

Learn about Alternative Fuels and Clean Cities and Communities

July 31, 2024, 2:00-3:00 PM ET

National RTAP
Rural Transit Assistance Program

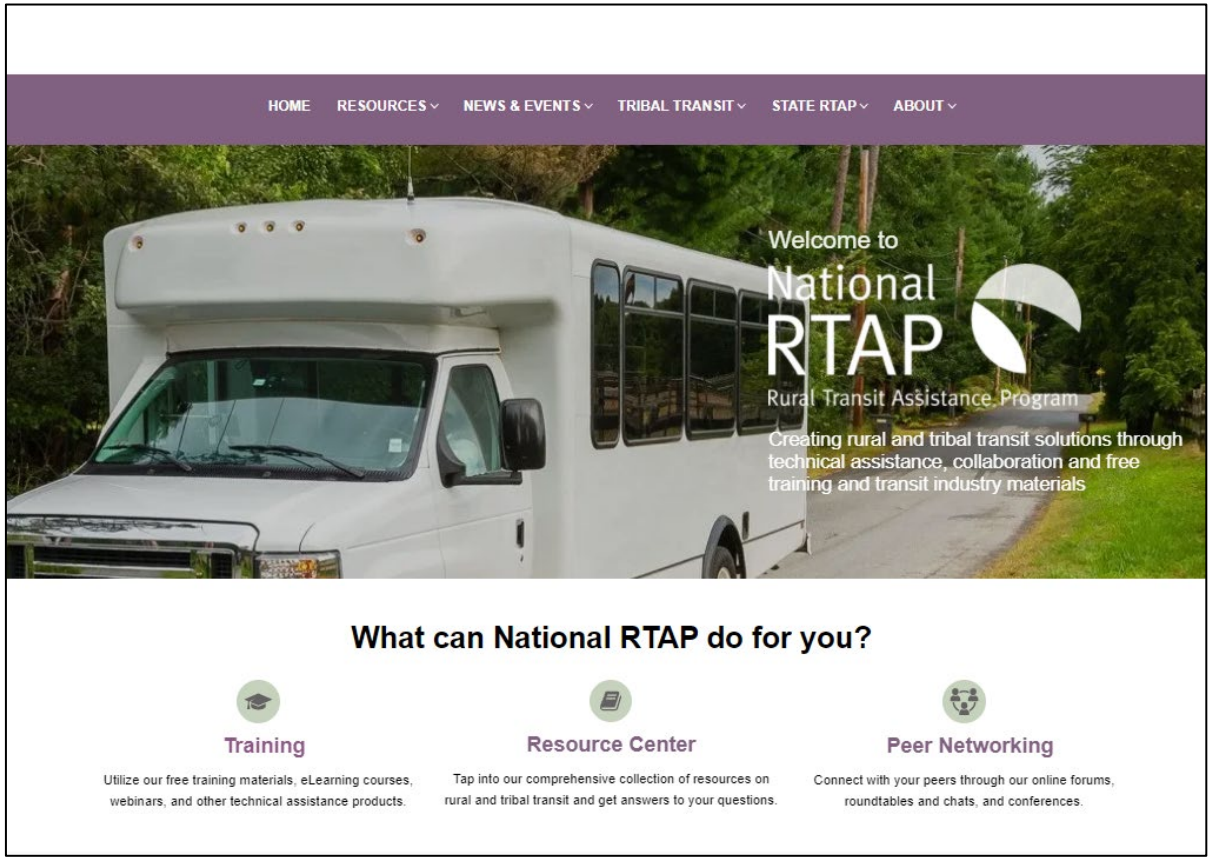
Federal Transit Administration

Welcome and Housekeeping

- The recording/slides will be posted at https://www.nationalrtap.org/Training/Webinars
- Enter questions into the Q&A box in Zoom to be addressed at the end
- If you are having trouble with Zoom, please chat with us
- Please fill out the very brief post-webinar survey
- Stay tuned for additional webinars or workshops on this topic

National Rural Transit Assistance Program

- Technical assistance center funded by FTA through the Section 5311 Program
- Provides free training materials and technical assistance to rural and tribal transit providers and State RTAPs
- Review Board – 14 State DOT and rural and tribal transit agency staff from across the country
- Learn more at nationalrtap.org



National RTAP Resources and Services

Training

manuals, videos, slides, and eLearning for front-line staff and management

Information

and best practices via tech briefs, toolkits, topic guides, articles, and news

Technology Tools

for procurement, cost allocation, website building, and GTFS

Peer Networking

and training via webinars, conferences, roundtables, and online forums

Assistance

through reference services and tech support – bring us your questions!

