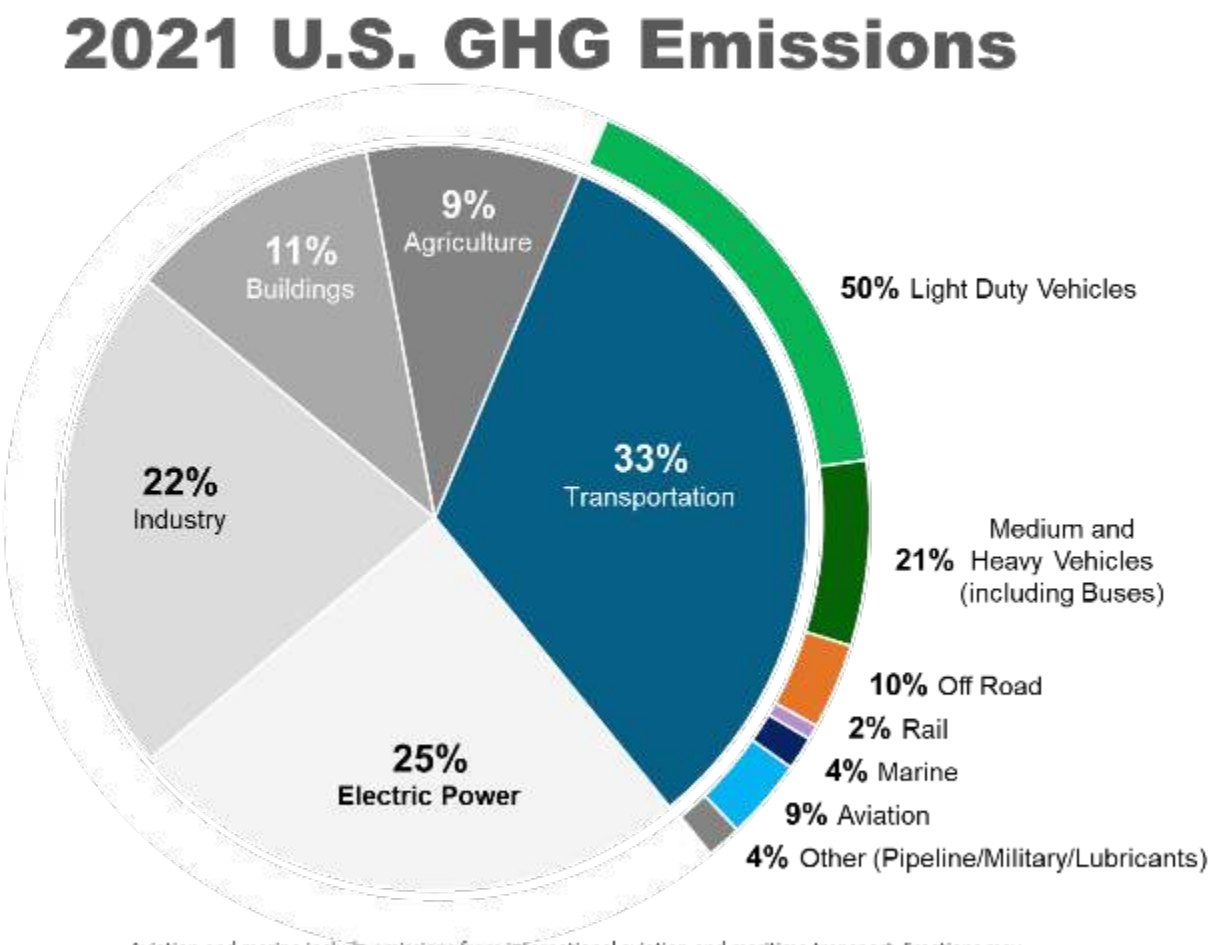
Clean Cities:
Helping Advance Clean Mobility Solutions in Alaska

Southeast Conference, Sitka, Alaska

Sam Spofforth, National Renewable Energy Laboratory and U.S. Department of Energy, September 20, 2023

