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

FEDERAL ENERGY MANAGEMENT PROGRAM

Executive Order 13514
Federal Leadership in Environmental, Energy, and Economic Performance

Guidance for Federal Agencies on
E.O. 13514 Section 12, Federal Fleet Management

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Executive Summary

E.O. 13514, Section 12 fleet goal: Reduce GHG emissions through petroleum reduction.

Executive Order (E.O.) 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, signed on October 5, 2009, establishes "an integrated strategy towards sustainability in the Federal Government and **makes reduction of greenhouse gas (GHG) emissions a priority for Federal agencies.**" E.O. 13514 sets the vision for Federal fleet management to lead by example to help "create a clean energy economy that will increase our Nation's prosperity, promote energy security, protect the interests of taxpayers, and safeguard the health of our environment." **Federal fleets will reach this vision by reducing fleet GHG emissions through reduced petroleum consumption.** E.O. 13514 establishes GHG and petroleum reduction requirements relevant to Federal fleet management, as outlined in table ES-1. E.O. 13514 Sections 2(a), 8, and 9 establish overall GHG emission reduction goals and associated planning, accounting, and reporting requirements, which includes GHG emissions from Federal fleets. Section 2(a)(iii) and Section 12 establish requirements that apply specifically to Federal fleet management.

Table ES-1. *Summary of Requirements in E.O. 13514 Relevant to Federal Fleet Management*

Requirement	E.O. Section	Summary
GHG Emission Reduction Target	2(a)	Each agency shall establish a percentage reduction target for agency-wide reductions of Scope 1 and 2 GHG emissions by fiscal year (FY) 2020 relative to a FY 2008 baseline.
Agency Strategic Sustainability Performance Plan (Sustainability Plan)	8	Each agency shall develop, implement, and annually update an integrated Sustainability Plan to meet the requirements of E.O. 13514, including GHG emission and petroleum reduction requirements from FY 2011 to FY 2021. Each agency shall determine agency actions required to meet E.O. 13514 fleet GHG emission and petroleum reduction requirements; prioritize and integrate actions into the agency's strategic planning and budget process into the agency's Sustainability Plan which will be aligned with the agency budget**.**
GHG Reporting and Accounting	9	DOE shall develop "recommended Federal [GHG] reporting and accounting procedures for agencies to use in carrying out their obligations under subsections 2(a), (b), and (c)."
Fleet Petroleum Reduction	2(a)(iii)	Each agency shall reduce annual petroleum consumption by two percent each year from a FY 2005 baseline through FY 2020.

Section 12 of E.O. 13514 requires DOE—in coordination with GSA —to issue comprehensive guidance on Federal fleet management. This document fulfills that requirement. It provides an **overview of GHG and petroleum reduction planning requirements for senior officials and headquarters-level fleet managers**. This document also summarizes the Federal requirements for Federal agencies to reduce GHG emissions and petroleum use and to increase alternative fuel use. Together with the accompanying ***DOE Comprehensive Federal Fleet Management Handbook***, this guidance document will help Federal fleet managers to implement the set of **Federal fleet requirements**. The handbook will be made available at: http://www.femp.energy.gov/pdfs/eo13514_fleethandbook.pdf.

This fleet guidance document and the handbook are organized around a cyclical fleet management framework—**plan, collect, strategize, and implement** (see figure 1-1). **This framework is provided as a tool for agency fleet managers to select optimal petroleum reduction strategies for each fleet location**, based on an evaluation of site-specific characteristics, including availability of alternative fuel, fleet size, fleet optimization, and fleet vehicle composition. This document focuses on the first stage of this process—planning. The handbook will assist agencies in the collect, strategize, and implement process stages.

