

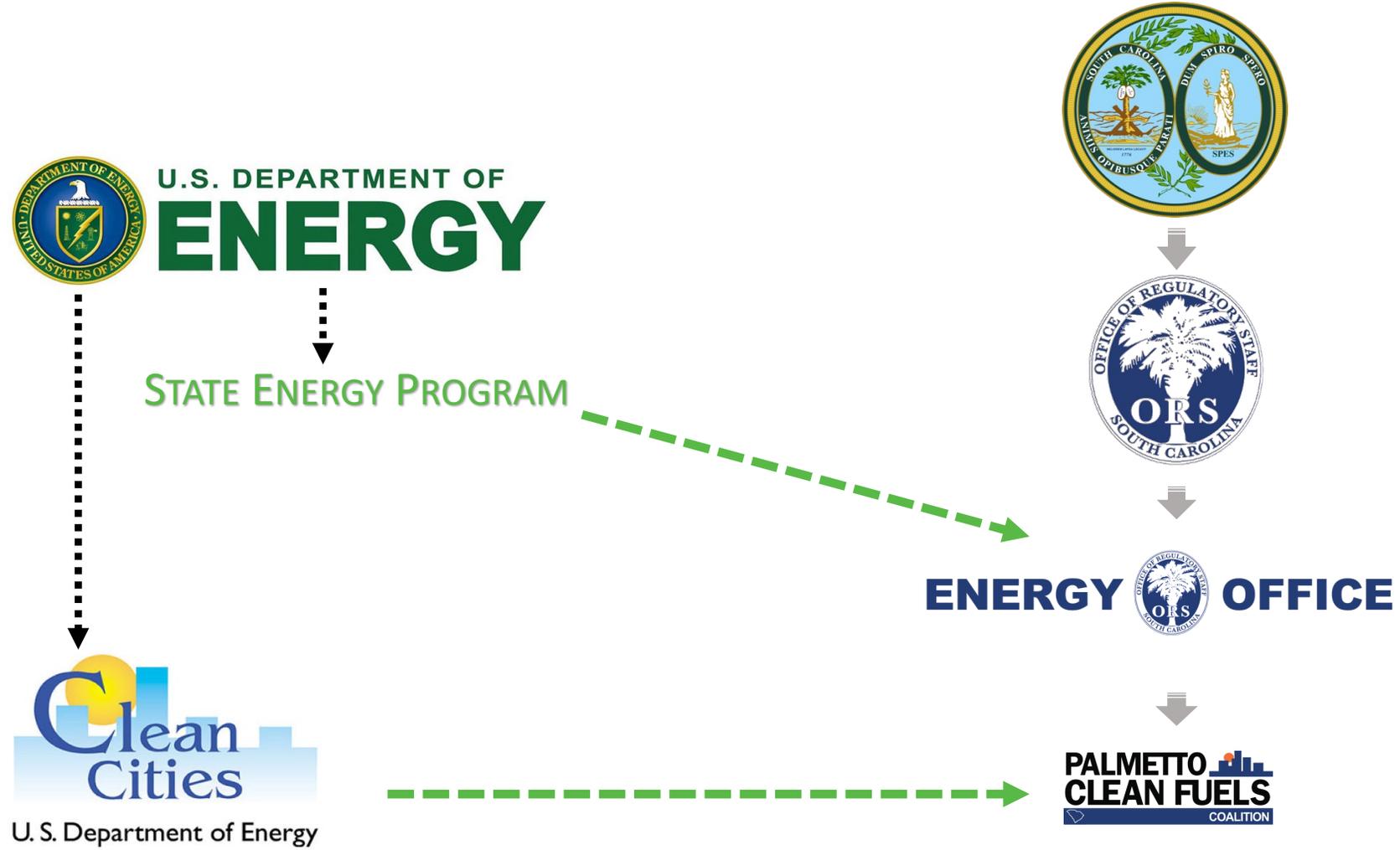
Palmetto Clean Fuels Overview

2023 Interagency Working Group

Rene Kelly

February 10, 2023

Our Structure



About the SC Energy Office



Our Structure



Energy Office – a department within the South Carolina Office of Regulatory Staff



Funded by US Department of Energy's State Energy Program

Our Mission

Promote energy efficiency, renewable energy, and clean transportation

- Education and Outreach
- Financial Assistance
- Technical Assistance
- Maintain Energy Data Resource

