-person visits, webinars, and social media means the message has the potential to be seen multiple times which in turn makes it familiar and less intimidating to end users.

Reviewer 3:
 The reviewer remarked that the project’s objectives all help to address Goal 1 in the Strategic Plan: to demonstrate and evaluate alternative fuel and fuel efficiency systems to provide data to end users to promote alternative fuels; and to help reduce consumer reluctance to purchase new technologies.

Reviewer 4:
 This reviewer stated that the project directly addressed the barrier of fleet operators’ lack of familiarity with AFV technologies by providing them with the opportunity to put AFVs to use in their actual operations. It also

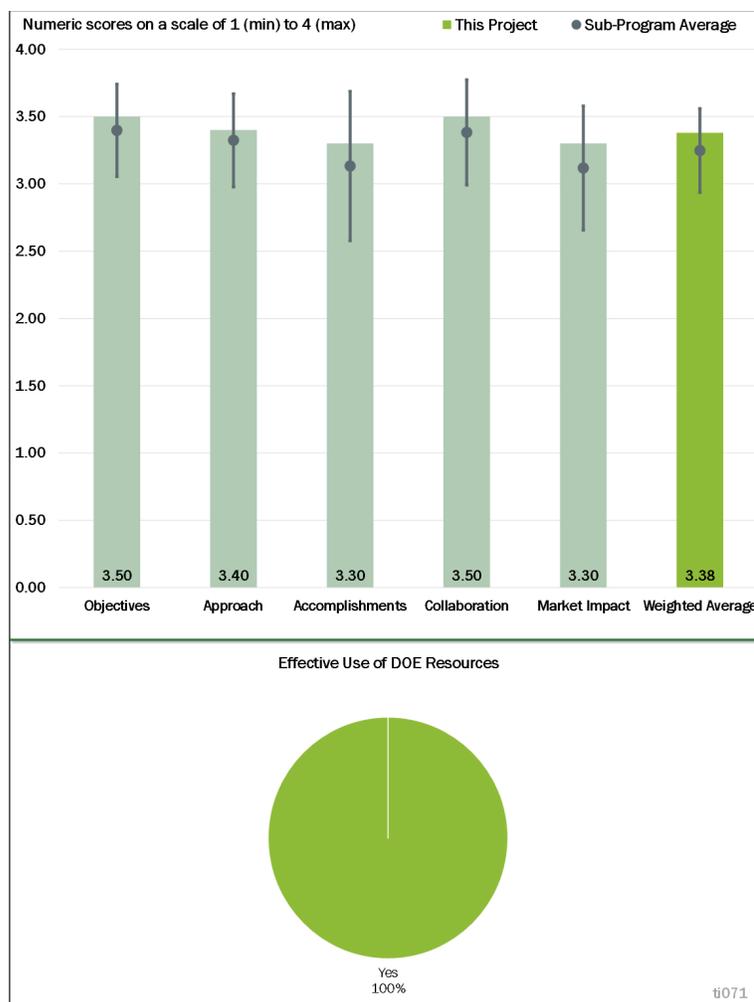


Figure 9-1 - Presentation Number: ti071 Presentation Title: Midwest D.R.I.V.E.S. Principal Investigator: Sam Spofforth (Clean Fuels Ohio)

made telematics available as a part of the demonstration, which can be very useful to those not already making use of it as a way to monitor energy use and fuel costs and factors that affect them.

Reviewer 5:

This reviewer commented that the project objective and overview slides describe the project's specific objectives as well as how the project supports DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. The project addresses several of the goals/deployment strategies contained the 2016-2020 Office of Energy Efficiency and Renewable Energy (EERE) Strategic Plan. The reviewer concluded that project objectives appear to be generally effective.

Question 2: Project approach to supporting deployment of petroleum reduction technologies and practices, alternative fuel vehicles, infrastructure, emissions reductions and related efforts—the degree to which the project is well-designed, feasible, and integrated with other efforts.

Reviewer 1:

This reviewer appreciated that the project's approach was straightforward and was aimed at maximizing the number of AFV fleet demonstrations and user exposures possible. The three-week demonstration periods provided an appropriate length of time for fleets to experience and assess AFV technologies. The reviewer also stated that the multiple-fuel, multiple-platform focused approach was very good. Despite some data logger technical issues, the data collected for each fleet demonstration and accompanying case studies are a particularly useful part of the approach.

Reviewer 2:

The reviewer stated that this project's multi-partner approach brings significant expertise to the project. The three-week demonstration period ensures sufficient time to capture data, build a relationship with the fleet, overcome objections, and educate both drivers and managers. The goal to produce profiles and video success stories will allow the project have life and impact into the future. Partners are capable of robust fleet analysis because of their diverse skills. This project is sharing lessons with the Triangle Fleet Demonstration program, which the reviewer believed is something DOE should try to do more often among similar active projects. These coalitions have built skills in evaluating data and creating case studies for fleets.

Reviewer 3:

The reviewer stated that the project's approach of program development and set up, program implementation and data analysis, outreach, and education supports the deployment of petroleum reduction strategies. The use of data loggers installed on demonstration vehicles is an excellent approach to allow the project to compare routes and driver performance on alternative vehicles compared to conventional vehicles.

Reviewer 4:

The reviewer stated that the project implemented a well-thought out and structured effort to identify candidate fleets, make contact with them, and provide information and technical advice and access to vehicles. Data loggers were used to ensure that accurate information on the performance of AFVs would be available to the fleet operators. The project was coordinated with the regional CCCs.

Reviewer 5:

This reviewer remarked that the project approach section provided a generally effective methodology to accomplishing the project objectives. Adequate detail was provided on the approach slide with regards to the planned tasks and activities.

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

Reviewer 1:

This reviewer appreciated the YouTube (MotorWeek) video. The demonstrations have included each vehicle technology at least once. The significant number of technologies available is a strength because it gives fleets more broad choices. The projects span a wide breadth from vehicles to mowers and LD to HD. Overall, the reviewer believed this project incorporated an excellent demonstration of the breadth and depth of technologies available.

Reviewer 2:

The reviewer stated that significant progress has been made towards achieving the project goals. Activities associated with the fleet vehicle demonstrations and development of case studies are well underway. The MotorWeek video is an excellent tool to describe the program and its value to potential participants. All initiatives and activities appear to be on track for successful completion. The reviewer has identified no concerns.

Reviewer 3:

This reviewer commented that accomplishing 65 vehicle demonstrations is a reasonable achievement, especially because gasoline prices dropped and were relatively low during the period of the demonstration. This actually dampened interest in natural gas and propane vehicles, in particular. The fact that the battery electric vehicle was most popular reflects the economics of natural gas and propane use at this time. The fuels are still economical but not nearly as advantageous as when gas prices were in the vicinity of \$4/gallon. Still, these demonstrations raise awareness of the technologies and their performance with direct usage. The reviewer noted that research has shown this to be the most effective way to increase knowledge and acceptance of novel technologies.

Reviewer 4:

The reviewer pointed out several specific accomplishments. The project has conducted 65 fleet demonstrations to date, exceeding the number originally envisioned (50). MotorWeek (TV broadcast) and YouTube video provided very good exposure for this project. However, the degree that contracting and liability issues impacted the ability for fleet demonstration placements was not clear to the reviewer.

Reviewer 5:

As the reviewer previously commented, the project's accomplishment of 40 completed vehicle demonstrations helps move the project toward meeting DOE goals, including 12,000 miles driven by vehicle demonstrations and case studies generated for each fleet. The reviewer suggested that it would have been useful if an outline of the report to be prepared on the data collected had been provided.

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 commitment by some OEM partners proved fleeting (an unclear number of vehicle partners withdrew from the project). Despite this, the principal investigator (PI), who was also the Chief Financial Officer, has otherwise maintained consistent project participation among project partners.

Reviewer 2:

The reviewer commented that excellent collaboration among partners has been demonstrated. Lessons learned from this project can likely help future demonstration projects immensely. DOE should consider a guidance document for future demonstration projects.

Reviewer 3:

This reviewer commented that there is very good collaboration and coordination between the CCCs and the other partners identified in the project.

Reviewer 4:

The reviewer said that the combination of all regional CCCs, the National Truck Equipment Association (NTEA) to help make connections with fleets, FleetCarma, and others is an outstanding team. The CCCs have local knowledge and contacts. NTEA knows the technologies and the fleet operators and FleetCarma works with them as well and has excellent technology.

Reviewer 5:

The reviewer viewed the collaboration as an effective project team assembled to carry out this project. Industry and CCC partners were involved, which provide an appropriate mix of expertise among team members. Collaboration and communication among project partners appears to be appropriate for the project of this scope.

Question 5: Market impact and sustainability—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to a sustainable alternative fuel vehicle market, alternative fuel market expansion, and reduced petroleum dependence/emissions in the transportation sector. This would include the potential to reduce barriers to large scale alternative fuel vehicle market penetration, making information about alternative fuels and petroleum reduction opportunities widely available to target audiences, and ability for the project to be replicated in other geographic areas or with other technologies.

Reviewer 1:

The reviewer appreciated the good project integration with Smart Columbus and electric vehicle (EV) deployment efforts (i.e., Vulcan). The reviewer also pointed out that four fleets that have purchased vehicles as a result of the program (possibly two additional fleet demonstrations will convert to vehicle purchases).

Reviewer 2:

The reviewer pointed out that numerous fleets who demonstrated vehicles indicated in the video that the demonstration will lead them to purchase more vehicles. This is an excellent example of how such an approach quickly grows markets, particularly for LD vehicles and/or fleets. This translates to excellent potential for market expansion and significant petroleum displacement.

Reviewer 3:

The reviewer highlighted that the project has shown an opportunity exists for AFVs and some entities have adopted AFVs due to the work performed during the Midwest DRIVES demonstrations.

Reviewer 4:

The reviewer pointed out that while 65 vehicle demonstrations may seem like a small number for this region, the fact that the demonstrations lasted for 3 weeks gave the operators a chance to extensively experience the technologies and their performance in actual service. The direct experience of the participating fleets not only changed their understanding of AFVs but allowed them to speak with authority to their peers, multiplying the effects of the demonstrations.

Reviewer 5:

The reviewer remarked that the project had good potential to contribute to a sustainable AFV market, alternative fuel market expansion, and reduced petroleum dependence/emissions through educating fleets on real-world performance of various alternative fuels and fuel-efficient technologies through this multi-state AFV demonstration. The reviewer, however, noted that during the oral presentation, it was not clear if the project team had determined exactly how many of the demonstrations had resulted in sales. It is important to

determine that the activities being carried out and data collected are valuable and will result in increased vehicle awareness/sales.

Question 6: Use of resources—Are DOE funds being used wisely? Should DOE fund similar efforts in the future? If not, what would be a better use of DOE resources to achieve alternative fuel vehicle and infrastructure expansion to support the broader goal of petroleum displacement and emissions reductions?

Reviewer 1:

The reviewer stated that when involving a major purchase decision, the best thing to do is expose the potential adopter/buyer to the product/technology. The reviewer commented that this project did that in a very practical and meaningful way, giving fleets an indispensable chance to test current AFV and advanced technology vehicles on an extended basis; some that the private sector cannot typically support on its own.