What is TACL?



http://transportation-tacl.org

The Transportation Technical Assistance Coordination Library (TACL) provides a sustainable methodology and platform for access and findability of rural and tribal transit coordination resources across a diverse range of transportation technical assistance centers and the Federal Transit Administration (FTA).

The FTA-funded technical assistance centers participating in this ongoing work are:

- National Aging and Disability Transportation Center (NADTC)
- National Center for Applied Transit Technology (N-CATT)
- National Center for Mobility Management (NCMM)
- National Rural Transit Assistance Program (National RTAP)
- Shared-Use Mobility Center (SUMC)
- Transit Workforce Center (TWC)

Presenters



Justin Brightharp

Senior Program Manager

Southeast Energy Efficiency Alliance



Casey Foster

Fleet Program Director

Alabama Clean Fuels Coalition



Kelsey Owle

Community Engagement Liaison

Land of Sky Clean Vehicles Coalition



Michelle Merchant

Director

Tulsa Area Clean Cities

Southeast Energy Efficiency Alliance

- The Southeast Energy Efficiency Alliance promotes energy efficiency as a catalyst for economic growth, workforce development, and energy security across 11 southeastern states:

SEEA

SOUTHEAST ENERGY EFFICIENCY ALLIANCE

Clean Cities and Communities

- A U.S. Department of Energy partnership to advance clean transportation nationwide with over 75 coalitions
- Advances the nation's environment, energy security, and economic prosperity through collaboration with communities by building partnerships with public and private stakeholders that create equitable deployment of clean transportation solutions for all
- https://cleancities.energy.gov/

Clean Cities and Communities

Locating your Clean Cities Coalition

Enter your zip code or city/state in the interactive maps on the homepage or coalitions page.



https://cleancities.energy.gov/coalitions/



https://cleancities.energy.gov/

Connect with your local coalition director or find national or regional contacts.

Clean Cities and Communities Panel

- **Alabama Clean Fuels Coalition** - ACFC serves as the principal coordinating point for clean, transportation alternative fuel and advanced technology vehicle activities in Alabama. ACFC was established in 1993 by the U.S. DOE to facilitate voluntary public/private partnerships to create viable markets for clean, alternative fuel vehicles. ACFC was incorporated in 2002 as an Alabama 501c3 non-profit, designated in 2009, and re-designated in 2014 and 2022.
- **Land of Sky Clean Vehicles Coalition** - LOSCVC is a DOE Clean Cities and Communities Coalition, serving Western North Carolina and the Eastern Band of the Cherokee Indians' Qualla Boundary. They work on the decarbonization of transportation and are fuel agnostic. They work with vehicle owners and fleet managers on making their next most efficient purchasing decision.
- **Tulsa Area Clean Cities** - designated in 1997, hosted at Indian Nations Council of Governments (INCOG), serving Eastern Oklahoma.

Alabama Clean Fuels Coalition
Clean Fuels · Clean Air · Clean Cities

LAND OF SKY CLEAN VEHICLES COALITION

TULSA AREA CLEAN CITIES

Conventional Fuel – Diesel and Gasoline
But for a greener tomorrow, there is a better way.

About Diesel and Gasoline: Uses liquid fuel to propel the internal combustion engine, diesel is produced from crude oil

Pros: Most transit agencies already have vehicles that run on this fuel type, easy to access fueling stations, most technicians know how to service buses that run on conventional fuel

Cons: Generate emissions that harm the environment and public health

Costs: Coach buses can cost ~$500,000 plus ~$40,000 in fuel per bus per year. 14-33 passenger cutaways can range from $110,000-$240,000 plus $9,000 (14 passenger) to $15,000 (24-33 passenger) in fuel per bus per year.

