

DOE Vehicle Technologies Office Overview

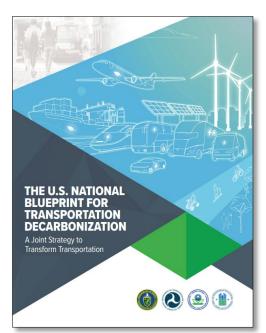
AUSTIN BROWN
Director, Vehicle Technologies Office

June 3, 2024





National Blueprint for Transportation Decarbonization



Released January 2023

- Covers all transportation modes (light-duty vehicles, medium- and heavy-duty trucks and buses, offroad, rail, marine, aviation, and pipelines) and sets up realistic, achievable pathways based on science.
- Focuses on solutions that can be incrementally deployed, delivering results by 2030.
- Addresses full lifecycle emissions and integration with the electric grid.

TRANSPORTATION DECARBONIZATION STRATEGIES

Convenient

Efficient

Clean





















Detailed Action Plans will be developed with stakeholders to achieve the following milestones:

- Before 2030-Turning the Tide on Transportation GHGs: Research and Investments to Support Deployment
- 2030-2040-Accelerating Change: Scaling Up Deployment of Clean Solutions
- 2040-2050-Completing the Transition: A Sustainable and **Equitable Future**

SCAN QR CODE to access the Blueprint



Improve Community Design and Land-use Planning

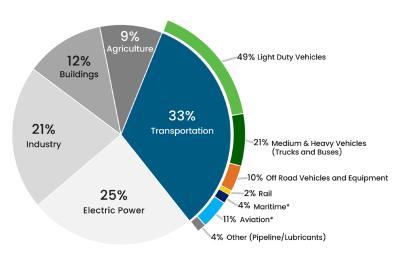
Increase Options to Travel More Efficiently

Transition to Zero Emission Vehicles and Fuels



Economy-wide Decarbonization by 2050

2022 U.S. GHG Emissions

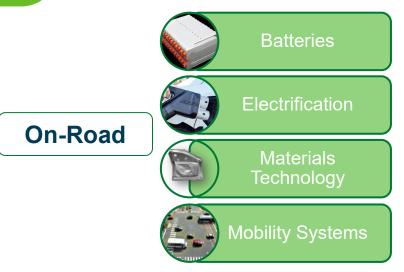


*Aviation and marine include emissions from international aviation and maritime transport. Military excluded except for domestic aviation.

- The Biden administration has set a goal of net-zero carbon emissions economy wide by 2050
- Transportation is the largest source of GHG emissions
 - 50% of energy expenditures and local pollution issues
 - Significant implications for global competitiveness, trade, and domestic jobs



Vehicle Technologies Office (VTO)









Off-Road, Air, Marine, Rail

Technology Integration

Analysis

Vehicle Technologies Office

- Applied research, development, demonstration, and deployment
- 100% focused on clean transportation
- Target the "sweet spot" between science experiments (too early) and commercial technology / product development (too late)



Budget Update



Subprogram (dollars in thousands)	FY 2024 Enacted	FY 2025 Request
Battery and Electrification Technologies	\$225,500	\$255,500
Decarbonization of Off-Road, Rail, Marine, Aviation Technologies	\$35,000	\$35,000
Materials Technology	\$37,500	\$37,500
Energy Efficient Mobility Systems	\$45,000	\$45,000
Technology Integration	\$101,000	\$122,790
Data, Modeling, and Analysis	\$6,000	\$6,000
Total	\$450,000	\$501,790

Major FY2025 Priorities

- Batteries
- Vehicle / Grid Integration
- Modal Decarbonization Plans

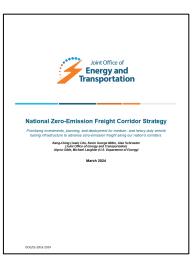


Highlights over the Last Year



White House Roundtable on Zero-Emission Freight Infrastructure

- April, 2024 event to accelerate implementation of the <u>National Zero-</u> <u>Emission Freight Corridor</u> <u>Strategy</u> launched by the Joint Office (JOET)
- ~100 stakeholders from federal, state, and local government, utilities, OEMs, fleets, and electric vehicle charging equipment providers







Clean Cities and Communities Rebranding

Debuted a new name and logo for <u>Clean Cities</u> as it moves into its fourth decade of advancing clean energy transportation nationwide.