Reviewer 2:

The reviewer said that the partnerships and wise placement of vehicles made this an excellent investment for DOE. Significant matching funds bolster how this type of project can remove barriers and increase markets.

Reviewer 3:

The reviewer stated that the use of DOE funding to allow prospective fleet customers the opportunity to test drive AFVs for an extended period, carrying out the mission of their operations, was critically important to demonstrate the emission and cost benefits of these vehicles.

Reviewer 4:

The reviewer stated that this project was a good use of funds and it would be appropriate to fund similar projects in the future.

Reviewer 5:

This reviewer commented that DOE should definitely fund similar efforts in the future. Natural gas remains an important alternative to petroleum with potentially attractive applications in HD vehicles that can produce co-benefits of reduced air pollution and greenhouse gas emissions, when renewable natural gas is used. The reviewer suggested that in future projects, even greater emphasis should be given to electric drive vehicles (PEVs and fuel cell electric vehicles) because the technologies are less well understood and face even greater market barriers. This is especially true of hydrogen fuel cell vehicles. Although many are working on this problem, the reviewer remarked that DOE and Clean Cities have a special capability that could make important contributions.

Presentation Number: ti072
Presentation Title: Penske Truck Leasing Alternative Fuel Vehicle (AFV) Demonstration and Enhanced Driver Experience Project
Principal Investigator: Dean Stapleton (Penske Truck Leasing Co.)

Presenter
 Dean Stapleton, Penske Truck Leasing Co.

Reviewer Sample Size
 A total of five reviewers evaluated this project.

Question 1: Project objectives—the degree to which the project objectives support the DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. This includes the impact the project has on addressing goals and barriers identified in the 2016-2020 EERE Strategic Plan previously listed.

Reviewer 1:
 The reviewer stated that the project directly supports VTO objectives by reducing reliance on petroleum through the deployment of dedicated AFVs. The vehicles that Penske is deploying are generally high fuel use, low fuel economy vehicles so there is good potential for large impact on fuel use. The reviewer also mentioned that the survey information from the project will provide additional end-user barriers that need to be addressed. Penske is actively reaching users that may not have considered alternative fuels in the past because they lease vehicles instead of purchasing. Therefore, there is good potential to displace petroleum in a different segment of the market.

Reviewer 2:
 The reviewer commented that the project’s main objectives support VTO’s deployment strategy to reduce market barriers for AFV deployment. These objectives include exposing truck fleet operators who utilize long-term leases for diesel-fueled fleets to AFV operations and ultimately increasing AFV deployments among participating fleets.

Reviewer 3:
 The objectives identified in the project to increase AFV deployments with fleets that use long-term leases, and to increase AFV penetration in different geographic areas definitely supports the DOE objectives of reducing reliance on petroleum. In addition, the reviewer said that the work in this project would also help to address the barriers that are in the EERE Strategic Plan.

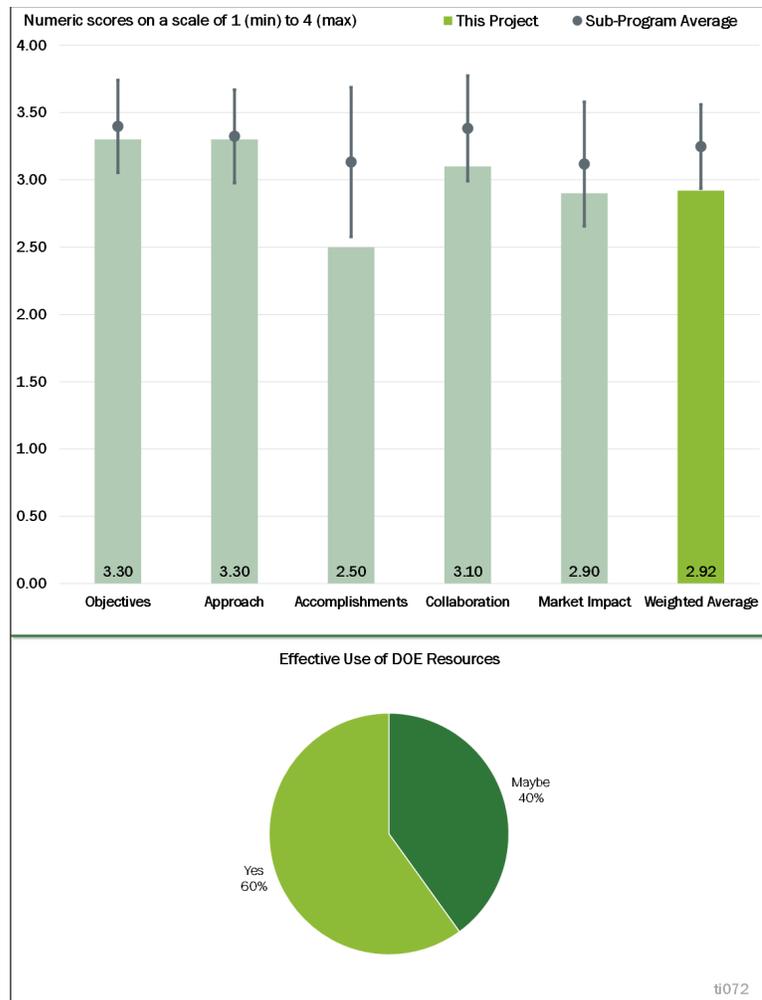


Figure 9-2 - Presentation Number: ti072 Presentation Title: Penske Truck Leasing Alternative Fuel Vehicle (AFV) Demonstration and Enhanced Driver Experience Project Principal Investigator: Dean Stapleton (Penske Truck Leasing Co.)

Reviewer 4:

The reviewer noted that the project objective and overview slides describe the project's specific objectives as well as how the project supports the DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. The project addresses several of the goals/deployment strategies contained the 2016-2020 EERE Strategic Plan. The reviewer stated that the project objectives appear to be generally effective.

Reviewer 5:

The reviewer said that this project focused on developing new markets for compressed natural gas (CNG) tractors by allowing potential leasers/purchasers to "try before they buy." The reviewer, however, noted that the timing of the project was unfortunate. Gasoline prices dropped sharply just before it began, erasing most of the economic advantage of CNG. Given the much higher capital cost of CNG trucks, this greatly limited the impact of the project on actual acceptance of CNG trucks. Penske offered a relatively low lease price to compensate for the higher initial cost but the lower gas prices still "crushed interest" in the CNG trucks.

Question 2: Project approach to supporting deployment of petroleum reduction technologies and practices, alternative fuel vehicles, infrastructure, emissions reductions and related efforts—the degree to which the project is well-designed, feasible, and integrated with other efforts.

Reviewer 1:

The reviewer commented that the project was well designed. It focused on states where acceptance of CNG trucks was low, seeking to increase interest throughout the demonstration. Good relationships were developed with the local CCC who helped identify candidate fleets. Appropriate data and methods were used to identify promising candidates. Appropriate promotional materials were developed. The reviewer further noted that truck fleet operators are very conservative due to the highly competitive business they are in. High costs or unreliable performance cannot be tolerated. This project's approach of allowing operators to experience CNG vehicles in service is a proven method of increasing knowledge and acceptance of AFVs.

Reviewer 2:

The reviewer noted that the approach of this project provided for the development of an AFV marketing plan for fleets, technical support for AFV demonstrations, fleet education about in-use AFV benefits, and progress measured in fleet acceptance of AFV, all of which support the deployment of petroleum reduction technologies.

Reviewer 3:

The reviewer said that the project approach section provided a generally effective methodology to accomplishing the project objectives. The reviewer also said that adequate detail was provided on the Approach and Milestone slides with regards to the planned tasks and activities.

Reviewer 4:

The reviewer remarked that it was not entirely clear why the three targeted regions were chosen. Pre-analysis on potential interest and fleet demand for AFV truck demonstrations was not well-explained by the presenter. It seemed that the market assessment activity should have begun prior to the project award. The reviewer further noted that the project approach provided for up to a 30-90-day demonstration period, which was generous.

Reviewer 5:

The reviewer stated that the project approach used sales staff and Clean Cities partners to identify fleets. The use of a fleet database to identify and refine prospects was also a well-designed approach. The reviewer noted that this multi-pronged approach allows for broader reach. The project switched messaging from price to sustainability when the project team realized it would resonate more with the audience. The reviewer stated that it was short-sighted of Penske to propose propane vehicles for demonstrations when they had none available and their only option was to determine availability after a customer expressed interest. To now simply resign themselves to the lack of interest was disappointing. To the reviewer, it appeared there was poor

planning on the part of Penske related to travel time to get vehicles to customers. Conversely, the element of the project that provided cost analysis in addition to the vehicle demonstration ensures that the fleets understand the vehicle operation as well as the potential return on investment (ROI) for their circumstances.

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

Reviewer 1:

The reviewer commented that Penske has achieved good progress and has been nimble in addressing needed change. The marketing effort is refined and focused yet uses multiple channels. Penske has posted useful information and tools on a website which will reach customers outside their defined demographic.

Reviewer 2:

The reviewer noted that the accomplishments to date have been satisfactory. With identifying new opportunities to place vehicles and having a one-year extension, the reviewer stated that the expected outcomes identified for the project should be realized at the end of the program.

Reviewer 3:

The reviewer stated that, although the project was well designed and executed, the low diesel and gasoline prices were almost certainly responsible for reducing its impacts. Still, there was important learning by participants (e.g., about the range limitations of CNG trucks and how to adapt and about the actual price of propane when purchased in bulk).

Reviewer 4:

The reviewer remarked that slow progress has been made towards achieving the project goals. When the project was conceived, the market for CNG HD trucks was experiencing significant activity and/or interest. Unfortunately, when the price of diesel dropped significantly, the interest in fleets getting into CNG vehicles greatly decreased, which has resulted in the little interest in fleets participating in a CNG vehicle demonstration, especially in the target markets which were selected due to the fact that they appeared to be “up and coming” markets for CNG (as opposed to mature markets in California, which may have had sustained interest). Activities are being undertaken to reach new potential customers; however, the results to date have been minimal.

Reviewer 5:

The reviewer noted that, to date, no fleets have demonstrated an interest in either liquefied petroleum gas (LPG) or hybrid electric vehicle trucks. These constitute two of the three fuels or vehicle platforms included under the project’s program. It seemed to the reviewer that not enough pre-market research was conducted prior to the project application or award. The reviewer further noted that fleet data baseline analysis was not complete even though it was the first task. While the project was targeting 60-80 demonstrations, only a handful of demonstrations have occurred. The reviewer stated that, on the positive side, produced marketing and driver instruction materials and video content were all very well done.

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 said that Penske assembled a well informed and diverse team to approach potential fleets. Partners are working to their strengths and bringing lessons and suggestions back to the project appropriately for measuring success and course correction.

Reviewer 2:

The reviewer commented that the project interaction with the Clean Cities has been very good and has provided an excellent resource to help move the project forward.

Reviewer 3:

The reviewer noted that the coordination with CCCs was appropriate and worked well.

Reviewer 4:

The reviewer commented that an effective project team was assembled to carry out this project, with industry and CCC partners involved, which provided an appropriate mix of expertise among team members. Collaboration and communication among project partners appeared to the reviewer to be appropriate for the project of this scope.

Reviewer 5:

The reviewer said that the CCCs within each pilot area have defined outreach responsibilities. However, it was not clear to the reviewer if they were fully engaged given the lack of executed vehicle demonstrations.