Funding: No grants available to cover the cost of conventional fuel

Resources: American Petroleum Institute, Association of Diesel Specialists

Biodiesel

About Biodiesel: Biodiesel is a domestically-manufactured, biodegradable, renewable fuel generated from organic oils and fats such as used fryer oil from restaurants.

Pros: Can be generated from a variety of renewable feedstocks, meets Renewable Fuel Standard.

Cons: Biodiesel has a shorter “shelf life,” than conventional diesel. Typically, is a blend of 5-50% bio to conventional diesel, still produces tailpipe emissions. Performance can be temperature sensitive.

Costs: Fuel cost is higher than conventional diesel.

Funding: Alternative Fuel Infrastructure Tax Credit, Low/No Transit Funding

Resources: Alternative Fuels Data Center

Electric

About Electric: Electric vehicles are refueled using the same electricity that powers our homes and businesses. Electric vehicles run on batteries. Electric vehicles are considerably more energy efficient than internal combustion engines, losing very little energy to heat and friction, and none to waste exhaust gases.

Pros: Electricity is an inexpensive fuel. Maintenance needs of electric vehicles are very low. Electricity is abundantly available and can be cleanly generated on-site.

Cons: Large-scale infrastructure can be expensive and challenging to coordinate with utilities in some locations. Vehicle costs are higher, especially in medium/heavy duty.

Costs: $750k+ per transit bus. Fuel cost varies by location and utility agreement.

Funding: Federal vehicle tax credits and purchase/replacement programs (Low/No & BBF, DERA EPA), infrastructure tax credits, state and local incentives.

Resources: Alternative Fuels Data Center, EPA, Electrification Coalition

Ethanol

About Ethanol: Includes different blends – E10, E15, and E85 with E85 only qualifying as an alternative fuel; E85 also known as “flex fuel vehicles” gasoline blend with 51% to 83% ethanol. It is a form of alcohol.

Pros: Job creation in rural areas; vehicle affordability and availability; available fueling infrastructure; average GHG emission reduction by 40%

Cons: Less energy per gallon than gasoline

Costs: April 2024: $2.96/gal

Funding: Federal incentives available; Infrastructure grants through the USDA (HBIIP)

Resources: AFDC - Ethanol Current FFV Models, AFDC Law & Incentive Search

Methanol

About Methanol: Also known as “Wood Alcohol”, used in the 1990s, but is now being researched as a marine fuel and included in the U.S. Maritime Decarbonization Action Plan Preview

Pros: Lower production costs compared to other alternative fuels, lower risk of flammability compared to gasoline, manufactured from domestic sources: biomass, natural gas, and coal

Cons: Not as prevalent in road transportation now which means less infrastructure, fueling stations can be expensive compared to liquified natural gas (LNG) for marine applications

Costs: Hard to find currently, but utilize Clean Cities resources

Funding: The U.S. DOT Low or Zero Emission Ferry Program provides funding for ferries with alternative fuels like methanol. Several states have programs that incentivize alternative fuels like methanol.

Resources: AFDC – Methanol, DOE Marine Fuel Research, AFDC Law & Incentive Search

Hydrogen

Hydrogen is a zero-tailpipe-emission alternative fuel produced from diverse energy sources, primarily electricity or natural gas.