Implement the State Energy Plan

Palmetto Clean Fuels

- Initiative of the SC Energy Office within the Office of Regulatory Staff
- Funded by the US Department of Energy's Vehicle Technologies Office
- US DOE-recognized Clean Cities Coalition for SC since 2004
 - Redesignated in May 2021
- Goal to promote alternative fuels and infrastructure.
- PCF is fuel agnostic



afdc.energy.gov

Palmetto Clean Fuels – Clean Cities

PCF coalition is part of the nationwide network of US DOE's "Clean Cities" programs

- Technical assistance, analysis, informational resources, online tools and data
- Leveraging these resources to create networks of local stakeholders
- Technical assistance to fleets implementing alternative and renewable fuels

So, what does this mean?

- PCF is a forum for stakeholders representing all alternative fuels in the state
- Serve as informational exchange
- Provide education and awareness about alternative fuels
- Provide training opportunities
- Collect alternative fuel data

Palmetto Clean Fuels – SC Energy Office

Matchmaking and Training

- Build partnerships with public and private sectors
- Identify and address technology barriers and research needs
- Share best practices and lessons learned
- Identify and implement new transportation strategies

Data Resources

- Provide scientifically-based information resources
- Collect fuel and transportation data
- Technical assistance to help fleets deploy alternative fuels, advanced vehicles, and fuel-saving measures

<https://cleancities.energy.gov/coalitions/palmetto-state>

<https://afdc.energy.gov/states/sc>

Education and Outreach – PLUG in SC program

PLUG in SC reduces ‘range anxiety’

www.energy.sc.gov/transport

The screenshot shows the ENERGY.SC.GOV website. The navigation bar includes Home, Active Legislation, Calendar, Contact Us, News, Newsletters, Links, and SC Energy Success Stories. The main content area is titled 'Transportation' and features a 'Plug in SC' section. This section includes a circular logo with 'PLUG IN SC' and a photograph of an electric vehicle charging station with a 'PLUG IN SC' logo on the ground. Below the photo, there is text about the 'Plug in SC Incentive Program' and 'SIGNAGE' guidelines. A blue arrow points from the 'PLUG IN SC' logo on the page to the logo in the adjacent list item.

- Help drivers to find places to charge
- EV Stakeholder Initiative recommendation – Statewide branding
- Branding and Consistent Signage

The infographic is titled 'PLUG in SC' and has the subtitle 'INCREASING EV ADOPTION AND VISIBILITY IN SOUTH CAROLINA'. It is divided into several sections:

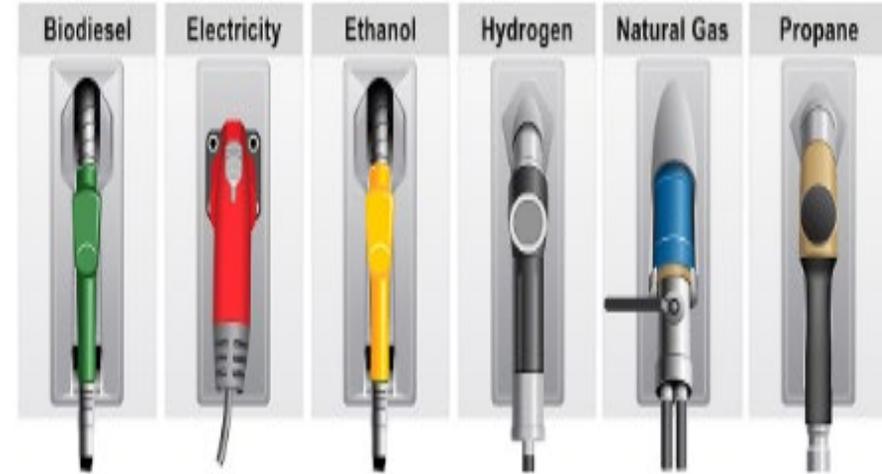
- WHAT IS THE SOUTH CAROLINA ELECTRIC VEHICLE MARKET STUDY?** This section explains that the study was conducted by Palmetto Clean Fuels to address the importance of preparing South Carolina for increased EV sales and interest. It lists three key findings: an assessment of the current EV infrastructure and policy framework, an analysis of trends and the outlook for the future, and actions to prepare South Carolina for future EV development.
- STRATEGIC PARTNERS** This section states that PCF will work with partners on infrastructure development and barriers to adoption. It lists partners including federal, state, and local governments; infrastructure manufacturers; vehicle manufacturers; utilities; Clean Cities coalitions; and EV owner/advocacy groups.
- SIGNAGE** This section emphasizes ensuring that all EV infrastructure is visible and recognizable by adopting federal guidelines. It provides specific instructions for:
 - General Service Signs:** To direct motorists to publicly accessible infrastructure, use the Alternate Electric Vehicle Charging Symbol in combination with directional arrows along highways.
 - Parking Spaces:** Use the Alternate Electric Vehicle Charging Symbol in combination with the "no parking except electric vehicles" regulatory sign.
 - Pavement Markings:** Outline EV charging spaces with green pavement markings.
 - Parking garages:** Label the outside of parking garages with signage indicating on which level EV charging is located.