Question 5: Market impact and sustainability—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to a sustainable alternative fuel vehicle market, alternative fuel market expansion, and reduced petroleum dependence/emissions in the transportation sector. This would include the potential to reduce barriers to large scale alternative fuel vehicle market penetration, making information about alternative fuels and petroleum reduction opportunities widely available to target audiences, and ability for the project to be replicated in other geographic areas or with other technologies.

Reviewer 1:

The reviewer commented that, through this project, Penske has found other locations to begin talking about using AFV rentals and will be offering pricing assistance to offer vehicles more comparable to diesels. These actions have a positive impact on the AFV market.

Reviewer 2:

The reviewer said that this project ran into two difficult barriers: low gasoline and diesel prices everywhere; and lack of CNG refueling infrastructure in Baton Rouge, Louisiana. It was not designed to overcome these barriers.

The reviewer noted that, nonetheless, it did increase knowledge and capability at Penske about how to market CNG trucks. With growing interest in sustainability this may serve the company's efforts to market AFVs in the future.

Reviewer 3:

The reviewer noted that deployed demonstration trucks had no labeling identifying them as clean or AFVs. Further, it was difficult to assess a strong market impact, given the lack of executed vehicle demonstrations to date.

Reviewer 4:

The reviewer stated that the limited number of vehicles and willing clients has limited their success. The lack of successful deployment of the propane vehicles demonstrates that low diesel prices continue to impact fleet decisions. The reviewer noted that Penske's commitment to continuing to acquire and lease AFVs is clear. The reviewer observed that, because marketing changed to a sustainability message, this indicated their ability to understand the market and be successful long term.

Reviewer 5:

The reviewer stated that the project had an adequate potential to contribute to a sustainable AFV market, alternative fuel market expansion, and reduced petroleum dependence and emissions through educating fleets on real-world performance of various alternative fuels and fuel-efficient technologies through this multiple-state AFV demonstration. The reviewer commented that unfortunately not enough fleets have participated in the vehicle demonstrations to affect the local target markets.

Question 6: Use of resources—Are DOE funds being used wisely? Should DOE fund similar efforts in the future? If not, what would be a better use of DOE resources to achieve alternative fuel vehicle and infrastructure expansion to support the broader goal of petroleum displacement and emissions reductions?

Reviewer 1:

The reviewer stated that companies are cognizant of their public image and understand that sustainability is an important message. The Penske project helps companies consider their options without making a large up-front investment and to learn lessons about how alternative fuels can work for them. The reviewer further stated that sustainability is going to be increasingly important to companies and projects similar to this are well suited to decrease risk and increase long-term change.

Reviewer 2:

The reviewer commented that working with a private entity, such as Penske, was a very good approach to help advance the use of AFVs. As the presenter stated, Penske is already very active in California and this project helped to broaden their experience in the United States. Working with other private companies could also have a positive impact on AFV and infrastructure expansion.

Reviewer 3:

The reviewer remarked that while the project's objectives have strong merit, it seemed that the target pilot regions were not well-chosen. The project is providing some important lessons learned, but DOE funding for this kind of truck rental demonstration effort should be much better targeted to regions with demonstrated interest, based on pre-application market analysis. Ideally, fleet partners should be identified and signed-on prior to award of a project like this.

Reviewer 4:

The reviewer noted that, when gasoline and diesel prices were high, promoting CNG trucks seemed like an obvious winner. However, oil prices are volatile and the project was unlucky in that regard. It is not clear, however, that continuing this particular type of demonstration for CNG trucks would accomplish more than what has already been accomplished.

Reviewer 5:

The reviewer stated that the use of DOE funding to allow prospective fleet customers the opportunity to test drive AFVs for an extended period, carrying out the mission of their operations, is critically important to demonstrate the emission and cost benefits of these vehicles. The reviewer further noted that, unfortunately HD AFV market conditions have dampened the potential success of this approach.

Presentation Number: ti073
Presentation Title: Southeast Alternative Fuels Demonstration Initiative (SADI)
Principal Investigator: Andrea Eilers (Triangle J Council of Governments)

Presenter
 Andrea Eilers, Triangle J Council of Governments

Reviewer Sample Size
 A total of five reviewers evaluated this project.

Question 1: Project objectives—the degree to which the project objectives support the DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. This includes the impact the project has on addressing goals and barriers identified in the 2016-2020 EERE Strategic Plan previously listed.

Reviewer 1:
 The reviewer stated that the project’s objectives were strongly set towards reducing market barriers (a primary VTO deployment strategy). These objectives include providing end-users and fleets with AFV demonstration opportunities, along with alternative fuels technical expertise and procurement expertise.

Reviewer 2:
 The reviewer said that this project addressed barriers to adoption by enabling fleets to test technology before adopting. “Wading into” technology has proven to be a successful approach.

Reviewer 3:
 The reviewer stated that the project’s objective supports the DOE goals of reducing the reliance on petroleum by replacing conventional fuel vehicles with alternative fuels.

Reviewer 4:
 The reviewer commented that the project objectives were fully consistent with reducing reliance on petroleum fuels by overcoming the lack of awareness and acceptance of AFVs.

Reviewer 5:
 The reviewer noted that the project objective and overview slides describe the project’s specific objectives as well as how the project supports the DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. The reviewer further stated that the project addresses several of the goals and deployment

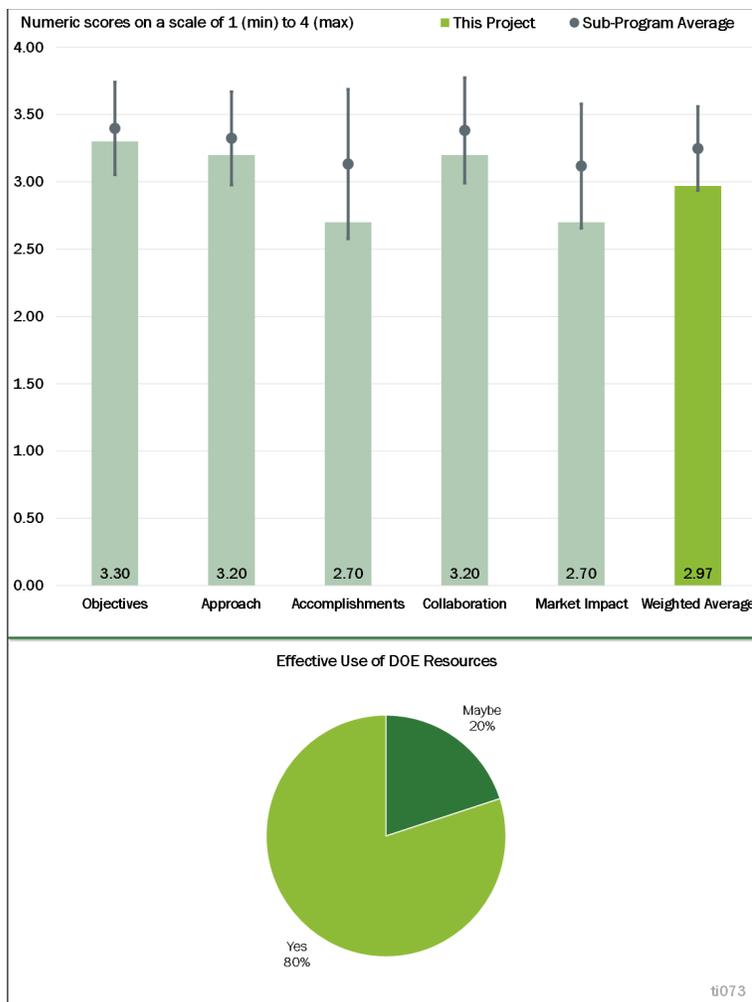


Figure 9-3 - Presentation Number: ti073 Presentation Title: Southeast Alternative Fuels Demonstration Initiative (SADI) Principal Investigator: Andrea Eilers (Triangle J Council of Governments)

strategies contained the 2016-2020 EERE Strategic Plan. The reviewer commented that the project objectives appeared to be generally effective.

Question 2: Project approach to supporting deployment of petroleum reduction technologies and practices, alternative fuel vehicles, infrastructure, emissions reductions and related efforts—the degree to which the project is well-designed, feasible, and integrated with other efforts.

Reviewer 1:

The reviewer commented that part of the approach used survey feedback so the project can make course corrections, add information to its outreach, and modify messages. The reviewer noted that this was an excellent process and design for ensuring success through the period of performance and that lessons are integrated as new demonstrations are placed. The reviewer suggested that a “lessons-learned” document about how the project team placed liability for insurance on partners and not the coalitions might be useful.

Reviewer 2:

The reviewer commented that the approach as outlined by the presenter seemed to be adequate.

Reviewer 3:

The reviewer remarked that the project approach section provided a generally effective methodology to accomplishing the project objectives. The reviewer stated that adequate detail was provided on the Approach and Milestone slides with regards to the planned tasks and activities.

Reviewer 4:

The reviewer noted that driver training, vehicle usage data collection, and driver feedback surveys were strong parts of the project’s approach. The reviewer also highlighted several difficulties with the project. The presenter indicated that it was difficult to get commitments from school bus OEMs (CNG, LPG) to commit buses to be a part of the project for the full duration (one year). Also, there were supposed to be many Nissan LEAF demonstrations; however, none were demonstrated because Nissan would not commit to the project. On both counts, this indicates to the reviewer that OEMs should be firmly committed partners at the time of project application. The reviewer also notes that the CNG street sweeper has not been a popular demonstration vehicle, largely because it is a large vehicle that requires a commercial driver’s license. This detail should have been known in advance.

Reviewer 5:

The reviewer said that involving AFV technology providers as partners and working collaboratively with other CCCs is a reasonable approach. Inclusion of telematics was a good idea but unfortunately had to be abandoned. If redundancy was a problem (fleets already used telematics), the reviewer noted that its use could have been limited to those fleets not already using it. Tracking of outcomes does not appear to be a strong point. The reviewer commented that success was apparently measured by number of demonstrations. While that is a useful metric, outcomes such as adoption of AFVs is more informative.

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

Reviewer 1:

The reviewer stated that 229 demos in 3 states have taken place which displaces a significant amount of fuel and gets technology into the hands of new users.

Reviewer 2:

The reviewer remarked that vehicle demonstrations have been nicely distributed among the three target states. However, the number of demonstrations conducted to date (229) falls well short of the intended goal (900).

Further, the reviewer commented that though 229 vehicle demonstrations have been conducted, just 100 surveys have been completed (less than half of demonstration drivers have submitted surveys).

Reviewer 3:

The reviewer stated that the project enabled 229 drivers to test AFVs, which is a reasonable number but measures of the length of the demonstrations and their impacts on awareness and acceptance were not presented. One hundred surveys were completed but what was learned from the surveys was not explained. The fact that propane was the most popular AFV is understandable to the reviewer because of its cost advantage and similarities to gasoline and diesel fuel. However, propane has been a popular alternative fuel for many years and is probably the best understood of all the AFVs.

Reviewer 4:

The reviewer stated that it was unfortunate that the project did not continue the use of telematics to help with collecting data during the vehicles operations. In addition, the reviewer commented that the project should have made it a requirement for users to answer the survey questions so that at least some data on miles driven could have been reported.