Federal Policy Landscape

Economy-wide Decarbonization by 2050

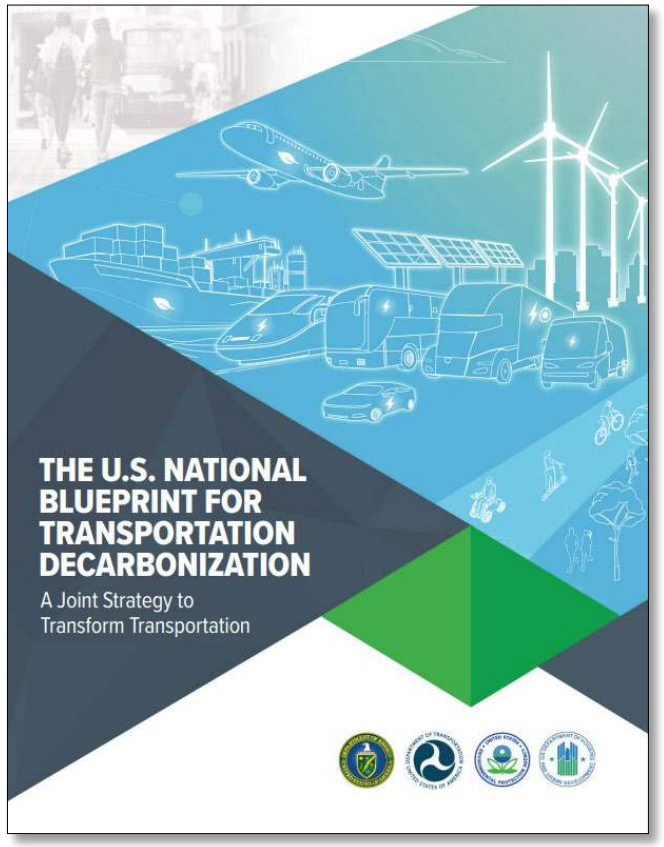


Aviation and marine include emissions from international aviation and maritime transport. Fractions may not add up to 100% due to rounding.

Based on 2022 EPA data, dated 05/30/2023

- **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

National Blueprint for Transportation Decarbonization



Released January 2023

- Collaboration among U.S. DOE, DOT, EPA, HUD
- All modes (on-road, off-road, non-road
- Renewable fuels, electrification, hydrogen – lifecycle emissions and integration with the electric grid.
- Delivers results by 2030; net-zero goal by 2050

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

Federal Clean Transportation Policy and Funding Overview

Bipartisan Infrastructure Law (BIL)

- 26 provisions related to cleaner fuels or advanced vehicles.
- Investment in EVs (charging, batteries, vehicles), electricity grid upgrades.

Inflation Reduction Act

- 13 provisions related to alternative fuels, AFVs, EVs.
- Creation and extension of vehicle tax incentives, fuel infrastructure operators, governments.

Off-road AFV federal funding

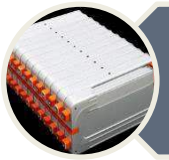
- EV Charging and Clean Transportation Grants
  - U.S. Department of Energy (DOE) grants for transportation decarbonization research.
  - **Off-road and non-road vehicles are a priority project.**

Search laws and incentives related to alternative fuels and vehicles, air quality, vehicle efficiency, and other transportation-related topics on the DOE's Alternative Fuels Data Center Laws and Incentives Database.

DOE Vehicle Technologies Office and Clean Cities

Vehicle Technologies Office (VTO)

On-Road



Batteries

- Chemistries, cost, energy density, life

Electrification

- Power electronics, reduce charge time

Materials Technology

- Increase vehicle efficiencies

Mobility Systems

- Transportation system as a whole

Off-Road, Air, Marine, Rail

Electrification

Hydrogen/Fuel Cells

Advanced Powertrains

Net-Zero Carbon Fuels

- Transition to clean fuels
- high-efficiency engines and emission control systems use low GHG, renewable fuels such, hydrogen, and e-fuels
- Integrate electrified and hybrid powertrains