 At the bottom right, there is a call to action: 'Incorporate Plug in SC branding into the existing and future signage' with the 'PLUG IN SC' logo. The website www.PalmettoCleanFuels.org/PlugInSC is listed at the bottom.

Education and Outreach - Training

- **PCF has worked with our partners to provide training on various alternative fuels in the past**
 - First responders alternative fuel training
 - Proterra EV bus training
 - Propane education session
 - EV 101 Basics
- **Training opportunities through our national Clean Cities network**
 - Webinars and Working Groups
- **Offering Partners and stakeholders training**

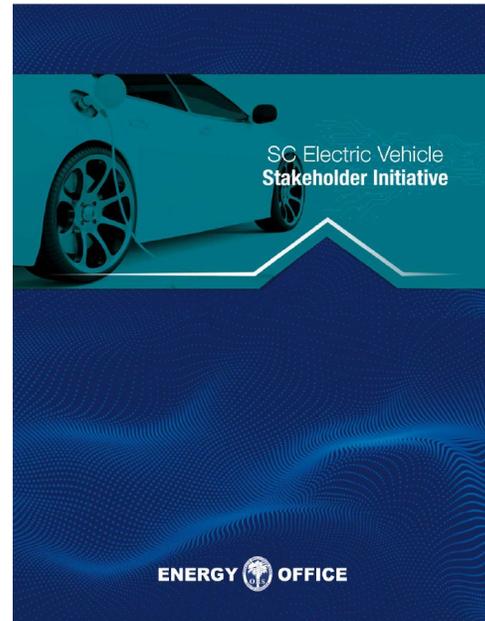
Propane	CNG	Biofuels
Electric buses	Hydrogen	Ethanol



Education and Outreach – EVSI

Purpose and Goal

The EV Stakeholder Initiative (EVSI) facilitated a collaborative statewide discussion to explore opportunities to advance electric vehicle (EV) deployment in South Carolina, with the goal of developing policy and programmatic recommendations.



**Statewide EV
Awareness Effort
(Energy Office
Initiatives)**

**Statewide
Electrification
Roadmap
(Continued
Collaboration)**

**Statewide
Public-Private
Collaboration
(Public-Private
Collaboration)**

**Legislative
Consideration
and Actions**

Education and Outreach - Websites

Palmetto Clean Fuels
www.energy.sc.gov/transport

Left Tab under “Transportation”

- Electric Vehicles for State Agencies
- PLUG in SC
- Alternative Fuels
- Saving Gas

The screenshot shows the ENERGY.SC.GOV website. The top navigation bar includes Home, Active Legislation, Calendar, Contact Us, News, Newsletters, Links, and SC Energy Success Stories. The left sidebar menu is expanded to show the Transportation section, which includes sub-links for Electric Vehicles for State Agencies, Plug in SC, Alternative Fuels, and Saving Gas. The main content area displays the Transportation page, featuring the Palmetto Clean Fuels Coalition information and the Plug in SC Incentive Program details.

ENERGY.SC.GOV

Home | Active Legislation | Calendar | Contact Us | News | Newsletters | Links | SC Energy Success Stories

SC Energy Data | State Energy Plan | Commerce & Industry | Reports & Publications | Energy Education | Funding & Incentives | Public Institutions & Local Governments | Renewable Energy | Residential | **Transportation** | Radioactive Waste Disposal Program

3CEO PARTNER PROGRAMS

ASCEM
Atlantic Compact Commission
Palmetto Clean Fuels Coalition

INSPECTOR GENERAL'S FRAUD HOTLINE
(State Agency Fraud Only)
1-855-SCFRAUD
or
1-855-723-7283

Home > Transportation

Transportation

The Energy Office promotes activities to reduce reliance on fossil fuels by promoting conservation through improved fuel economy, use of public transit and carpooling, and development of walk and bike-ways. The Energy Office also promotes the development and deployment of alternative transportation fuels.