Reviewer 5:

The reviewer said that satisfactory progress has been made towards achieving the project goals. Activities associated with the fleet vehicle demonstrations and data collection are underway. Issues related to the discontinued use of telematics, and the dropping out of several of the technology providers (including the elimination of any school bus demonstrations) have slowed the original scope of the project as replacement partners have been incorporated. While 229 individual drives or demonstrations have occurred to date, the reviewer noted that the presentation did not document the original or revised number that the project is currently working towards at completion.

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 noted that the project has a significant number of both education partners (coalitions) and technology partners. The partnerships enable a broader set of users (fleets) to potentially participate. The reviewer commented that routing coordination among partners helped ensure clear communications and further assisted them in reaching the project goals.

Reviewer 2:

The reviewer said that the project had a very good group of education and technology partners participating in the project.

Reviewer 3:

The reviewer stated that cooperation among the CCCs was good and that the participation of technology providers was reasonable. The reviewer stated that there were some disappointments, however, for example, CNG and propane school buses did not participate. The reviewer commented that the inclusion of the hydraulic hybrid was encouraging and it will be interesting to see the results of that demonstration because the technology is generally unfamiliar.

Reviewer 4:

The reviewer noted that an effective project team was assembled to carry out this project with industry and CCC partners involved. This provided an appropriate mix of expertise among team members. Collaboration and communication among project partners appears to be appropriate for the project of this scope, according to the reviewer.

Reviewer 5:

The reviewer stated that the project's confirmed and/or committed partners have been strong assets to the team. The reviewer noted that LPG (non-school bus) vehicle demonstrations were particularly successful as a result of strong commitment from Alliance AutoGas. However, the reviewer pointed out that the project has lacked some key vehicle and/or OEM partners needed for project success.

Question 5: Market impact and sustainability—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to a sustainable alternative fuel vehicle market, alternative fuel market expansion, and reduced petroleum dependence/emissions in the transportation sector. This would include the potential to reduce barriers to large scale alternative fuel vehicle market penetration, making information about alternative fuels and petroleum reduction opportunities widely available to target audiences, and ability for the project to be replicated in other geographic areas or with other technologies.

Reviewer 1:

The reviewer stated that it was not yet clear how much adoption would result from the demonstrations. The PI indicated that several discussions are underway. The reviewer noted that the project should have more follow up with users about ROI or total cost of ownership to help with adoption and understand why a fleet would or would not purchase vehicles after the demonstration.

Reviewer 2:

The reviewer stated that the number of demonstrations was reasonable. Because the project is still underway it is somewhat premature to assess its impacts, however. The reviewer noted that the inclusion of eco-driving training is likely to have benefits to participants that apply to all types of vehicles.

Reviewer 3:

The reviewer commented that the project had an adequate potential to contribute to a sustainable AFV market, alternative fuel market expansion, and reduced petroleum dependence/emissions through educating fleets on real-world performance of various alternative fuels and fuel-efficient technologies through this multiple-state AFV demonstration. During the oral presentation, it was reported that 100 surveys had been returned to date; however, it was not clear if the project team had determined exactly how many of the demonstrations had resulted in sales. The reviewer noted that it is important to determine that the activities being carried out and data collected is valuable and will result in increased vehicle awareness and/or sales.

Reviewer 4:

The reviewer said it was not clear how the project has contributed to reduced petroleum dependence because the project did not provide any data regarding how the vehicles were used.

Question 6: Use of resources—Are DOE funds being used wisely? Should DOE fund similar efforts in the future? If not, what would be a better use of DOE resources to achieve alternative fuel vehicle and infrastructure expansion to support the broader goal of petroleum displacement and emissions reductions?

Reviewer 1:

The reviewer said that adoption of new technology requires buy-in from multiple levels. The reviewer remarked that this project was doing an excellent job of addressing driver hesitation and of demonstrating to fleet managers how the technology can work for them. It is a good low-risk first-step for fleets who have not tried alternative fuels. Historically, we know that hands-on experience allows users to become familiar and comfortable with a technology and helps overcome the perceived risk factor.

Reviewer 2:

The reviewer stated that the project constituted a good use of DOE funding. To even better leverage funding and maximize benefit for AFV demonstration projects, the reviewer noted that OEM technology partners

should be firmly committed to the project prior to award. Also, as many demonstration participants and/or fleets should be identified and committed to the project as possible at the time of application.

Reviewer 3:

The reviewer commented that the use of DOE funding to allow prospective fleet customers the opportunity to test drive alternative fuel vehicles for an extended period, carrying out the mission of their operations, is critically important to demonstrate the emission and cost benefits of these vehicles.

Reviewer 4:

The reviewer noted that efforts like this that put AFVs in the hands of potential owners and operators are a proven method of increasing awareness and acceptance and should be continued. CCCs play an important role in this process by providing information and technical assistance as well. The reviewer suggested increasing the emphasis on electric drive vehicles while continuing to promote the other AFVs.

Reviewer 5:

The reviewer commented that similar efforts could be funded by DOE but there should be a requirement that data needs to be collected in order to provide some kind of information back to DOE regarding how the AFVs were used.

Presentation Number: ti074
Presentation Title: Filling Critical Gaps Through Innovative Cradle-To-Grave Training
Principal Investigator: Pamela Burns (North Central Texas Council of Governments)

Presenter
 Pamela Burns, North Central Texas Council of Governments

Reviewer Sample Size
 A total of five reviewers evaluated this project.

Question 1: Project objectives—the degree to which the project objectives support the DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. This includes the impact the project has on addressing goals and barriers identified in the 2016-2020 EERE Strategic Plan previously listed.

Reviewer 1:
 The reviewer stated that the project’s objectives are to provide training on alternative fuels and AFVs to mechanics and/or technicians, first responders, public safety officials, and other critical service providers across a large multiple-state region. The reviewer commented that these objectives strongly support VTO’s barrier reduction strategy to help prepare and certify sustainable transportation professionals.

Reviewer 2:
 The reviewer remarked that the project objectives serve to reduce market barriers by training local officials and technicians which in turn has the potential to reduce barriers to infrastructure development and vehicle adoption. The project addresses numerous audiences and capitalizes on an efficient project budget by using materials that were previously developed through a DOE project and vetted by subject matter experts.

Reviewer 3:
 The reviewer commented that the project objectives (enhancing and providing training on alternative fuels and vehicles to first responders and others) definitely supports the VTO objectives and addresses the barriers of lack of technical expertise and consumer reluctance to AFVs.

Reviewer 4:
 The reviewer stated that there are institutional as well as market barriers to AFVs. By training first responders (and some mechanics) to be capable of dealing with AFVs in their normal work, the reviewer noted that this

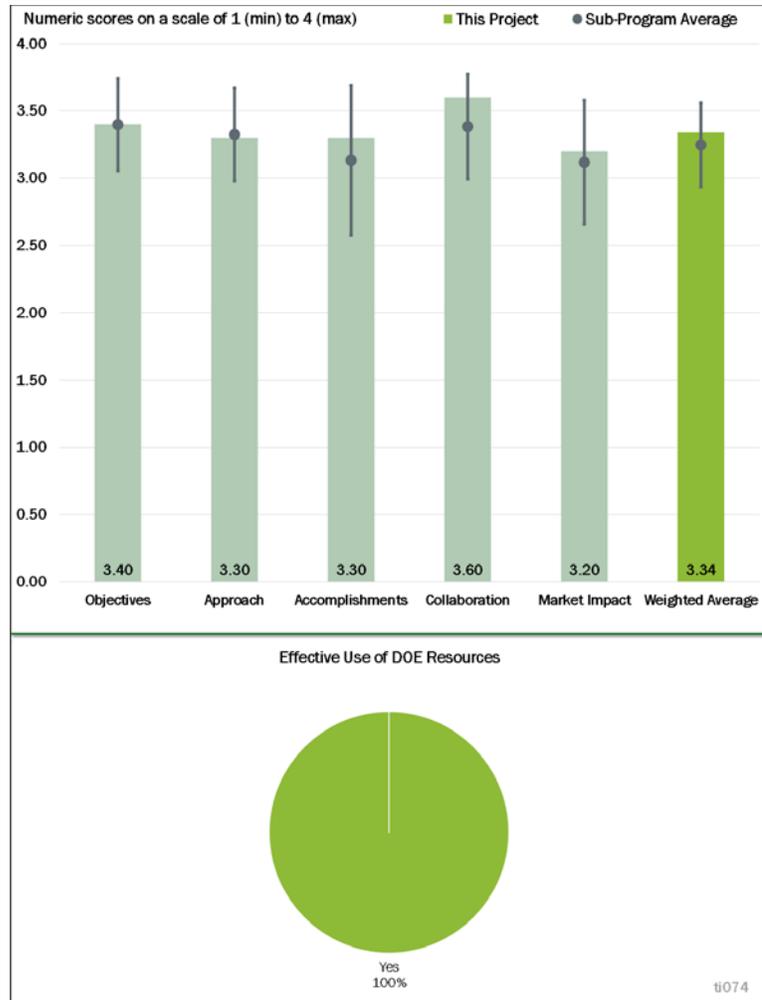


Figure 9-4 - Presentation Number: ti074 Presentation Title: Filling Critical Gaps Through Innovative Cradle-To-Grave Training Principal Investigator: Pamela Burns (North Central Texas Council of Governments)

project helps to overcome one of the institutional barriers. This indirectly but importantly contributes to the goals.

Reviewer 5:

The reviewer noted that the project objective and overview slides describe the project's specific objectives as well as how the project supports the DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. The project addresses several of the goals/deployment strategies contained the 2016-2020 EERE Strategic Plan. The reviewer remarked that the project objectives appear to be generally effective.

Question 2: Project approach to supporting deployment of petroleum reduction technologies and practices, alternative fuel vehicles, infrastructure, emissions reductions and related efforts—the degree to which the project is well-designed, feasible, and integrated with other efforts.

Reviewer 1:

The reviewer stated that the project is well integrated with other efforts through the use of established curriculum. The project expands access to training by placing it in vocational and community colleges which helps with long-term use of the curricula in course offerings. The reviewer noted that offering free classes to first responders and public safety official was an excellent method to drive up attendance at trainings. By using existing firefighter instructors and the Freeway Incident management classes, the project team has engaged trusted sources to teach the curriculum.

Reviewer 2:

The reviewer stated that the approach of leveraging existing curriculum and developing “train-the-trainer” information to deliver additional classes after this project is over was very good and supported the reduction of petroleum use.

Reviewer 3:

The reviewer commented that the project approach section provided an effective methodology to accomplishing the project objectives. Significant detail was provided on the Approach slide regarding the planned tasks and activities.

Reviewer 4:

The reviewer noted that the project approach substantively leveraged existing training curriculum funded by other DOE projects (e.g., CNG Station Safety Training for Fire Marshalls and Code Inspectors). The project approach smartly targets pre-existing and captive audiences (e.g., Freeway Incident Management (FIM) classes/attendees). The reviewer said that the project team had some difficulty efficiently engaging with first responder and FIM audiences. This may have been alleviated by using a modified approach to ensure better scheduling, coordination, and training deployment.