Pros: Great benefits to local air quality, long range, quick fueling, high efficiency, abundant funding opportunities

Cons: Market is developing, costs are still high (fuel, fueling systems, fuel cells), FCEVs currently only available in CA, some safety considerations

Costs: Pricey! A 40-foot bus costs over $1 million currently

"The contract for the 108 new 40-foot low-floor FCEB buses is being awarded to New Flyer, with a contract price not to exceed $168.25 million." (Metro Magazine)

Funding: widely available - FTA Low/No & BBF, EPA Clean Heavy-Duty Vehicle

Resources

- General info on the technology, laws & funding, considerations (DOE): https://afdc.energy.gov/fuels/hydrogen
- Funding List (Hydrogen Fuel Cell Partnership): https://h2fcp.org/grant-funding-opportunities
- *Fuel Cell Buses in U.S. Transit Fleets: Current Status 2020* (NREL): https://www.nrel.gov/docs/fy21osti/75583.pdf

Natural Gas (CNG)

Natural gas is an odorless, gaseous mixture of hydrocarbons predominantly made up of methane (CH4). It accounts for about 30% of the energy used in the United States. Low-emission compared to diesel and gasoline.

Pros: Air quality benefits, fueling and range is similar to conventional fuels, has been used for a long time as a transportation fuel, technology has been "figured out" and proven in transit

Cons: Vehicle models for some applications are becoming scarce, funding opportunities are less common, technician training can be hard to come by

Costs: Buses typically cost 15-20% more than a diesel - $540,000 to $580,000 for a 40-foot bus

Funding: FTA Low/No & BBF, state programs

Resources

- General info on the technology, laws & funding, considerations (DOE): https://afdc.energy.gov/fuels/natural-gas
- Info on technology, policy, and benefits: https://transportproject.org/

Renewable Natural Gas

About Renewable Natural Gas: a biogas that has been upgraded for use in place of a fossil natural gas that comes from a variety of sources including municipal solid waste landfills, digesters of wastewater treatment plants, livestock farms, food production facilities, and organic waste management operations.

Pros: The use of RNG can provide benefits in terms of fuel security, economic revenues or savings, local air quality, and greenhouse gas emissions. By capturing and using methane this fuel type is carbon negative.

Cons: Compression fueling infrastructure can be very expensive, and time fill options are economical but take a long time.

Costs: Oftentimes is same price as natural gas, and the provider gives (Renewable Identification Numbers) RINs credit to certify it is renewable.

Funding: Alternative Fuel Tax Credit, Alternative Fuel Infrastructure Tax Credit, Bus and Bus Facility Grants, Charging and Fueling Infrastructure Grants, Clean School Bus program, Congestion Mitigation and Air Quality Improvement Program, and others

Resources: EPA, Alternative Fuels Data Center

Propane

About Propane: a byproduct of natural gas processing and crude oil refining and is a three-carbon alkane gas (C_3H_8).

Pros: Propane has been used in light, medium, and heavy-duty vehicles for decades. The fueling infrastructure is economical, and vehicle models are available through original equipment manufacturers and aftermarket applications.

Cons: The capitol expenditure is usually a couple thousand dollars more than a gasoline version, and the fuel economy is lower compared to a gasoline powered vehicle.

Costs: The fuel cost is lower than gasoline, so the return on investment is quick.

Funding: Alternative Fuel Tax Credit, Alternative Fuel Infrastructure Tax Credit, Bus and Bus Facility Grants, Charging and Fueling Infrastructure Grants, Clean School Bus program, Congestion Mitigation and Air Quality Improvement Program, and others

Resources: Alternative Fuels Data Center

Q&A



Upcoming National RTAP Events

Books in Transit Discussion Group – Buses are A Comin'

August 6, 2024, 2:00-3:00 PM ET

Learn about TACL: The Transportation Technical Assistance Coordination Library

August 28, 2024, 2:00-3:00 PM ET

With N-CATT

Mobility Wallets 101

November 4, 2024, 2:00-3:00 PM ET

With N-CATT

Succession Planning LinkedIn Learnalong

January 7, 2024, 2:00-3:00 PM ET

To register or to access recordings, slides, or summaries, go to:

nationalrtap.org/Training/Peer-Roundtables-and-Chats and nationalrtap.org/Webinars.

Thank You

National Rural Transit Assistance Program

nationalrtap.org
info@nationalrtap.org
888-589-6821

Cara Marcus, MSLIS
Knowledge and Resource Manager
cmarcus@nationalrtap.org
781-404-5020

Webinar Survey

U.S. Department of Transportation
Federal Transit Administration