Rebranding announcement video



Key Partnerships

Li-Bridge



Bridging the U.S. Lithium Battery Supply Chain Gap

Forum on Li-ion Battery Recycling and End-of-Life Batteries

@ ENERGY

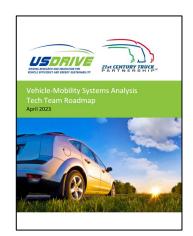
Forum for industry and government to debate and brainstorm solutions for achieving expanded domestic recycling capabilities.

Published <u>report</u> advising federal and state policymakers about the challenges of lithium-based recycling and ways to address the challenges.

21st Century Truck Partnership and U.S. DRIVE

Published four technical sector team roadmaps (electrification, safety, freight operational efficiency, and ICE) and the VMSATT roadmap







Petroleum Equivalency Factor

- On March 19, 2024, VTO published the Petroleum Equivalency Factor (PEF) Final Rule (10 CFR Part 474).
- This final rule established EV efficiency as equivalent-miles-per-gallon of gasoline for purposes of EPA's calculation of manufacturers' compliance with NHTSA's CAFE regulations.



Rules and Regulations

Federal Register Vol. 89, No. 62

VOI. 89, INO. 62

Friday, March 29, 2024

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents.

DEPARTMENT OF ENERGY

10 CFR Part 474

[EERE-2021-VT-0033]

RIN 1904-AF47

Petroleum-Equivalent Fuel Economy Calculation

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Final rule.

SUMMARY: The U.S. Department of Energy (DOE) publishes a final rule that revises the value for the petroleumequivalency factor (PEF). This final rule revises DOE's regulations regarding Ms. Laura Zuber, U.S. Department of Energy, Office of the General Counsel, Forrestal Building, GC–33, 1000 Independence Avenue SW, Washington, DC 20585, Telephone: (240) 306–7651. Email: laura.zuber@hq.doe.gov. SUPPLEMENTARY INFORMATION:

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- I. Introduction and Background II. Public Comments on the 2023 NOPR III. Discussion of Final Rule
- A. Statutory Factors B. Current Methodology
- C. Revised Methodology
- Approximate Electrical Energy
 Efficiency of EVs
 Gasoline-Equivalent Fuel Economy of
- Electricity
 a. Average Electricity Generation and
- Transmission Efficiency
 b. Petroleum Refining and Distribution
- Efficiency c. Annual Gasoline-Equivalent Fuel
- Economy of Electricity 3. Cumulative Gasoline-Equivalent Fuel
- Economy of Electricity

 4. Fuel Content Factor
- 5. Accessory Factor
- 6. Driving Pattern Factor 7. Revised PEF Value
- 8. Compliance Period

I. Introduction and Background

22041

In an effort to conserve energy through improvements in the energy efficiency of motor vehicles, in 1975, Congress passed the Energy Policy and Conservation Act (EPCA), Public Law 94-163. Title III of EPCA amended the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 1901 et seq.) (the Motor Vehicle Act) by mandating fuel economy standards for automobiles produced in, or imported into, the United States. This legislation, as amended, requires every manufacturer to meet applicable specified corporate average fuel economy (CAFE) standards for their fleets of light-duty vehicles under 8,500 pounds that the manufacturer manufactures in any model year.1 The Secretary of Transportation (through the National Highway Traffic Safety Administration (NHTSA)) is responsible for prescribing the CAFE standards and enforcing the penalties for failure to meet these standards, 49 U.S.C. 32902. The Administrator of the Environmental Protection Agency (EPA) is responsible for calculating each manufacturer's fleet

Funding Announcements



Released 6/3/2024:
Notice of Intent for FY 2024
Batteries & Electrification Funding
Opportunity

Released 4/24/24: Notice of Intent: SuperTruck Charge funding opportunity

Released 4/4/24:

Fiscal Year 2024 R&D funding opportunity—\$49.8 million – Concept Papers due 6/24/2024

Released 2/12/24:

Fiscal Year 2024 Technology Integration funding opportunity--\$15 Million

Visit https://eere-exchange.energy.gov/ for more information on FOAs.