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Acronyms and Abbreviations

Term	Acronym
Alternative Fuel Vehicle	AFV
Battery Electric Vehicle	BEV
Central Intelligence Agency	CIA
Code of Federal Regulations	CFR
Compressed Natural Gas	CNG
Consolidated Metropolitan Statistical Area	CMSA
Council on Environmental Quality	CEQ
Electric Vehicle	EV
Electric Vehicle Charging Station	EVCS
Energy Conservation Reauthorization Act	ECRA
Energy Independence and Security Act	EISA
Energy Policy Act	EPAct
Environmental Protection Agency	EPA
Executive Order	E.O.
Federal Automotive Statistical Tool	FAST
Federal Energy Management Program	FEMP
Fiscal Year	FY
Gasoline Gallon Equivalent	GGE
Government-Owned, Contractor-Operated	GOCO
Greenhouse Gas	GHG
Heavy-Duty Vehicle	HDV
Hybrid Electric Vehicle	HEV
Kilowatt-Hour	kWh
Light-Duty Vehicle	LDV
Liquefied Natural Gas	LNG
Liquefied Petroleum Gas	LPG
Low-Speed Electric Vehicle	LSEV
Management and Integration	M&I
Management and Operating	M&O

Term	Acronym
Medium-Duty Vehicle	MDV
Metropolitan Statistical Area	MSA
National Defense Authorization Act	NDAA
Notice of Proposed Rulemaking	NOPR
Office of Management and Budget	OMB
Plug-in Hybrid Electric Vehicle	PHEV
Strategic Sustainability Performance Plan	Sustainability Plan
U.S. Department of Commerce	DOC
U.S. Department of Defense	DOD
U.S. Department of Energy	DOE
U.S. Department of the Interior	DOI
U.S. General Services Administration	GSA
United States Code	U.S.C.
Vehicle Miles Traveled	VMT

Chapter 1 Introduction

Purpose of this chapter	• **Introduce Executive Order 13514 and its impact on Federal fleet management** • **Explain how this guidance document is organized and how the following chapters and associated handbook can help Federal fleet managers address Executive Order 13514 requirements**
Target audience	• **Agency senior officials, headquarters fleet managers, and fleet location managers**

This document fulfills the Executive Order (E.O.) 13514 Section 12 requirement for the U.S. Department of Energy (DOE) to issue comprehensive Federal fleet management guidance. It has been written to help agencies develop an overall fleet greenhouse gas (GHG) emission and petroleum reduction strategy and executable plan for their vehicle fleets. Three key petroleum reduction strategies—reducing vehicle miles traveled (VMT), increasing fleet fuel efficiency and optimization measures, and displacing petroleum with alternative fuel use—are discussed in further chapters of this document.

More detail on implementing this guidance, including how agencies can tailor a GHG emissions and petroleum reduction strategy to their fleet's specific characteristic, is provided in the *DOE Comprehensive Federal Fleet Management Handbook*. This handbook is designed to supplement this guidance to assist Federal agencies in selecting optimal GHG and petroleum reduction strategies for each fleet location, meeting or exceeding related fleet requirements, acquiring vehicles to support these strategies while minimizing fleet size and VMT, and refining strategies based on agency performance.

The Vision

Federal fleets will lead by example to help "create a clean energy economy that will increase our Nation's prosperity, promote energy security, protect the interests of taxpayers, and safeguard the health of our environment."

Federal fleets will reach this vision by reducing fleet GHG emissions through reduced petroleum consumption.

1.1 Executive Order 13514: Leading by Example

E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance,* signed on October 5, 2009, establishes "an integrated strategy towards sustainability in the Federal Government and makes **reduction of GHG emissions a priority for Federal agencies.**"

1.2 Fleet Guidance Document Target Audience

The three primary audiences for this guidance document are:

- **Agency senior sustainability officers.** Senior agency officials responsible for implementation of this order and E.O. 13423 within the agency. Section 7 of E.O. 13514 required the head of each agency to designate a Senior Sustainability Officer by November 4, 2009. **Recommended to focus on chapters 1 and 2.**
- **Agency headquarters fleet managers.** Agency-wide fleet managers responsible for meeting the transportation needs of the entire agency fleet, including developing agency fleet policy, acquiring vehicles, and overseeing vehicle fueling and maintenance/repair services. **Recommend to use entire document.**
- **Agency fleet location managers.** Fleet managers at each fleet location responsible for the fleet's day-to-day operation, implementing agency fleet policy at that location, and working with the agency headquarters fleet managers in managing the acquisition of vehicles, fuel, and maintenance services to support that fleet. **Recommend to focus on chapters 1 and the handbook.**

1.3 Executive Order 13514: Federal Fleet Requirements

Four provisions of E.O. 13514 establish GHG requirements and goals that are also relevant to Federal fleet management. Sections 2(a), 8, and 9 of E.O. 13514 establish overall agency GHG emission reduction goals and associated planning, accounting, and reporting requirements, which includes GHG emissions from Federal fleets.