Reviewer 5:

The reviewer noted that training first responders and mechanics to be capable of dealing with AFVs facilitated their deployment indirectly. A justification given is that it increases the confidence of potential AFV owners. The reviewer stated that this seemed reasonable but also seemed rather indirect in that the public is not likely to be aware of the training unless it is well publicized. More directly, the reviewer believed that this effort will instill confidence in those who make codes and regulations or control the zoning and approvals for AFV refueling stations and AFVs. This was given little attention in the presentation.

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

Reviewer 1:

The reviewer noted that as of April 1, 2017, 17 classes have been held with over 250 attendees. The project schedule appears to be on track.

Reviewer 2:

The reviewer stated that the number of classes, attendees, and organizations reached was significant. The training across state lines has good potential to ensure consistent response in the event of an emergency. The project has reached technicians and first responders but also placed the curriculum in colleges. The reviewer gave high marks for the pictures in the presentation which show the hands-on experience that attendees receive.

Reviewer 3:

The reviewer stated that the accomplishments identified in the project of 17 total classes with 251 attendees has been very good. The project is on track to complete the remaining milestones by the end of the project in August, which will help to continue to address the identified barriers.

Reviewer 4:

The reviewer noted that between 20 and 65 persons were trained in each of the 6 locations for a total of 251, which represents a reasonable accomplishment given the demands on the time of the trainees. According to the reviewer, it apparently proved to be more difficult than expected to get the training incorporated into the official training requirements for first responders. That is difficult to achieve but it is good to know that the project team is still working on that in order for their project to have a lasting impact.

Reviewer 5:

The reviewer stated that good progress has been made towards achieving the project goals. Activities associated with developing and providing training to alternative fuels and AFVs to reach mechanics and technicians, first responders, public safety officials, and other critical service providers are well underway. All initiatives and activities appear to be on track for successful completion. The reviewer concluded that no 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 stated that the project demonstrated strong coordination between the PI organization, training organizations (National Alternative Fuels Training Consortium (NAFTC) and Tulsa Area Clean Cities/FS Circle), and partner CCCs. The reviewer also suggested that stronger partnerships with organizations hosting target audiences would be beneficial to the project.

Reviewer 2:

The reviewer commented that roles for each of the partners were well defined and subsequently utilize the strength of each partner. The project successfully involved a significant number of local governments and universities. Local coalitions were very valuable as boots-on-the-ground for finding local audiences and managing each training to ensure success and understand local needs and potential future uses of training.

Reviewer 3:

The reviewer said that the project has an excellent set of collaborators including technical colleges and universities, vehicle providers, local governments, and CCCs. The team has shown very good coordination between training partners, host facilities, and CCCs, which has led to a successful project.

Reviewer 4:

The reviewer commented that project team collaboration and coordination was a particularly strong point of the project. The NAFTC was the best choice for conducting the classes. A solid group of six CCCs cooperated to accomplish the project. The reviewer also noted that seven technological institutes, colleges, and universities were involved as well as seven local governmental agencies and vehicle providers.

Reviewer 5:

The reviewer remarked that an effective project team was assembled to carry out this project, with industry and CCC partners involved, which provided an appropriate mix of expertise among team members. Collaboration and communication among project partners appeared to be appropriate for the project of this scope.

Question 5: Market impact and sustainability—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to a sustainable alternative fuel vehicle market, alternative fuel market expansion, and reduced petroleum dependence/emissions in the transportation sector. This would include the potential to reduce barriers to large scale alternative fuel vehicle market penetration, making information about alternative fuels and petroleum reduction opportunities widely available to target audiences, and ability for the project to be replicated in other geographic areas or with other technologies.

Reviewer 1:

The reviewer stated that the project will develop a Future Action Plan to guide continued work and provide for replicability. The project included an effort to sign-up local partner organizations as NAFTC members.

Reviewer 2:

The reviewer noted that the project has trained a significant number of technicians, first responders, and service providers who can more effectively execute their roles and train others. As each of these groups moves among their community they will help reach broader audiences and reduce barriers to market penetration.

Reviewer 3:

The reviewer commented that the project will have good market impact because one of the outcomes will be to work with instructors that have attended the training to implement their own trainings in the future after the project is completed.

Reviewer 4:

The reviewer said that the project had good potential to contribute to a sustainable AFV market, alternative fuel market expansion, and reduced petroleum dependence/emissions through educating mechanics/technicians, first responders, public safety officials, and other critical service providers on various alternative fuels and AFVs. The presentation provided several potential activities and/or strategies that could sustain this training beyond the performance period and how it could be replicated to other coalitions.

Reviewer 5:

The reviewer commented that it is very difficult to measure the market impact of a project such as this. Nonetheless, it is clear that training first responders and mechanics will contribute to market expansion. Like the other training projects, this one asserts that the training will increase consumer confidence in AFVs. Yet little was said about how the public would be made aware of the training or what efforts were undertaken to publicize it.

Question 6: Use of resources—Are DOE funds being used wisely? Should DOE fund similar efforts in the future? If not, what would be a better use of DOE resources to achieve alternative fuel vehicle and infrastructure expansion to support the broader goal of petroleum displacement and emissions reductions?

Reviewer 1:

The reviewer noted that technical training to key audiences is a critical need for growing and sustaining the AFV market; DOE funds should continue to support these types of projects. As stated by the reviewer, gaining upfront commitments from target audiences (prior to award) would enhance the effectiveness of future training projects.

Reviewer 2:

The reviewer stated that long-term successful deployment of vehicles and infrastructure requires a depth of training and education to multiple audiences in addition to vehicles being placed; and this project helps achieve that. Technicians must be well educated and familiar with technology, communities must be confident that their first responders are equipped to understand new technologies and how to best respond in an emergency, and fire marshals and code officials need accurate information to ensure infrastructure is compliant and safe. The reviewer remarked that this project does all these things which will help with future deployments and will build a field of smart technicians to support those deployments.

Reviewer 3:

The reviewer said that the project has been a good use of resources and there continues to be a need to educate first responders and others about alternative fuels and vehicles. The reviewer further said that it would be a good use of resources to have others projects similar to this one in other areas of the country.

Reviewer 4:

The reviewer noted that training of this type is valuable in its own right for public safety, may influence those regulating alternative fuels and could increase public confidence in AFVs. The reviewer also commented that success depends on whether the team is able to get AFV training incorporated into required first responder training.

Reviewer 5:

The reviewer stated that the use of DOE funding to develop and deliver training for mechanics and technicians, first responders, public safety officials, and other critical service providers is critically important and necessary. Once the training programs are incorporated into state fire training centers and technical colleges, the reviewer affirms that this will result in an increase the number of key professionals trained on AFVs to support and sustain alternative fuels market development.

Presentation Number: ti075
Presentation Title: Creating an Alternative Fuel Training Network for Florida
Principal Investigator: Colleen Kettles (University of Central Florida)

Presenter
 Colleen Kettles, University of Central Florida

Reviewer Sample Size
 A total of five reviewers evaluated this project.

Question 1: Project objectives—the degree to which the project objectives support the DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. This includes the impact the project has on addressing goals and barriers identified in the 2016-2020 EERE Strategic Plan previously listed.

Reviewer 1:
 The reviewer stated that the project’s objectives are to establish an AFV training network in Florida that provides technical and safety training on alternative fuels and AFVs to first responders, public safety officials, and educational instructors. These objectives strongly support VTO’s barrier reduction strategy to help prepare and certify sustainable transportation professionals.

Reviewer 2:
 The reviewer noted that this project uses high-impact safety related training to increase acceptance of AFVs. The project further establishes training networks in Florida which will educate workforces now and in the future. This project also integrates first responder training into Florida State Fire Marshall approved curriculum.

Reviewer 3:
 The reviewer noted that the project supports the VTO deployment goals and addresses the barriers of lack of technical experience with new fuels and vehicles as well as consumer reluctance to purchase new technologies through the objectives of providing best practices, data, and informational materials to end users and communities regarding alternative fuels and vehicles. In addition, the project’s objective to establish alternative fuel training networks for emergency responders and safety officials will help address the barriers.

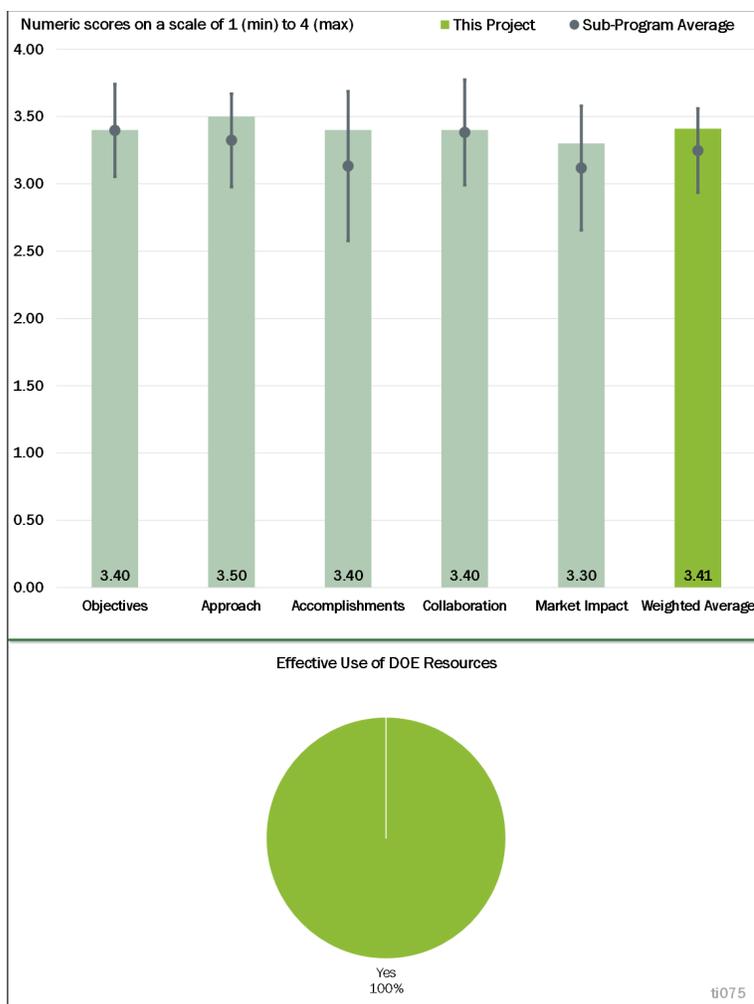


Figure 9-5 - Presentation Number: ti075 Presentation Title: Creating an Alternative Fuel Training Network for Florida Principal Investigator: Colleen Kettles (University of Central Florida)

Reviewer 4:

The reviewer commented that safety training for first responders helps to create a sustainable market for alternative fuels and vehicles by overcoming institutional barriers, creating confidence in regulators, and, if appropriately publicized, in the public as well.

Reviewer 5:

The reviewer noted that the project objective and overview slides describe the project's specific objectives as well as how the project supports the DOE/VTO objectives of reducing reliance on petroleum-based fuels and reducing emissions. The project addresses several of the goals/deployment strategies contained the 2016-2020 EERE Strategic Plan. The reviewer further noted that project objectives appear to be generally effective.

Question 2: Project approach to supporting deployment of petroleum reduction technologies and practices, alternative fuel vehicles, infrastructure, emissions reductions and related efforts—the degree to which the project is well-designed, feasible, and integrated with other efforts.