Palmetto Clean Fuels Coalition

The Energy Office staffs the Palmetto Clean Fuels coalition (PCF). PCF is part of the Clean Cities program and is the designated coalition for South Carolina. Clean Cities is a grassroots, locally based, voluntary public/private partnership coordinated by the US Department of Energy that expands the use of alternatives to gasoline and diesel fuel. The goal of the Clean Cities program is to promote energy use in the transportation sector that is clean, safe, less dependent upon foreign sources, and sustainable.

The Energy Office has also collaborated with key partners such as the US Department of Energy, the South Carolina Biomass Council, and other public and private organizations to ensure South Carolina becomes a model for transportation alternatives.

Plug in SC Incentive Program

The Energy Office has launched the Plug in SC Incentive Program to support the adoption of standardized electric vehicle (EV) charging station signage and branding.

The Plug in SC Incentive Program enables qualifying participants to obtain standardized EV signage so that charging stations are easily identifiable. Eligible applicants will receive two (2) electric vehicle charging signs for each EV charging station identified in their application. Funding for this project comes from the US Department of Energy through the Clean Cities Program. Funding will be provided to the SC Department of Corrections to manufacture the signs.

- Plug in SC Incentive Program Overview (PDF)
- Plug in SC Incentive Program Application (PDF)

Eligibility

Any entity is eligible to apply for the Plug in SC Incentive Program if the following requirements are met:

- Participants must be official stakeholders of Palmetto Clean Fuels (PCF) Coalition. Becoming a PCF stakeholder is easy and only requires signing a memorandum of understanding (MOU).
- Eligible EV charging station sites must be located within South Carolina, have a fixed location, and be publicly accessible. Level 1, Level 2, and DC Fast Charging stations are eligible. EV charging stations also must be entered in the US Department of Energy's Alternative Fuels Data Center Station Locator found at afdc.energy.gov/stations.

To be considered, an applicant must submit a complete application to the Energy Office. Completed applications for the FY20-21 Plug in SC Incentive Program must be received no later than **December 31, 2020** at 5:00 PM EST. Participants are anticipated to be notified before **December 31, 2020**.

[PCF Celebrates Successful Beginnings with Plug in SC Incentive Program](#)

Alternative Fuels: Substitutes for Petroleum

Alternative fuels can be substituted for traditional gasoline or diesel fuels. The federal Energy Policy Act of 1992 identifies six alternative fuels. Alternative fuels may be used either as a replacement for gasoline or in conjunction with it. All alternative fuels can be domestically produced, and most provide significant air quality benefits when used as a vehicle fuel. In addition, there are federal and state tax incentives to purchase alternative fuel vehicles and produce, distribute, and purchase alternative fuels.

Education and Outreach – Websites and Data

<https://cleancities.energy.gov/coalitions/palmetto-state>
<https://afdc.energy.gov/states/sc>

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Search Clean Cities Coalition Search

Clean Cities Coalition Network

Home About **Coalitions** Partnerships & Projects Technical Assistance News & Events Toolbox

Clean Cities Coalition Network » Coalitions

- Locations
- Starting Coalitions
- Contacts

Palmetto Clean Fuels Coalition

The Palmetto Clean Fuels Coalition works with vehicle fleets, fuel providers, community leaders, and other stakeholders to save energy and promote the use of domestic fuels and advanced vehicle technologies in transportation.

Search for another location
 enter ZIP code or city, state

Contact Information

Rene Kelly
 (803) 737-0989
 rkelly@ors.sc.gov

Coalition Website

1401 Main Street, Suite 900
 Columbia, SC 29201

Coalition Stats Coalition Director Bio Coalition Projects

General Stats
 Designated: January 28, 2004
 Population: 5,118,425 (based on 2020 Census estimate)
 Area: 30,850 sq. mi.
 Local/Regional Service Area: Entire state of South Carolina

Alternative Fueling Stations
 Including public and private stations

Biodiesel (B20 and above): 32
 Electric (charging outlets): 1,048
 Ethanol (E85): 60
 Hydrogen: 0
 Natural Gas: 12
 Propane: 45

