

Clean Cities Technical Assistance Project (Tiger Teams)

Fleets across the nation have made great progress implementing alternative fuels, advanced vehicles, and fuel-saving measures into their operations. These efforts have saved billions of gallons of petroleum, and earned fleets recognition as sustainability leaders in the process. Yet as the alternative fuels and advanced vehicles landscape evolves, some fleets may encounter issues along the way. To address these challenges, the U.S. Department of Energy's Clean Cities program provides technical assistance and problem solving through Tiger Teams, a group of highly skilled experts from national laboratories and industry.

Over the years, many fleets have leveraged assistance from Tiger Teams to:

- Determine the right options and technologies for their operations
- Help navigate technical and operational issues
- Answer codes and standards questions
- Evaluate project potential
- Make informed choices about deploying alternative fuels and advanced vehicles.

Tiger Teams are a critical element of the Clean Cities program, providing on-the-ground consultation to help inform program strategies. The knowledge Tiger Team experts gain from these experiences often helps inform other alternative fuels activities, such as needed research, codes and standards revisions, and new training resources.

What Do Tiger Teams Do?

Tiger Teams can help industry and fleets tackle difficult technical and market challenges. These can include issues related to



Tiger Team experts from the National Renewable Energy Laboratory helped the Kansas City Area Transportation Authority transition to natural gas buses with on-site analysis and training for the fleet staff, administration, and local fire authorities. *Photo from Bridget Moss/Kansas City Area Transit, NREL 33945*

Proactive

- Supplementing local resources and knowledge to help fleets make decisions
- Providing expert information that allows projects to get started
- Working with industry to address common issues and avoid future incidents.

Reactive

- Getting stalled projects back on track
- Providing a neutral third party perspective to resolve conflicting information
- Investigating incidents to determine root cause.

resources and knowledge to help fleets make decisions. They also work with industry to identify market needs and address barriers.

Reactive Assistance

For fleets who have already initiated projects, Tiger Teams can help overcome implementation or operational challenges of new technologies. Tiger Teams can help get delayed projects moving again or serve as a neutral third party to conduct an analysis and identify potential solutions. Additionally, they can help address safety or operational issues by identifying the root cause of a problem and determining next steps.

deploying alternative and renewable fuels, idle-reduction measures, fuel economy improvements, and emerging transportation technologies.

Proactive Consultation

Fleets in the planning phase of a new project can especially benefit from Tiger Teams, who often supplement local



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What Expertise Do Tiger Teams Have?

Clean Cities engages a diverse group of technical experts from national labs and industry to keep pace with evolving technologies and the changing needs of fleets. These experts have deep knowledge across the range of alternative fuels, including natural gas and propane, biofuels such as ethanol and biodiesel, plug-in electric vehicles, and emerging technologies such as fuel cell electric vehicles.

With many years of hands-on experience with these technologies, experts work with fleet operations staff, fuel providers and fueling equipment suppliers, vehicle conversion companies, and equipment and vehicle manufacturers to assist with all phases of a project. From concept to implementation, to operation and maintenance, Tiger Teams can support fleets by:

- Providing an expert opinion on the configuration or implementation of fueling and charging infrastructure
- Assisting in the development of a robust bidding process
- Integrating complex information or resolving conflicting information from multiple sources
- Offering assistance in the implementation of maintenance operation and safety requirements
- Addressing concerns about codes, standards, and best practices
- Reviewing and recommending quality assurance and inspection practices
- Conducting technical troubleshooting for vehicle or fueling issues

- Developing relationships with manufacturers, suppliers, and other industry players for problem resolution.

Recent Project Assistance

Below are a few examples of recent Tiger Teams projects.

- **Assisting with natural gas and propane conversions:** Several fleets have experienced challenges related to vehicle conversions, including safety issues, performance issues, or suppliers who are no longer in business. Tiger Teams have worked with the fleet, supplier, or other local resources to assist in developing standard operating procedures, work through warranty issues, and implement technical solutions.
- **Decommissioning aging fuel tanks:** Fleets have recently had questions about the life expectancy of natural gas fuel tanks installed in vehicles during the 1990s and early 2000s. Tiger Teams are working with fleets and manufacturers to help document inspection processes for fleets to reference. Tiger Teams have also collaborated with industry on updating codes and standards and clarifying industry procedures to address these concerns.
- **Providing neutral third party support:** Sometimes new fleet managers inherit the decisions of their predecessors. This can lead to information gaps and overall concern about fuel availability, maintenance procedures, and the financial viability of moving forward with particular fuels. Tiger Teams recently stepped in to one of these situations, serving as an unbiased third party to help evaluate competing study results and answer questions.

How Can I Receive Assistance?

Clean Cities can arrange Tiger Team assistance through a variety of channels. Fleets and partners are encouraged to contact their Clean Cities coordinator first. The coordinator can then elevate the request to a Clean Cities regional manager, laboratory staff member, or other program personnel. Once a project is selected for assistance, the Tiger Teams coordinator gathers information from the applicant, stakeholders, and other key contacts. The expert identifies the project requirements, and work begins.



Work proceeds through teleconferences and site meetings with the Tiger Team and local stakeholders. At the conclusion of the project, the Tiger Team submits final documentation on the project and any resolution or recommended actions.

To learn more about which projects are eligible for assistance, visit the Tiger Teams page at cleancities.nrel.gov/technical-assistance/tiger-teams/. For more information about Tiger Teams, contact John Gonzales at john.gonzales@nrel.gov, or Kay Kelly at kay.kelly@nrel.gov.