Reviewer 1:

The reviewer commented that the project approach targets key audiences (fire fighter trainers, fire fighter recruits, and tow operators) for AFV training. The PI has remained flexible in re-arranging activities to ensure trainings coincide well with first responder audience availability (e.g., move trainings when natural disasters or storms hit, avoid scheduling near other conflicting events, etc.) to maximize attendance. The reviewer also stated that the project is working to identify U.S. Department of Labor-sponsored Workforce Board funding opportunities to help individuals pay training tuition.

Reviewer 2:

The reviewer stated that the project approach was well planned and thoughtful. The inclusion of Fire College approvals and engaging Fire Fighter Instructors will give trainings significant impact into the future. The reviewer appreciated this very robust approach. Workforce Board opportunities are an interesting addition to the project, which could be documented for other areas to also use.

Reviewer 3:

The reviewer remarked that the approach identified in the phase 1 and 2 milestones of the project was very good. The activities in the project should support deployment of petroleum reduction technologies and will definitely help to address the barriers identified by the team.

Reviewer 4:

The reviewer said that the project plan is well-conceived. It gives appropriate attention not only to training trainers who can continue the process, but also to getting the approvals that can make the training a standard part of the curriculum for first responders. In addition, the project addressed the need to make the public aware of the training, which would seem to be key to building public confidence in AFVs.

Reviewer 5:

The reviewer noted that the project approach section provides a generally effective methodology to accomplishing the project objectives. The reviewer also commented that adequate detail was provided on the Approach slide regarding planned tasks and activities.

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

Reviewer 1:

The reviewer commented that the accomplishments identified in the project are very effective in meeting the goals of the project and addressing the associated barriers. The accomplishments, including the establishment of an AFV safety training program approved by the Florida State Fire Marshal and the introduction of AFV

safety training to a national tow operator training organization, are examples of major successes of the project that will ultimately allow for more AFV use.

Reviewer 2:

The reviewer noted that only one tow operator “train-the-trainer” session is scheduled. In the reviewer’s eyes, ideally there would be more scheduled for a large state like Florida. A total of 73 instructors have been trained, covering 22 of 67 Florida counties, which the reviewer considers respectable progress with 50% budget expenditure. The overall project goal in terms of number of trainings targeted was not made clear in the presentation.

Reviewer 3:

The reviewer noted that the database of fire department and training institutions provided an excellent baseline from which to work. The approval by Florida State Fire College ensures a well-educated workforce in Florida. The process by which the project team did this should be taught to other states, and additional lessons from those states should be added to a compendium for future use. The reviewer also said that the use of Workforce Board assistance is an excellent addition to the project which should be documented for others to learn from and use similarly. To the reviewer, it was not clear why all project funds would not be used by the end of the project; however, the project has been highly impactful so this is not a significant shortcoming.

Reviewer 4:

The reviewer commented that the project is still ongoing so much of the training has not yet been accomplished. Still, 73 individuals have been trained as instructors and 22 of Florida’s counties have been reached with training. Importantly, the Florida State Fire Marshall has approved the training as has the Fire College Department of Insurance Continuing Education, which are important steps towards making AFV training standard for firefighters.

Reviewer 5:

The reviewer stated that good progress has been made towards achieving the project goals. Activities associated with establishing AFV training networks for the state of Florida that provide safety and technical training on electric drive, CNG, and propane vehicles to current and future emergency first responders, public safety officials, and instructors at educational institutions are well underway. The reviewer further stated that all initiatives and activities appear to be on track for successful completion. Particularly noteworthy is the cooperation and collaboration with the Workforce Development Boards to provide funding for this training. This project may be a good model for other states to replicate. The reviewer concluded that no concerns have been identified in this category.

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 stated that the project demonstrates significant successful collaboration among coalitions and a broad set of stakeholders. The fact that the project team was able to secure food and vehicle donations is commendable in the reviewer’s eyes and likely led to happier attendees. Their experience with the State Fire Marshall and successfully integrating training into regular training materials is commendable and documenting their experience would be helpful to others.

Reviewer 2:

The reviewer stated that the project lead has identified a very strong group of sub-recipients and project partners which are collaborating on this project. The participation of the fire departments, academies, and food and vehicle donation companies have all helped make the overall project a success. In addition, the work done by the CCCs have also been integral to meeting this project’s objectives.

Reviewer 3:

The reviewer noted that the collaboration includes Florida CCCs, the Florida State Fire College, the NAFTC, and other relevant participants such as Towers, General Motors, and other stakeholders. The reviewer stated that involving the State Fire College early on was a key to successful approval of the curriculum. The reviewer questioned whether there was a way to further involve the media to provide more exposure.

Reviewer 4:

The reviewer said that an effective project team had been assembled to carry out this project, with industry and CCC partners involved. This provided an appropriate mix of expertise among team members. The reviewer further commented that collaboration and communication among project partners appeared to be appropriate for the project of this scope.

Reviewer 5:

The reviewer remarked that the project demonstrates good coordination between the PI organization, the NAFTC, Florida State Fire College, and Florida CCCs. Of further note, the degree of involvement by the North American Towing Academy is not entirely clear. For example, training was “introduced” to them, however, it was unclear to the reviewer if they will do anything with it. Only one tow operator training has been scheduled, presumably through NAFTC. The reviewer commented that the PI has done an excellent job securing donor vehicles for training sessions through a wide host of partner organizations.

Question 5: Market impact and sustainability—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to a sustainable alternative fuel vehicle market, alternative fuel market expansion, and reduced petroleum dependence/emissions in the transportation sector. This would include the potential to reduce barriers to large scale alternative fuel vehicle market penetration, making information about alternative fuels and petroleum reduction opportunities widely available to target audiences, and ability for the project to be replicated in other geographic areas or with other technologies.

Reviewer 1:

The reviewer commented that the project seeks to ensure sustained market impact by integrating AFV Safety First Responder Training into Florida State Fire Marshall training curriculum (through the Florida State Fire College regimen). The reviewer further noted the potential accessibility of financial assistance through Florida Workforce Boards to help cover training tuition was encouraging.

Reviewer 2:

The reviewer stated that because the training materials were part of the state curriculum for training and for new fire fighters, the project had broad and deep market impact and long-term sustainability. The reviewer remarked that the presentation demonstrated an understanding of the future work that will further increase the impact of the project. Particularly, the financial assistance the project team has access to through Workforce Boards will be impactful.

Reviewer 3:

The reviewer stated that the project has had a market impact through the training of 73 instructors in 22 counties in Florida. A sustainability plan is being developed to support continued first responder training that will provide a mechanism to move training forward in Florida long after this project is completed.

Reviewer 4:

The reviewer commented that, although the project is not complete, there are two very important indications that it may succeed in planting AFV training firmly within the firefighter training curriculum in Florida: the curriculum has already been approved by the Florida College Department of Insurance for Continuing Education; and 73 trainers have been trained.

Reviewer 5:

The reviewer said the project had good potential to contribute to a sustainable AFV market, alternative fuel market expansion, and reduced petroleum dependence/emissions through creating and implementing high-impact and highly innovative approaches to increase the acceptance and deployment of AFVs through safety related training.

Question 6: Use of resources—Are DOE funds being used wisely? Should DOE fund similar efforts in the future? If not, what would be a better use of DOE resources to achieve alternative fuel vehicle and infrastructure expansion to support the broader goal of petroleum displacement and emissions reductions?

Reviewer 1:

The reviewer noted that technical training to key first responder and fire professional audiences is a critical need for growing and sustaining the AFV market. The reviewer remarked that DOE funds should continue to support these types of projects.

Reviewer 2:

The reviewer said that this project represented an excellent use of funds. The database of Fire Marshalls that was developed and the use of Workforce Board funding highly support the expansion of vehicles and infrastructure and should be replicated.

Reviewer 3:

The reviewer stated that the project has been a good use of resources and, because there continues to be a need to educate first responders and others about AFVs, additional projects like this would be appropriate in other parts of the country.

Reviewer 4:

This reviewer noted that the project may establish the pattern for successfully implanting AFV training in state first responder training. If so, it could be replicated elsewhere and lead to spontaneous adoption of AFV training. Ex post evaluation of this project and the Texas training project should focus on developing a template for replication in other states.

Reviewer 5:

The reviewer stated that the use of DOE funding to develop and deliver training for mechanics and technicians, first responders, public safety officials, and other critical service providers was critically important and necessary. Once the training programs are incorporated into state fire training centers and technical colleges, this will result in an increase the number of key professionals trained on AFVs to support and sustain alternative fuels market development.

Presentation Number: ti076
Presentation Title: Increasing Nationwide ZEV Adoption—Enhanced Joint Procurement Process for Public Fleets
Principal Investigator: Jasna Tomic (CALSTART)

Presenter
 Jasna Tomic, CALSTART

Reviewer Sample Size
 A total of five reviewers evaluated this project.

Question 1: Project objectives—the degree to which the project objectives support the DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. This includes the impact the project has on addressing goals and barriers identified in the 2016-2020 EERE Strategic Plan previously listed.

Reviewer 1:
 The reviewer commented that the project had strong objectives geared towards reducing market barriers (a primary VTO deployment strategy). These objectives focus on developing a replicable procurement model that will secure public fleets’ access to a wider range of ZEV models with purchase price reduction and improved access to charging.

Reviewer 2:
 The reviewer said that the project strongly supported VTO objectives through a thoughtful approach to group procurements by first identifying potential barriers then developing a replicable model. The project’s upfront identification of barriers will allow it to become more successful in both the short and long term. The flexible process will make the procurement process replicable in more places.

Reviewer 3:
 The reviewer noted that the project objective to develop a procurement model to help fleets access ZEV models with purchase price reduction and improved access to charging stations will help address the barriers identified and supports the DOE Goal 1 to accelerate the adoption of sustainable transportation technologies.

Reviewer 4:
 The reviewer stated that the idea of using buying power and innovative procurement methods to reduce the purchase (or lease) price of ZEVs is an excellent way to increase acquisitions by governments. Joint procurement can also increase the range of choice for states that are not part of the ZEV coalition. Although leasing may seem an obvious way to monetize the federal tax credit, the issue is usually more complicated.