Energy Use Impact*

Annual Energy Impact: 14,849,292 gasoline gallon equivalents

Annual Energy Impact by Alternative Fuel Vehicle Project Type: 12,309,159 gasoline gallon equivalents

Alternative Fuel Vehicles
 Fuel Economy Improvement
 Idle Reductions
 Off Road Vehicles
 Electric & Plug-In Vehicles

Biodiesel
 Natural Gas (CNG)
 Ethanol (E85)
 Electric & Plug-In Vehicles
 Hybrid Vehicles

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

EERE Home | Programs & Offices | Consumer Information

Alternative Fuels Data Center

Search the AFDC SEARCH

FUELS & VEHICLES CONSERVE FUEL LOCATE STATIONS LAWS & INCENTIVES Maps & Data Case Studies Publications **Tools** About Home

EERE » AFDC » Tools [Printable Version](#)

South Carolina Transportation Data for Alternative Fuels and Vehicles

Find transportation data and information about alternative fuels and advanced vehicles in South Carolina, including laws and incentives, fueling stations, fuel prices, and more. South Carolina

Laws and Incentives
 29 laws and incentives in South Carolina related to alternative fuels and advanced vehicles

Recent Additions and Updates

- Diesel Emissions Reduction Grants added 12/9/2022
- Electric Vehicle (EV) Deployment Support added 12/9/2022
- Electric Vehicle (EV) Infrastructure Deployment Support added 12/9/2022
- South Carolina's National Electric Vehicle Infrastructure (NEVI) Planning added 11/16/2022

Fueling Stations
 1,202 stations in South Carolina with alternative fuels

Fuel	Public	Private
Biodiesel (B20 and above)	0	32
Compressed Natural Gas (CNG)	7	4
Electric (EVSE ports)	952	101
Ethanol (E85)	56	4
Hydrogen	0	0
Liquefied Natural Gas (LNG)	1	0
Propane (LPG)	43	2
Renewable Diesel (R20 and above)	0	0

Clean Cities Coalitions
 Clean Cities builds partnerships to advance alternative fuels and energy-efficient vehicle technologies through a national network of more than 75 coalitions.

South Carolina has 1 coalition:
 Palmetto Clean Fuels Coalition

Contact a local coalition or regional manager for project assistance or to connect with other local stakeholders.

Transportation Fuel Consumption
 Gasoline Fuel Consumption in South Carolina

Gasoline Fuel Consumption in South Carolina (Line Graph)

Source: State Energy Data System based on beta data converted to gasoline gallon equivalents of petroleum (GGEs) for the transportation sector (which includes more than highway vehicles) from the U.S. Energy Information Administration

Vehicles Registered in 2021

Electric (EV)	7,400
Plug-In Hybrid Electric (PHEV)	4,700
Hybrid Electric (HEV)	57,400
Biodiesel	32,100
Ethanol/Flex (E85)	411,800
Compressed Natural Gas (CNG)	400
Propane	100
Hydrogen	0
Methanol	0
Gasoline	4,200,600
Diesel	104,900

Source: Light-duty vehicle registration counts from TransAtlas with data from Experian Information Solutions

Education and Outreach – Newsletters

<https://energy.sc.gov/newsletters>

The screenshot shows the ENERGY.SC.GOV website. The header is green with the text "ENERGY.SC.GOV" and a search bar. Below the header is a navigation menu with links: Home, Active Legislation, Calendar, Contact Us, News, Newsletters, Links, and SC Energy Success Stories. On the left is a vertical sidebar menu with categories: SC Energy Data, State Energy Plan, Commerce & Industry, Reports & Publications, Energy Education, Funding & Incentives, Public Institutions & Local Governments, Renewable Energy, Residential, Transportation, and Radioactive Waste Disposal Program. The main content area is titled "Newsletters" and features a section for "The Energy Connection" with a description and a "signup form" link. Below this is a section for "The Hubcap" with a description and a "signup form" link. At the bottom left of the sidebar is a box for the "INSPECTOR GENERAL'S FRAUD HOTLINE" with the number 1-855-SCFRAUD or 1-855-723-7283.