Sections 2a(iii) and 12 of E.O. 13514 establish requirements that apply specifically to Federal fleet management. These Federal fleet provisions are as follows:

- **Section 2(a)(iii),** *Goals for Agencies*, requires the head of each agency (in establishing a percentage reduction target for scope 1 and 2 GHG emissions) to consider "reducing the use of fossil fuels by:
  - (A) Using low [GHG-]emitting vehicles including alternative fuel vehicles [(AFVs)]
  - (B) Optimizing the number of vehicles in the agency fleet
  - (C) Reducing, if the agency operates a fleet of at least 20 motor vehicles, the agency fleet's total consumption of petroleum fuel by a minimum of 2 percent annually through the end of [Fiscal Year (FY)] 2020, relative to a baseline of [FY] 2005."
- **Section 12,** *Guidance for Federal Fleet Management,* requires DOE, in coordination with U.S. General Services Administration (GSA), to issue comprehensive guidance on Federal fleet management that addresses the:
  - Acquisition of AFVs and use of alternative fuels[1]
  - Use of biodiesel blends in diesel vehicles
  - Acquisition of electric vehicles (EVs) for appropriate functions
  - Improvement of fleet fuel economy
  - Optimization of fleets to the agency mission
  - Use of petroleum reduction strategies, such as the acquisition of low GHG-emitting vehicles, and the reduction of VMT
  - Installation of renewable fuel pumps at Federal fleet fueling centers.

E.O. 13514 also relates agency fleet GHG emission and petroleum reduction requirements to the agency's strategic planning and budget process. Specifically, **Section 4(a)** states that the "Director [of the Office of Management and Budget (OMB)] shall, where feasible, review each agency's [Sustainability] Plan concurrently with OMB's review and evaluation of the agency's budget request." OMB will issue instructions concerning budget and appropriation matters related to E.O. 13514.

Reducing Federal Fleet GHG Emissions Through Petroleum Reduction

The overarching goal for agency fleet management is to reduce GHG emissions. Reducing petroleum consumption is the principal means to reduce GHG emissions, because this consumption generates scope 1 GHG emissions—a key component of an agency's fleet GHG footprint.

Petroleum reduction is a familiar goal to Federal fleet managers, as are the strategies to achieve petroleum reduction: increasing the fleet's fuel economy, reducing VMT, and using alternative fuels in place of petroleum.

Scope 1 GHG emissions include GHG emissions generated from operating internal combustion engines in Federal fleet vehicles.

Scope 2 GHG emissions include GHG emissions generated from the production of electricity purchased by a Federal agency used to power Federal fleet vehicles.

Scope 3 GHG emissions include GHG emissions from sources not directly controlled by a Federal agency but related to agency activities, such as employee travel and commuting.

DOE is preparing recommendations to E.O. 13514 Section 9 for the Council on Environmental Quality (CEQ) on classifying GHG emissions.

Federal Fleet Requirements Related to GHG Emissions and Petroleum Reduction

Federal fleets must reduce GHG emissions while meeting mission-critical needs and complying with all Federal goals and mandates. Congress and the executive branch have established Federal fleet requirements though the following statutes and executive orders:

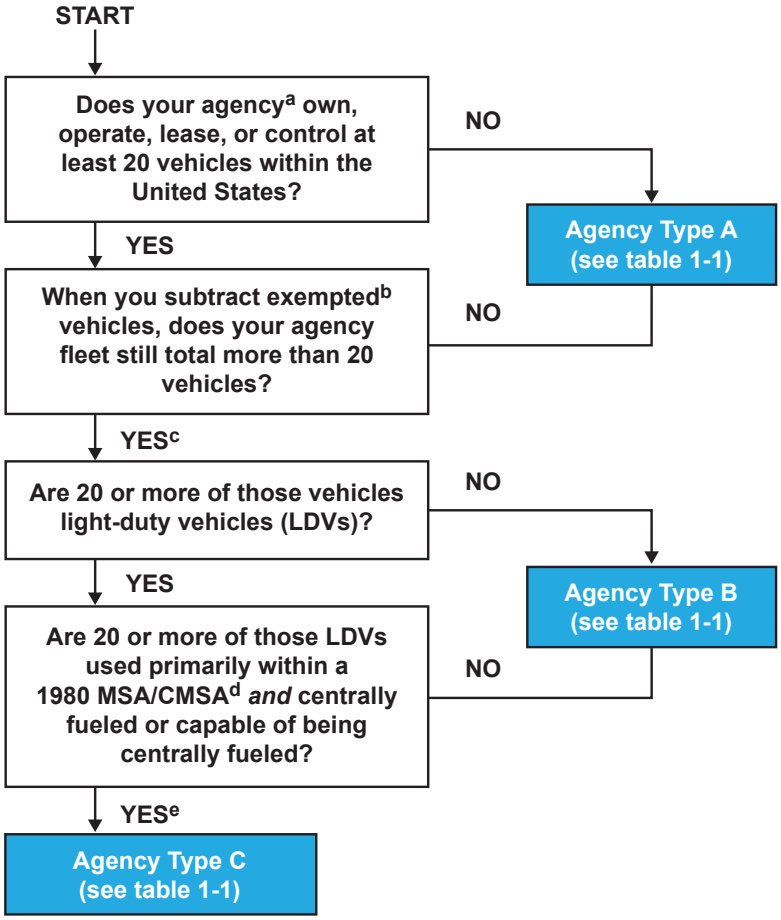
[1] DOE recommends that agencies use low carbon alternative fuels whenever available.

- **E.O. 13514,**[2] *Federal Leadership in Environmental, Energy, and Economic Performance*
- **E.O. 13423**,[3] *Strengthening Federal Environmental, Energy, and Transportation Management*
- **Energy Policy Act (EPAct) of 1992,**[4] as amended by the Energy Conservation Reauthorization Act (ECRA) of 1998,[5] and Section 2862 of National Defense Authorization Act (NDAA) of 2008[6]
- **EPAct 2005 Section 701**[7]
- **Energy Independence and Security Act (EISA) of 2007 Sections 141, 142, and 246**[8]

Section 142 of EISA directs the Secretary of Energy to issue implementing regulations for a statutorily required reduction in petroleum consumption and increase in alternative fuel consumption of Federal agency fleets. Until the rulemaking process is complete, it is premature at this time for DOE to issue guidance on certain requirements related to petroleum reduction, alternative fuel consumption, and agency fleet plans under EISA Section 142.

Table 1-1 summarizes the Federal fleet management, alternative fuel use, and petroleum reduction requirements. Figure 1-1 provides a flowchart to help Federal agencies determine which of these requirements apply to their fleet. Note that this figure and table will help determine if requirements are applicable to your overall agency rather than individual sub-fleets within your agency fleet.

Figure 1-1. *Determining Which Federal Fleet Requirements Apply to a Federal Agency*



a – Note that there are slight differences in the definition of Federal agencies between Federal fleet requirements. Under E.O. 13514 and E.O. 13423 a Federal agency is "an Executive agency as defined in [5 U.S.C. § 105], excluding [GAO]." Under EPAct 1992, EPAct 2005, and EISA § 246, a Federal agency is "any Federal Executive department, military department, Government corporation, independent establishment, or Executive agency, the United States Postal Service, the Congress, the courts of the United States, or the Executive Office of the President." EISA § 141 applies to the same agencies as EPAct 1992, but limits legislative branch applicability to the U.S. House of Representatives when vehicles are acquired using a Member's Representational Allowance. Agencies should review the definition of Federal agencies for each requirement before determining applicability.

b – Exempt vehicles include law enforcement and emergency, military tactical, non-road, and vehicles operated outside of the United States. There are slight differences in other vehicles considered exempt for each Federal fleet requirement. Agencies should review the definition of exempt vehicle for each requirement before determining applicability.

c – Agency is subject to E.O.s 13514 and 13423.

d – Metropolitan statistical area/consolidated metropolitan statistical area

e – Agency is covered under EPAct 1992.