Funding Selections

Announced 1/8/2024:

16 project for \$32.5 Million – Fiscal Year 2023 Technology Integration Funding Opportunity

Announced 1/18/2024:

- 27 projects for \$71 Million –
 Fiscal Year 2023 R&D Funding
 Opportunity
- \$60 million for an Advanced Battery R&D Consortium (USCAR)





Example Coordination with Other Offices

3/28/2024:

Coordination with MESC: 17
projects \$62 million for Bipartisan
Infrastructure Law Consumer
Electronics Battery Recycling,
Reprocessing, and Battery
Collection Funding Opportunity

4/25/2024:

Coordination with BETO:
\$17.5 million funding opportunity
WASTE: Waste Analysis and
Strategies for Transportation EndUses funding opportunity
announcement





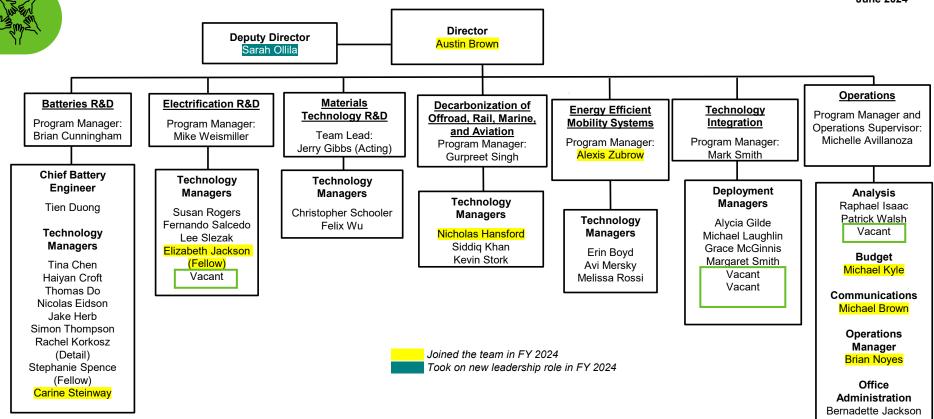


Office of ENERGY EFFICIENCY & RENEWABLE ENERGY



Building the Team

June 2024



Building the Team





Carine **Steinway Batteries**



Nicholas Hansford **DORMA**



Alexis Zubrow EEMS



Join our team!



Michael Kyle Budget



Doc Brown Communications



Brian Noyes Operations Manager

VTO on the Go!



On May 10, DOE named the Colorado School of Mines & **Arapahoe Community College** team Battery Workforce Challenge Year One champion. On May 23, DOE named the Ohio **State/Wilberforce University** Team EcoCAR EV Challenge Year Two champion.



VTO on the Go!



VTO Off-Site, March 2024







VTO Tours the White House

VTO on the Go!

VTO launched the VTO GO! Newsletter in 2024

Office of **ENERGY EFFICIENCY &** RENEWABLE ENERGY

Vehicle Technologies Office

February 22, 2024

VTO GO! Newsletter Quarter 1, 2024

Welcome to the inaugural VTO GO! newsletter from the U.S. Department of Energy's (DOE) Vehicle Technologies Office (VTO).

VTO funds research. development, demonstration, and deployment (RDD&D) of new, efficient, and clean mobility options that are affordable for all Americans. This quarterly newsletter will be revving up your inbox with recaps of VTO news.



TO group photo in front of the DOE Forrestal Building October 2023.

events, funding opportunities and publications, and previews of upcoming VTO activities.

A peek into this edition:

- Get to Know...VTO Director Austin Brown
- Clean Cities Corner
- In the News
- Upcoming Events
- VTO Funding Opportunities and Selections



announce that VTO's Alycia Gilde submitted the

Ouarter 2, 2024

In this Edition

- · Get to Know... Three VTO'ers
- In the News
- . Activities Supporting the National Zero Emission Freight Corridor Strategy
- Funding Opportunities and Selections
- Clean Cities and Communities Corner
- . Beep for Success: Four impactful projects you can't miss

Get to Know...







Brian Cunningham Program Manager, Batteries R&D



Ainsley Giles U. of Maryland Intern, Vehicle Technologies Office

How did you get into your area of work?

Sarah Ollila: I am a materials engineer by training and have always had a passion for the environment. Prior to working at DOE, I was in industry working for Whirlpool Corp. and really enjoyed working on products that people could relate to and improved their daily lives. When I came across the opportunity to apply my materials expertise to making vehicles more energy efficient, I jumped at the chance.







Subscribe to our VTO GO! newsletter at:

https://www.energy.gov/eere/v ehicles/vehicle-technologiesoffice-newsletters



VTO is hiring!

- Analysis Technology Manager
- **Electrification Technology Manager**
- **Technology Integration Deployment** Manager



Send questions to: vto@ee.doe.gov

For more information: www.vehicles.energy.gov