The screenshot shows the cover of the "the Hubcap" newsletter for January 2023. The cover features a blue and white graphic of a city skyline with a red circle containing a white outline of South Carolina. The text "the Hubcap." is prominently displayed. Below the title is the date "January 2023". The main content area is titled "News, Webinars, and Recordings" and features a photograph of a yellow transit bus with a side mirror. Below the photo is the title "University of South Carolina Transit Bus and Vehicle Fleet Electrification Study" and the author "Evan Renshaw – Palmetto Clean Fuels Intern". The text describes a study conducted by senior Geography students at the University of South Carolina (USC or University) to evaluate the feasibility of converting the University's twelve transit buses to electric. The study found that converting the buses to electric would save an estimated 1,010 metric tons of carbon emissions.

Financial Assistance - Funding

www.energy.sc.gov/incentives

Energy Office Mini-Grants

- Eligibility: public entities & non-profits
- Project types: energy efficiency, renewable energy, & clean transportation projects
- Funding amount: up to \$10,000 for high impact, high visibility projects
- Timeframe: applications open in July; projects must be completed within same fiscal year

Energy Office ConserFund Loan

- Eligibility: public entities & non-profits
- Project types: energy efficiency, renewable energy &, clean transportation projects
- Loan amount: \$25,000-\$500,000 loan per fiscal year at 1.5% rate or lower
- Terms: Payment not due until one year after project completion; use project ROI to pay for loan over payback term
- Timeframe: applications accepted year-round

Energy Efficiency Revolving Loan (EERL) Loan

- Eligibility: commercial/private sector only
- Funding through Energy Office; administered by SC Business Development Corporation
- Project types: energy efficiency, renewable energy, & clean transportation projects
- Loan amount: from \$50,000 up to \$1,000,000
- Terms: variable interest rate with terms of up to 10 years
- Timeframe: applications accepted year-round

Technical Assistance - Fleet Assessments

PCF can provide technical assistance to fleets considering transitioning to alternative fuels

- Fuel agnostic – can consider full range of alternatives (not just EV!)
- Utilize scientifically-based resources
 - From National Laboratories (NREL, Argonne, etc)
 - PCF Clean Cities coalition has access to templates, tools
- **AFLEET – Alternative Fuel Life-Cycle Environmental & Economic Transportation**
 - Developed by US DOE's Argonne National Lab



AFLEET Tool (xls)

The AFLEET spreadsheet provides detailed energy, emission, and cost data for light-duty, heavy-duty, and off-road AFVs. It has the following 5 calculators depending on the user's goals:

- Simple Payback
- Total Cost of Ownership
- Fleet Footprint
- Idle Reduction
- Electric Vehicle Charging



AFLEET Online

[AFLEET Online](#) replicates the spreadsheet's [Simple Payback Calculator with a user-friendly interface](#) and analyzes the following metrics:

- [Petroleum use](#)
- [Greenhouse gas emissions](#)
- [Air pollutant emissions](#)
- [Simple payback](#)



HDVEC

The Heavy Duty Vehicle Emissions Calculator (HDVEC) is an AFLEET-based online tool that compares NOx, PM, GHGs and funding cost-effectiveness of environmental mitigation projects for the following fuel types:

- Diesel
- Electric
- Natural Gas
- Propane

Technical Assistance - Fleet Assessments

AFLEET – Alternative Fuel Life-Cycle Environmental & Economic Transportation

- Developed by US DOE's Argonne National Lab

Calculation Sample

	Diesel	EV	LPG
Lifetime Cost of Ownership - Costs			
Depreciation	\$79,550	\$238,650	\$85,914
Fuel	\$158,446	\$48,630	\$173,806
Diesel Exhaust Fluid	\$1,844	\$0	\$0
Maintenance and Repair	\$316,431	\$195,062	\$213,666
Insurance	\$77,314	\$135,716	\$79,650
License and Registration	\$11,630	\$11,630	\$11,630
Total Cost of Ownership	\$645,215	\$629,689	\$564,666

Technical Assistance – Other Support

- Transitioning your fleet
- Evaluate whether alternative fuel emission vehicles meet your service demands
- Assistance in connecting with your local utility
- Alternative Fuel Charging and Infrastructure assistance
- Review new concepts and proposals for grant opportunities
- Connection with Stakeholders
 - Fuel providers, fleet managers, OEMs, upfitters, state & federal agencies, nonprofits, infrastructure deployers, etc.



How can Palmetto Clean Fuels help you?

Education and Outreach

PLUG in SC	Training Opportunities	EVSI
Websites and Data	Newsletters	

Financial Assistance

- Funding Opportunities

Technical Assistance

- Conduct fleet analyses using verified USDOE models and calculators

Connecting our stakeholders

- Review new concepts and recommend potential SC or Clean Cities connections
- Stakeholders include fuel providers, fleet managers, OEMs, upfitters, state & federal agencies, nonprofits, infrastructure deployers, etc.