[2] 74 FR 52115, signed October 5, 2009
[3] 72 FR 3919, signed January 24, 2007
[4] Public Law 102-486, 42 U.S.C. 13212
[5] Public Law 105-388
[6] Public Law 101-181
[7] Public Law 109-58, August 2005, 42 U.S.C. 6374(a)(3)(E)
[8] Public Law 110-140

Table 1-1. *Summary of Primary and Supporting Federal Fleet Requirements*

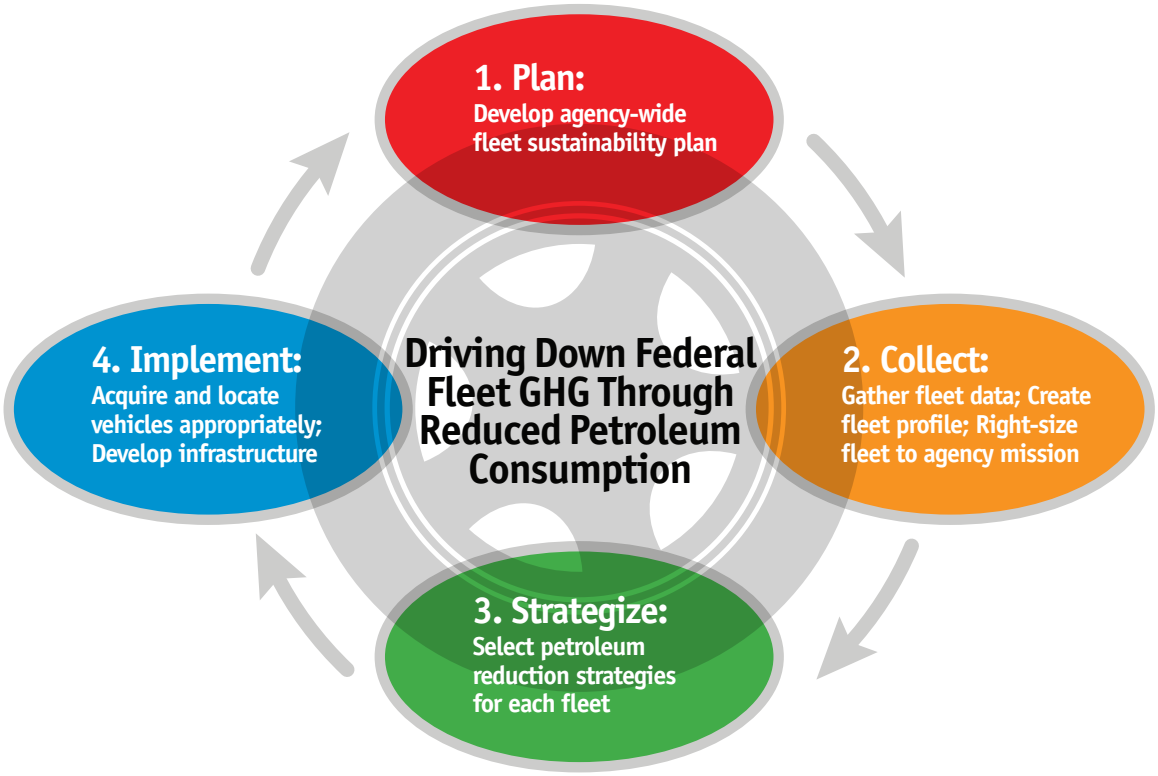
	Statute or Executive Order	Requirement	Applicability (see figure 1-1)		
			A	B	C
PRIMARY FEDERAL REQUIREMENTS AFFECTING FLEETS					
GHG reduction	E.O. 13514	Sets a percentage reduction target for reductions of scope 1 and 2 GHG emissions from FY 2008 to FY 2020		✓	✓
Petroleum reduction	E.O. 13514	Requires 2 percent annual reduction from FY 2005 to FY 2020		✓	✓
	E.O. 13423	Requires 2 percent annual reduction from FY 2005 to FY 2015[9]		✓	✓
	EISA §142	Requires 20 percent total reduction from FY 2005 to FY 2015[9]		✓	✓
SUPPORTING FEDERAL FLEET REQUIREMENTS					
Agency Sustainability Plan	E.O. 13514	Establishes the fleet component of an overall agency plan to achieve E.O. 13514 sustainability goals and targets for FY 2011 to FY 2021		✓	✓
Alternative fuel use increase	E.O. 13423	Requires 10 percent annual increase (from previous year), starting from the FY 2005 baseline through FY 2015[9]		✓	✓
	EISA §142	Requires 10 percent total increase from FY 2005 to FY 2015[9]		✓	✓
Alternative fuel use	EPAct 2005 §701	Requires all dual-fueled AFVs to use alternative fuel unless waivered			✓
Alternative fuel infrastructure	EISA §246	Requires every Federal fueling center without renewable fuel availability to install a renewable fuel pump			✓
Vehicle acquisition	EPAct 1992	Requires 75 percent of LDVs acquired in MSAs to be AFVs			✓
	EISA §141	Prohibits agencies from acquiring vehicles that are not low-GHG-emitting vehicles	✓	✓	✓
	E.O. 13423	Requires agencies to use plug-in hybrid electric vehicles (PHEVs) when commercially available at a cost reasonably comparable to non-PHEVs		✓	✓
Agency fleet plan	EISA §142	Establishes an agency plan to meet required petroleum reduction and alternative fuel use increase requirements		✓	✓
Reporting	EPAct 1992, ECRA 1998	Requires agencies to report to Congress annually on their compliance with the Federal fleet requirements (by February 15 of each year)		✓	✓