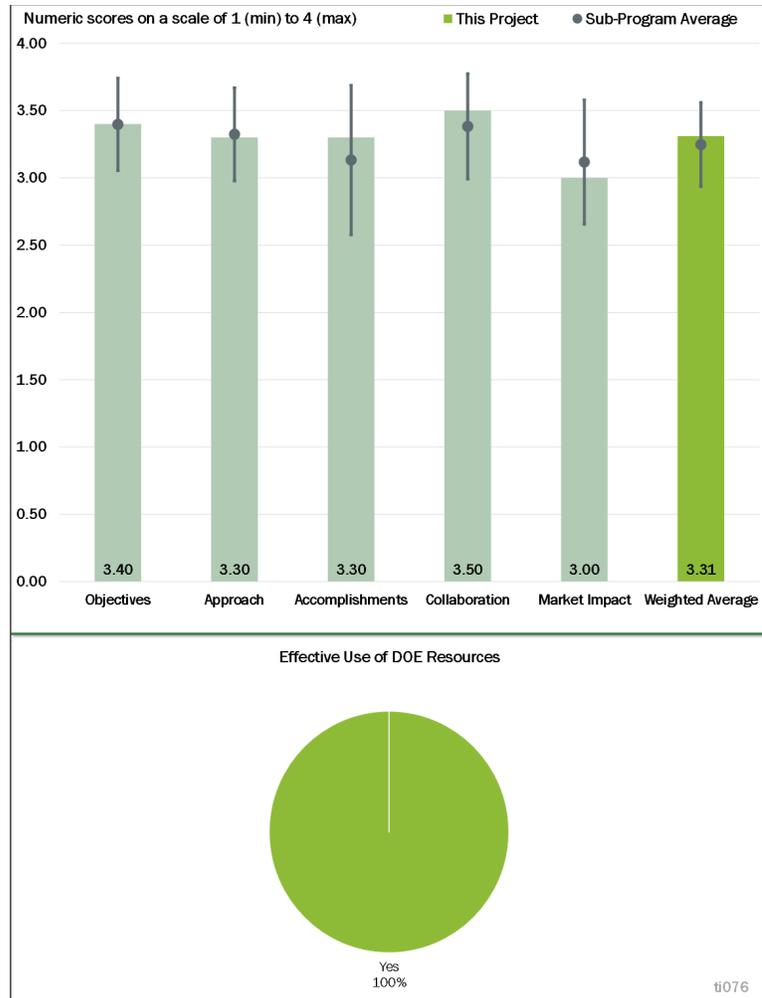


Figure 9-6 – Presentation Number: ti076 Presentation Title: Increasing Nationwide ZEV Adoption—Enhanced Joint Procurement Process for Public Fleets Principal Investigator: Jasna Tomic (CALSTART)

Reviewer 5:

The reviewer said that the project objective and overview slides describe the project's specific objectives as well as how the project supports the DOE/VTO objectives of reducing reliance on petroleum-based fuels and reducing emissions. The project addresses several of the goals/deployment strategies contained the 2016-2020 EERE Strategic Plan. The reviewer concluded that the project objectives appear to be generally effective.

Question 2: Project approach to supporting deployment of petroleum reduction technologies and practices, alternative fuel vehicles, infrastructure, emissions reductions and related efforts—the degree to which the project is well-designed, feasible, and integrated with other efforts.

Reviewer 1:

The reviewer said that the project approach included a logical sequence of tasks. It was well thought out and very thorough.

Reviewer 2:

The reviewer stated that a very robust project approach was evident, which utilized survey information to build models, which were vetted and then updated accordingly. The first six months of the project was outreach-heavy, which ensures that the future work will be impactful. The reviewer noticed that good analysis and course correction opportunities were built into the approach.

Reviewer 3:

The reviewer stated that the approach of the project and associated tasks to complete this activity seemed to be adequate to develop a procurement model for supporting the deployment of petroleum reduction technologies.

Reviewer 4:

The reviewer noted that the project was largely about assembling the right stakeholders and developing a consensus approach that can be adopted, perhaps with variations, by all stakeholders. California is the right choice to lead this effort and has shown that they have the right perspective concerning how to make this work for all the stakeholders. Involving the National Association of Procurement Officials will likely prove to be a key to success.

Reviewer 5:

The reviewer stated that the project approach section provided a generally effective methodology to accomplishing the project objectives. The reviewer further noted that adequate detail was provided on the Approach and Milestone slides regarding the planned tasks and activities.

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

Reviewer 1:

The reviewer noted that the project has accomplished a lot, despite only expending 40% of the budget. The reviewer further said that the Fleet Procurement Analysis Tool looked like a nice tool. The project utilized CCC testers in its development, helping ensure proper functionality.

Reviewer 2:

The reviewer stated that the procurement elements identified by the project team (Slide 11) were important for future projects. The project demonstrated a good understanding of dealerships and how to successfully work with them. The project Analysis Tool is easy to use and includes useful outputs. The reviewer noted that some of the accomplishments information was too quickly presented. The presenter needed to more thoughtfully consider how to present all the required information within the time limit because reviewers cannot intuit needed information from the slides.

Reviewer 3:

The reviewer stated that accomplishments to date included the completed survey and fleet analytical procurement tool. These elements have provided very good background information to allow the project to move to the next steps. The case study of the Alameda County effort to lead a collective purchase of 90 vehicles shows the value of purchasing EVs with multiple public fleets being involved.

Reviewer 4:

The reviewer said that the accomplishments to date are largely planning, organization, and consensus building. In addition, a fleet procurement analysis tool has been developed that should help fleets make better evaluations of ZEVs.

Reviewer 5:

The reviewer stated that good progress has been made towards achieving the project goals. The preliminary activities associated with developing the procurement model are underway; these activities will secure public fleets' access to a wider range of ZEV models. The prepared presentation provides 10 slides with significant detail of project accomplishments to date. Unfortunately, the oral presentation ran out of time before all of these items were covered or discussed. The reviewer concluded that future presentations should ensure that they all material can be covered in the 20-minute time limit.

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 the project team is large, but appears to be well coordinated. The reviewer also commented that the project team is strong, and includes numerous leading organizations in AFV deployment. The project convenes a vast number of state vehicle procurement experts and expertise.

Reviewer 2:

The reviewer remarked that the project has multiple strong partners who contributed to the project's success. The reviewer said that the use of partners who are skilled at thoughtfully building models was commendable. Each partner's role was well described (Slide 6).

Reviewer 3:

The reviewer noted that CALSTART has put together an excellent group of collaborators including the Northeast States for Coordinated Air Use Management (NESCAUM), California Department of General Services, Georgetown Climate Center, and nine CCCs. There is very good coordination among the participants in the project through regular meetings and phone calls.

Reviewer 4:

The reviewer said that the project has assembled an outstanding group of participants, including NESCAUM, the Georgetown Climate Center, and nine CCCs. The reviewer pointed out that it was not clear from the presentation materials how involved other state procurement agencies are at this point. Getting them and the National Association of Procurement Officials directly involved is likely to be important to ultimate success.

Reviewer 5:

The reviewer viewed the project as having an effective team assembled to carry out the work, with industry and CCC partners involved, providing an appropriate mix of expertise among team members. Collaboration and communication among project partners appears to be appropriate for the project of this scope.

Question 5: Market impact and sustainability—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to a sustainable alternative fuel vehicle market, alternative fuel market expansion, and reduced petroleum dependence/emissions in the transportation sector. This would include the potential to reduce barriers to large scale alternative fuel vehicle market penetration, making information about alternative fuels and petroleum reduction opportunities widely available to target audiences, and ability for the project to be replicated in other geographic areas or with other technologies.

Reviewer 1:

The reviewer noted that the developed purchasing agreement will be open to all state, county, and municipal governments. The procurement model may also be extended to private fleets. The reviewer further commented that the developed procurement model would provide an average vehicle purchase price reduction of approximately 15%, helping to ensure its continued use.

Reviewer 2:

The reviewer stated that the project should have very good market impact because the procurement model being developed can be repeated by other public and private fleets in the future to provide a vehicle purchase price reduction and allow for more AFVs to enter the fleet.

Reviewer 3:

The reviewer commented that if successful in lowering the cost of ZEVs to government agencies through aggregated procurement, this project could substantially increase ZEV sales inside and outside of ZEV states. The resulting market expansion would not only help create economies of scale for manufacturers but would also increase the public's knowledge and familiarity with AFVs.

Reviewer 4:

The reviewer said that the project had an adequate potential to contribute to a sustainable AFV market, alternative fuel market expansion, and reduced petroleum dependence/emissions through educating fleets on real-world performance of various alternative fuels and fuel-efficient technologies through this multiple-state ZEV procurement. The prepared presentation provided adequate detail regarding market impact and sustainability. The reviewer stated that unfortunately, the oral presentation ran out of time before this section of the presentation was covered or discussed. Future presentations should ensure that they all material can be covered in the 20-minute time limit.

Reviewer 5:

The reviewer noted that the overall presentation was not well-rehearsed and/or timed so much of the information on impact and sustainability was not presented or was quickly skipped through. The presenter should more clearly understand that reviewers cannot adequately score information that is inadequately presented. The slide content indicates a reasonable approach to educate fleets and use information to inform the procurement process. The reviewer commented that the slides also appeared to convey that the information gathered so far will contribute to a long-term process that is replicable in other states. It was not clear to the reviewer how the West Coast Electric Fleets specifically contributes to joint procurement processes. The reviewer suggested that the presenter please rehearse so that all information is covered in the future.

Question 6: Use of resources—Are DOE funds being used wisely? Should DOE fund similar efforts in the future? If not, what would be a better use of DOE resources to achieve alternative fuel vehicle and infrastructure expansion to support the broader goal of petroleum displacement and emissions reductions?

Reviewer 1:

The reviewer stated that the project constitutes a good use of DOE funding. These kinds of projects help develop AFV and advanced technology vehicle markets and create economies of scale critical to bringing down vehicle cost.

Reviewer 2:

The reviewer noted that providing a procurement mechanism to help with getting AFVs into the marketplace, such as what is being accomplished in this project, was a very good use of funds. Other projects similar to this should be considered in the future to provide additional ideas toward maximizing the economical purchase of AFVs.

Reviewer 3:

The reviewer noted that this project was a good use of DOE funds. However, unless a follow-on is called for, it appears to be a one-off project. If it is truly successful it will help all states.

Reviewer 4:

The reviewer stated that the use of DOE funding to develop a flexible and multiple-state ZEV procurement process is an innovative activity that can, if successful, provide fleets access to a wider range of ZEV models with purchase price reductions.

Reviewer 5:

The reviewer stated that the information presented demonstrates that a replicable process will be created. The project team learned valuable lessons that can be documented for others to use. The reviewer suggested that CALSTART should require presenters to prepare better for the format of the AMR.

Presentation Number: ti077
Presentation Title: Aggregated Alternative Technology Alliance
Principal Investigator: Leslie Wollack (NARC)

Presenter
 Phillip Kreycik, Meister Consultants Group

Reviewer Sample Size
 A total of four reviewers evaluated this project.

Question 1: Project objectives—the degree to which the project objectives support the DOE/VTO objectives of reducing reliance on petroleum based fuels and reducing emissions. This includes the impact the project has on addressing goals and barriers identified in the 2016-2020 EERE Strategic Plan previously listed.

Reviewer 1:
 The reviewer stated that the project had strong objectives geared towards reducing market barriers (a primary VTO deployment strategy). These objectives include aggregating regional and national demand for AFVs and refueling and charging infrastructure; reducing cost for private and public fleets using bulk cooperative procurement; establishing best practices guides and procurement templates; implementing regional and national procurements; and developing a web-based toolkit to educate and enable future cooperative procurement initiatives.

Reviewer 2:
 The reviewer commented that the project objectives aim to increase the adoption of alternative fuels and vehicles through aggregating demand. The National Association of Regional Councils (NARC) is an ideal agency to gather input on barriers and create a process and/or document that can be used nationally.

Reviewer 3:
 The reviewer commented that the project objectives to aggregate regional and national demand for AFVs, reduce the cost of AFVs, develop best practices guides, and implement regional and national procurements are excellent and are very supportive of the DOE Vehicle Technology goals.

Reviewer 4:
 The reviewer noted that the project objective and overview slides describe the project’s specific objectives as well as how the project supports the DOE/VTO objectives of reducing reliance on petroleum-based fuels and reducing emissions. The project addresses several of the goals/deployment strategies contained the 2016-2020 EERE Strategic Plan. The reviewer concluded that the project objectives appear to be generally effective.