Technology Integration

Clean Cities
U.S. Department of Energy

TI Portfolio of Sustainable Technologies and Fuels

Clean Cities activities span the VTO Technology Integration (TI) Portfolio of Sustainable Technologies and Fuels

- **Alternative and Renewable Fuels (Vehicles and Infrastructure)**
  - Biodiesel (B20 and higher)
  - Electricity
  - Ethanol (E85)
  - Hydrogen
  - Natural gas/Renewable Natural Gas
  - Propane/Renewable Propane
  - Renewable Diesel
  - Sustainable Aviation Fuels (SAF)
- **Fuel Economy Improvements**
- **Idle Reduction**
- **Efficient Transportation Solutions**
  - Reducing Vehicle Miles Traveled (e.g., encouraging mass transit use, trip elimination, eco-routing)
  - First Mile/Last Mile
  - Electric Micromobility (e.g., e-bikes, e-scooters)
  - Modal Shift (e.g., freight, passengers)

Transportation sectors:

- On-Road (L/M/HDV)
- Off-Road
- Rail
- Marine
- Aviation
- Ports

Clean Cities in Alaska

DOE Clean Cities Network

Federal Partnership with Local/State “Designated Coalitions”

Deploy Clean, Equitable Transportation Solutions

Overcome Market Barriers

Federal: Base Funding, Expertise, Network Hosting

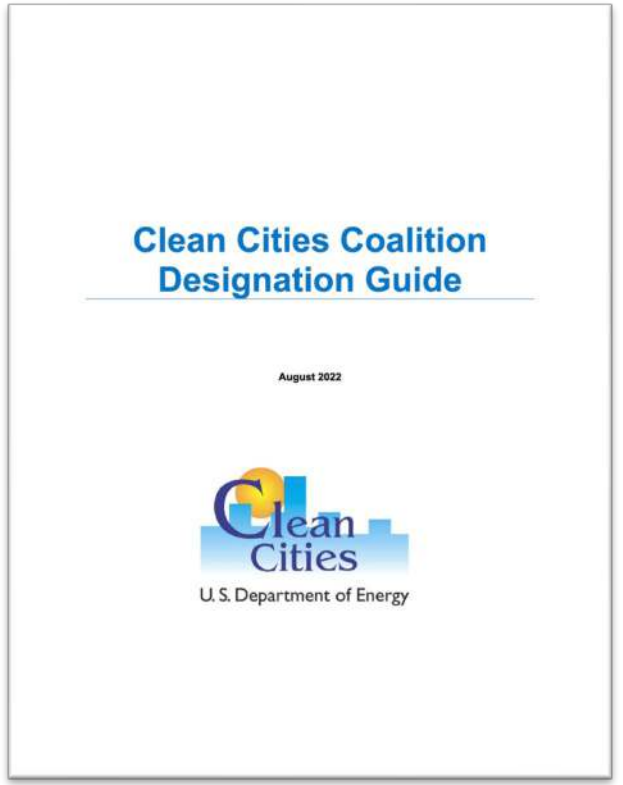
Local: Strategic Processes to Define Local Priorities Aligned with Broad Mission

Typical Activities: Education, Technical Assistance, Project Development and Support, Help to Access Funding

Clean Cities Coalitions

Achieving U.S. DOE Designated Clean Cities Coalition

- **Stage 1: Apprentice Designation**
  - Create a short proposal to DOE
    - Identify 9-15 stakeholders to serve on the coalition's board.
    - Identify an acting coalition director.
- **Stage 2: Full Designation**
  - Develop a four-year strategic Program Plan.
    - Market snapshot of AFVs
    - Stakeholder commitments
    - Plan for market growth
    - Process for selecting a coalition director
    - Operating plans and organizational capacity
    - Coalition governance



Search "DOE Clean Cities," then:
- Coalitions
- Starting a Coalition

Sam Spofforth,
National Renewable Energy Laboratory;
U.S. Department of Energy
Samuel.Spofforth@ee.doe.gov