[9]Agencies are required to maintain the FY 2015 petroleum and alternative fuel use levels past FY 2015.

1.4 Fleet Guidance Objectives and Document Organization

This fleet guidance document and the handbook are organized around the cyclical fleet management framework—**plan, collect, strategize, and implement**—summarized in figure 1-2. Relevant requirements are explained in each chapter, helping an agency determine whether the requirements are applicable to its fleet and, if so, how to measure, reach, and exceed performance goals.

Figure 1-2. *Annual Fleet Strategic Planning and Implementation Process Framework for Agencies*



The guidance document is organized around the fleet management framework as follows:

- **Plan**. Develop an agency-wide fleet plan that will reduce fleet GHG emissions, reduce fleet petroleum consumption, and meet EISA Section 142 plan requirements (see table 1-1). Agencies should consider submitting this single agency-wide fleet plan as a component of their Agency E.O. 13514 Strategic Sustainability Performance Plan (Sustainability Plan), which is due earlier in the year than the EISA Section 142 plan. Doing so will allow agencies to fulfill two plan requirements (E.O. 13514 Sustainability Plan and EISA Section 142 executable plan) at the same time.
- **Collect**. Compile and manage accurate and comprehensive fleet data to enable the agency to optimize fleet decision making, establish a baseline fleet profile, and use that profile to right-size the fleet to the agency mission. Evaluate minimum vehicle requirements needed to support the agency mission at each fleet location and identify opportunities to eliminate vehicles that exceed requirements.
- **Strategize**. Evaluate strategies to reduce GHG emissions and petroleum consumption, including reducing VMT, increasing fleet fuel economy, increasing use of alternative fuels (including biodiesel blends) and exploring alternative strategies that eliminate the need for fleet vehicles (such as bicycles).
- **Implement**. Acquire vehicles to support GHG emission and petroleum reduction strategies, ensure fleet and individual vehicles are right-sized to the agency mission, support alternative fuel infrastructure development where possible, monitor and report performance in meeting GHG emission and petroleum reduction targets, identify deficiencies, and refine strategy as needed.

The chapters in this guidance document focus on the first stage of this process—the planning stage of the fleet management framework. The handbook assists agencies in following the collect, strategize, and implement stages of the fleet management framework. table 1-2 shows where each chapter of this document and the handbook fits into the framework, how GHG and petroleum reduction strategies fit into each chapter and the handbook, and how each chapter and the handbook relate to Federal fleet requirements.