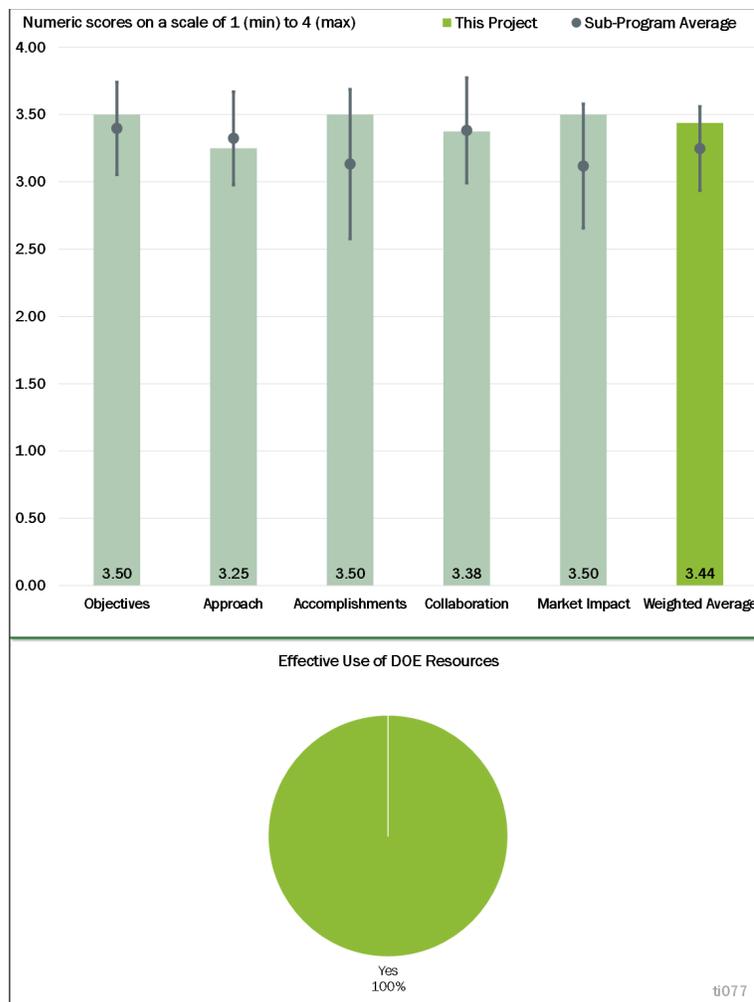


Figure 9-7 - Presentation Number: ti077 Presentation Title: Aggregated Alternative Technology Alliance Principal Investigator: Leslie Wollack (NARC)

Question 2: Project approach to supporting deployment of petroleum reduction technologies and practices, alternative fuel vehicles, infrastructure, emissions reductions and related efforts—the degree to which the project is well-designed, feasible, and integrated with other efforts.

Reviewer 1:

The reviewer stated that overall, the project approach was logical and well planned, starting with foundational research and business plan development, to a pilot project, to designing a larger initiative of several regional pilots and a national pilot. The project has good leveraging of DOE tools and resources (AFDC Fueling Station Locator, the AFLEET tool, the Vehicle Cost Calculator widget, and CCC publications and guides). The presenter identified some nuanced issues that have come up with efforts to develop regional and national bid initiatives; some of these items (i.e., vendors unwilling to provide deeper discounts at the national level than what is already offered; balancing the need for local service with bulk purchase discount opportunities from distant dealers), could have been anticipated and planned for in the approach.

Reviewer 2:

The reviewer stated that the use of templates and best practices approach will create a replicable process for broader audiences. While existing materials were reviewed it was not clear to the reviewer whether fleets were consulted during the development versus using the templates (Task 2). The reviewer highlighted the excellent use of existing resources and learning from EV Smart Fleets project work. Significant cost share was achieved which means that partners will be “bought into” the project and its results. The reviewer appreciated the thoughtful approach to much of the project including the boot camp curriculum, individual best practices guide for each fuel, and the Gantt chart planning tool which will be very helpful to others.

Reviewer 3:

The reviewer commented that the approach and associated tasks outlined in the project are very good. The creation of procurement and best practices guidebooks and templates will be instrumental in the development of the ultimate design of regional and national procurement initiatives. In addition, the pilot procurement program in Kansas City will also be very useful in helping to design the other procurements planned in the project.

Reviewer 4:

The reviewer stated that the project approach section provided a generally effective methodology to accomplishing the project objectives. Adequate detail was provided on the Approach and Milestone slides regarding planned tasks and activities.

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

Reviewer 1:

The reviewer observed that the Kansas City pilot was successful. It resulted in an 87% increase in year-over-year Nissan LEAF sales during the quarter with more than 100 LEAFs purchased over 45 days. The reviewer said that the project seems to be well on-track. The presenter was not sure how many of the vehicle purchasing fleets were new to AFVs. This would be a good metric for gauging how much the program is growing the market.

Reviewer 2:

The reviewer noted that the PI provided valuable information on individual fleet guides and what each of them contains. The Kansas City pilot was outlined in detail and provided good lessons for the project. The reviewer conveyed that sales training for dealerships was an excellent approach and would increase project success. The increase in sales can be clearly tied to this project. Boot camps for fleets was said to be very effective; even the name infers that everyone is there learning together. The reviewer also stated that the outcome of the Greater

Boston project would be interesting to hear about. The reviewer noted excellent progress toward goals and toward changing market adoption of vehicles.

Reviewer 3:

The reviewer remarked that the project had developed four procurement best practices guidebooks and templates and successfully launched a pilot procurement in the Kansas City area. The Kansas City procurement resulted in more than 100 EVs being purchased through 5 area dealerships. Both of these accomplishments are significant and show good progress toward meeting DOE goals.

Reviewer 4:

The reviewer noted that good progress had been made towards achieving the project goals. Project activities have created replicable procurement best practices and templates. The Kansas City Pilot procurement has been completed and the regional and/or national procurements are moving forward. The prepared presentation provided 10 slides with significant detail of project accomplishments to date. The reviewer concluded that no 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 stated that the project partner roles were well defined and took advantage of each partner's best abilities. The project contained an excellent set of strong partners who bring diverse skills to the project. The reviewer appreciated the very impactful collaboration.

Reviewer 2:

The reviewer noted that this project has put together an excellent group of collaborators including NARC, several regional planning councils, nine CCCs, and several technical experts. All of these groups have coordinated well together which has led to the success of the project.

Reviewer 3:

The reviewer commented that an effective project team was assembled to carry out this project, with industry and CCC partners involved. The project provided 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 noted that the project team was large, but appeared to be well coordinated within each pilot region.

Question 5: Market impact and sustainability—the degree to which the project has already contributed, as well as the potential to continue to contribute in the future, to a sustainable alternative fuel vehicle market, alternative fuel market expansion, and reduced petroleum dependence/emissions in the transportation sector. This would include the potential to reduce barriers to large scale alternative fuel vehicle market penetration, making information about alternative fuels and petroleum reduction opportunities widely available to target audiences, and ability for the project to be replicated in other geographic areas or with other technologies.

Reviewer 1:

The reviewer noted that the project's regional procurement leads have engaged approximately 125 interested fleets with combined purchasing needs of up to 19,000 vehicles over 2-3 years. This is a substantial target market to help drive bulk purchase discounts. The reviewer also commented that the Best Practice guides serve

as an on-going reference for existing regional initiatives and new ones. The reviewer said that the national procurement mechanism would remain in place long after the project concludes.

Reviewer 2:

The reviewer noted that already, this project has had market impact by increased sales in Kansas City. The results show high interest from fleets who plan significant procurements over the next 2-3 years. Regional procurement teams can continue to use knowledge from this project, which gives the project life far into the future. The reviewer considered it safe to assume the project is a drop in the bucket and will have far reaching impact as the fleets that participate tell others about their experience. This project has led to significant expansion of EVs on contract lists which makes procurement easier for public fleets. The partnership with National Joint Powers Alliance will have significant future impact. The reviewer also said that great project results were shown.

Reviewer 3:

The reviewer remarked that the project will definitely have an impact on the alternative fuel market. The procurement mechanisms developed in this project will remain in place after this project concludes and the best practices guides developed in this project will allow regions to conduct bulk procurements which will help accelerate getting AFVs into the market place.

Reviewer 4:

The reviewer stated that the project had a good potential to contribute to a sustainable AFV market, alternative fuel market expansion, and reduced petroleum dependence and/or emissions through educating fleets on real-world performance of various alternative fuels and fuel-efficient technologies through this regional and/or national aggregated procurement for propane, electric, and natural gas-powered vehicles and refueling and charging infrastructure.

Question 6: Use of resources—Are DOE funds being used wisely? Should DOE fund similar efforts in the future? If not, what would be a better use of DOE resources to achieve alternative fuel vehicle and infrastructure expansion to support the broader goal of petroleum displacement and emissions reductions?

Reviewer 1:

The reviewer considered the project to constitute a good use of DOE funding. These types of projects help develop AFV and advanced technology vehicle markets and create economies of scale critical to bringing down vehicle cost.

Reviewer 2:

The reviewer viewed this project as being an excellent use of resources. This project will have an impact far into the future. The fleet who participated in the project will very likely tout their success to their peers who will then be more inclined to do the same. The reviewer noted that this is something known from experience, that fleets are more likely to do something if they see someone else was successful doing it. Dealer training experience is worth documenting and repeating to other CCCs.

Reviewer 3:

The reviewer stated that providing a procurement mechanism to help show AFV purchases can be aggregated was a very good use of funds. Other projects similar to this should be considered in the future to continue showing how new and innovative procurement methods can help to reduce the cost of AFVs.

Reviewer 4:

The reviewer said that the use of DOE funding to develop a regional and/or national aggregated procurement process, is an innovative activity that can, if successful, provide fleets access to a wider range of AFV models and fueling equipment with purchase price reductions.

Acronyms and Abbreviations

AFDC	Alternative Fuels Data Center
AFLEET	Alternative Fuel Life-Cycle Environmental and Economic Transportation tool
AFV	Alternative fuel vehicle
AMR	Annual Merit Review
CAV	Connected and automated vehicle
CCC	Clean Cities Coalitions
CNG	Compressed natural gas
CV	Connected vehicle
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EEMS	Energy Efficient Mobility Systems
EERE	Office of Energy Efficiency and Renewable Energy
EV	Electric vehicle
FCEV	Fuel cell electric vehicle
FIM	Freeway incident management
GHG	Greenhouse gas
HD	Heavy-duty
LD	Light-duty
LPG	Liquefied natural gas
NAFTC	National Alternative Fuels Training Consortium
NARC	National Association of Regional Councils
NESCAUM	Northeast States for Coordinated Air Use Management
NTEA	National Truck Equipment Association
OEM	Original equipment manufacturer
PEV	Plug-in electric vehicle
PI	Principal Investigator
R&D	Research and Development

RNG	Renewable natural gas
ROI	Return on investment
SMART	Systems and Modeling for Accelerated Research in Transportation
TI	Technology Integration
VTO	Vehicle Technologies Office
ZEV	Zero-emission vehicle