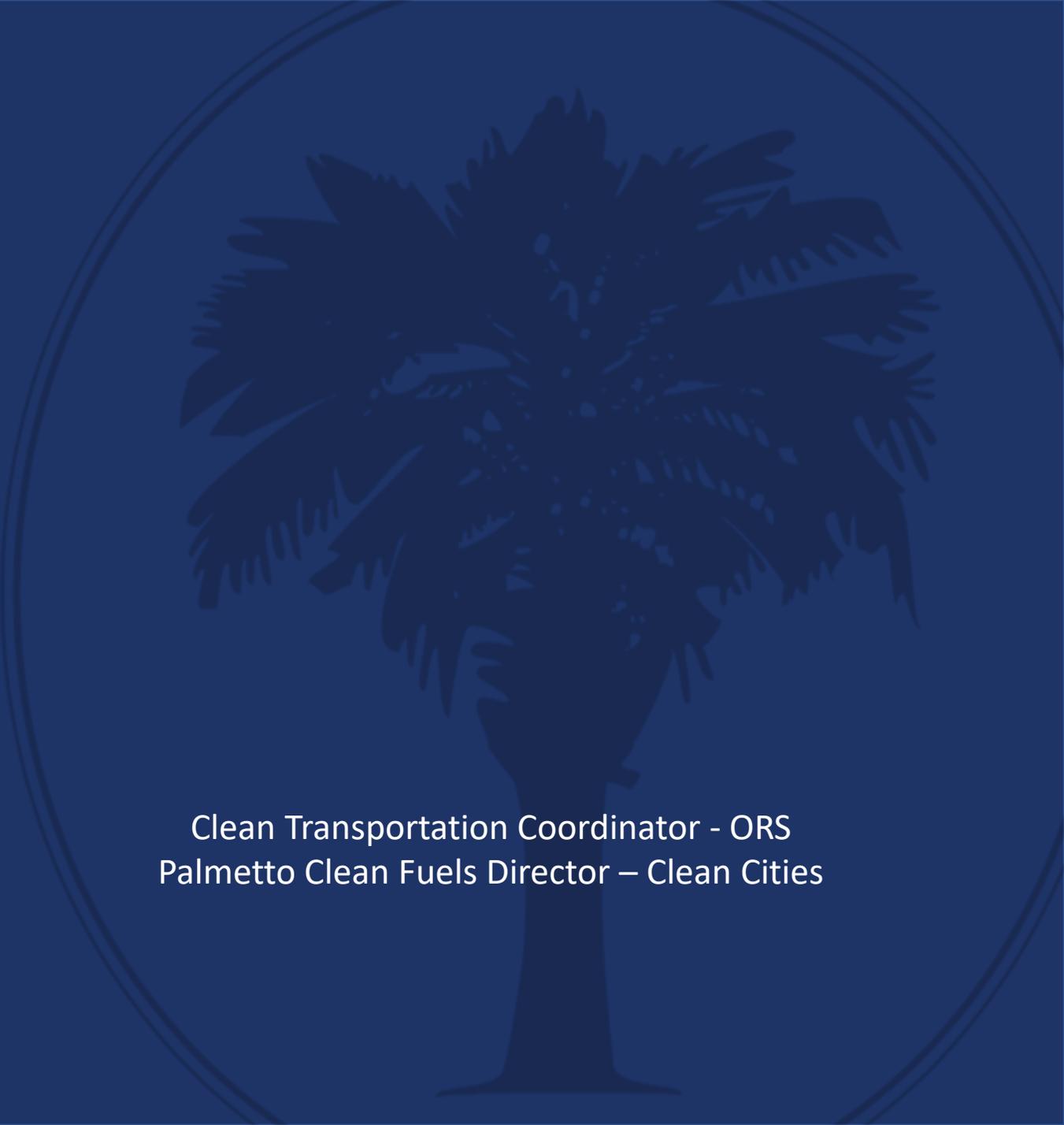
Thank you



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A large, dark blue silhouette of a palm tree is centered on the right side of the slide. It is set against a circular background that is part of a larger decorative element on the slide.

Clean Transportation Coordinator - ORS
Palmetto Clean Fuels Director – Clean Cities