1.5 Determining Applicability to the Requirements of This Guidance Document

The remaining chapters of this guidance document provide guidance to assist agencies in meeting the fleet planning, GHG emission reduction, petroleum reduction, and alternative fuel increase requirements established by E.O. 13514, E.O. 13423, and/or EISA Section 142. Figure 1-1 and table 1-1 assist in determining which Federal fleet requirements apply to each agency. This section provides more detail in determining which agencies and fleets are subject to the E.O. 13514 and E.O. 13423 requirements.

Federal Agency Fleets Subject to the E.O. 13514 and E.O. 13423 Requirements

What is a Federal agency?

Under E.O. 13514 and E.O. 13423, an "agency" is an **executive agency as defined in 5 U.S. Code 105 (5 U.S.C. 105), but excluding the Government Accountability Office.** Under 5 U.S.C. Section 105, the term "executive agency" means an executive department, a Government corporation, and an independent establishment, which terms are themselves defined in 5 U.S.C. Sections 101, 103, and 104.

How does a Federal agency fleet determine if it is subject to the E.O. 13514 and E.O. 13423 requirements?

A Federal agency **is subject** if it:

- Owns, operates, leases or otherwise controls **20 or more automobiles and/or motor vehicles within the United States** that are **not** on the list of **exempt vehicles** (exempt vehicles are discussed below).

A Federal agency **is not subject** if it:

- Owns, operates, leases or otherwise controls fewer than 20 vehicles (excluding exempt vehicles) within the United States.

OR

- Is not encompassed within 5 U.S.C. 105.

OR

- Is part of the legislative or judicial branches of the Federal Government.

Table 1-2. *GHG and Petroleum Reduction Strategies and Fleet Requirements in this Document*

Petroleum and GHG reduction plan or strategy	Chapter	Fleet requirement	Statute or Executive Order	Requirement
Plan				
Develop an agency-wide fleet management plan	**2**	*Agency plan to achieve GHG emission targets*	E.O. 13514	Develop an integrated Sustainability Plan that includes achieving the executive order GHG emission and petroleum reduction targets
		Agency plan to meet petroleum and alternative fuel targets	E.O. 13514 EISA §142	Develop an agency plan to meet the required petroleum reduction and alternative fuel use increase requirements
Reduce fleet GHG emissions	**3**	*Reduction in annual fleet GHG emissions*	E.O. 13514	Reduce fleet GHG emissions as part of the agency-established reduction target FY 2008–FY 2020
Reduce fleet petroleum consumption	**4**	*Reduction in annual fleet petroleum use*	E.O. 13514	2 percent annual reduction FY 2005–FY 2020
			E.O. 13423	2 percent annual reduction FY 2005–FY 2015
			EISA §142	20 percent total reduction FY 2005–FY 2015
Increase fleet alternative fuel consumption	**5**	*Increase in annual fleet alternative fuel use*	E.O. 13423	10 percent annual increase (from previous year) FY 2005–FY 2015
			EISA §142	10 percent total increase FY 2005–FY 2015
Collect				
Develop agency profile and right-size fleets	**Handbook**	*Vehicle Allocation Methodology (VAM)*	GSA FMR §102-34.50	Establish a structured VAM to determine the appropriate size and number of motor vehicles
Strategize				
Reduce VMT	**Handbook**	*Reduction in annual fleet petroleum use*	See E.O. 13514, E.O. 13423, and EISA §142 petroleum reduction requirements above	
Increase fleet fuel economy	**Handbook**			
Acquire AFVs and use alternative fuel **Use biodiesel blends in diesel vehicles** **Acquire EVs**	**Handbook**	*Increase in annual fleet alternative fuel use*	See E.O. 13423 and EISA §142 alternative fuel use increase requirements above	
		Increase in alternative fuel use in AFVs	EPAct 2005 §701	All dual-fueled AFVs must use alternative fuel unless waivered
		Increase in alternative fuel infrastructure	EISA §246	Every Federal fueling center must install a renewable fuel pump
Implement				
Vehicle acquisition	**Handbook**	*Acquisition of AFVs*	EPAct 1992	75 percent of LDVs acquired in MSAs must be AFVs
		Acquisition of PHEVs	E.O. 13423	Use PHEVs when commercially available at a cost reasonably comparable to non-PHEVs
		Acquisition of low GHG-emitting vehicles	EISA §141	Prohibits agencies from acquiring vehicles that are not low-GHG emitting vehicles
Monitoring fleet performance	**Handbook**	Annual agency compliance report	EPAct 1992, ECRA 1998	Each agency must report to Congress annually on compliance with the Federal fleet requirements
Reevaluate strategies	**Handbook**	Agency implementation plans	See E.O. 13514 and EISA §142 fleet plan requirements above	

Vehicles Subject to E.O. 13514 and E.O. 13423 Requirements

An agency's **entire fleet of vehicles** are subject to these requirements, including Federal LDVs, medium-duty vehicles (MDVs), and heavy-duty vehicles (HDVs) (which includes GSA-leased or agency-owned or commercially leased vehicles) ***except those vehicles that are exempt*** from the E.O. 13514 and 13423 requirements as described in the next section. Additionally, certain contractor- or subcontractor-owned vehicles may also be subject to these requirements. The E.O. 13514 and E.O. 13423 requirements apply to all primary contracts (GOCO; Management and Operating [M&O]; Management and Integration [M&I]; Environmental Restoration Management Contract [ERMC]); and all subcontractors to the primary contracts, unless exempt as described in the next section.

Contractor vehicles: Agencies must ensure that all Government-owned, contractor-operated (GOCO) vehicles and facilities comply with the E.O. 13514 and E.O. 13423 requirements. These requirements and goals should be included in each contractor's management contract. Each agency shall ensure contracts entered into for contractor operation of Government-owned facilities or vehicles require the contractor to comply with these fleet requirements with respect to such facilities or vehicles to the same extent as the agency would be required to comply if the agency operated the facilities or vehicles.

Fleets and Vehicles Exempt from the E.O. 13514 and E.O. 13423 Requirements

Table 1-3 lists the fleets and vehicles that are exempt from the E.O. 13514 and E.O. 13423 requirements.[10]

Table 1-3. *Fleets and Vehicles Exempt from the E.O. 13514 and E.O. 13423 Requirements*[11]

Law enforcement fleets
Emergency response vehicle fleets
Military tactical vehicle fleets. Motor vehicles (excluding general-purpose motor vehicles) designed to military specification, or a commercially designed motor vehicle modified to military specification to meet direct transportation support of combat or tactical operations and protection of nuclear weapons. These vehicles are inherently mission critical and are used for no other purpose.
Non-road vehicles. Vehicles that are not licensed for use on all roads and highways
Motor vehicles used for motor vehicle manufacturer product evaluations or tests
Vehicles owned and operated by the Central Intelligence Agency (CIA)
Federally owned vehicles operated solely by Indian nations or state-run Fish and Wildlife services, as applicable
Vehicles operated outside of the U.S.

DOE also has identified specific contractor vehicles that are exempt from the E.O. 13514 and E.O. 13423 requirements, which are listed in table 1-4.

Table 1-4. *Contractor Vehicles Exempt from the E.O. 13514 and E.O. 13423 Requirements*

Contractor-owned vehicles where the contract is less than 12 months, including all options and renewals.
Contractor vehicles where a central purpose of the contract is neither for providing vehicles nor for providing transportation services of people or materials on site (e.g., shuttle bus services are not exempt from E.O. 13514 and E.O. 13423 requirements). Examples of exempt contractor vehicles include vehicles used by electricians, plumbers, and computer repair technicians.

[10] Executive orders and related implementing instructions determine eligibility for exemption.

[11] Definitions of these fleets and vehicles are located in CEQ's *Instructions for Implementing EO 13423: Strengthening Federal Environmental, Energy, and Transportation Management* (CEQ Instructions), 72 FR 33504 (June 18, 2007).

1.6 Agency Responsibilities Related to Implementation of E.O. 13514

Table 1-5 outlines the general responsibilities for each of these three target audiences related to implementation of E.O. 13514 and this guidance.

Table 1-5. *Agency Responsibilities Related to Implementation of E.O. 13514*

Senior Sustainability Officer	Headquarters Fleet Manager	Fleet Location Manager
• Monitor and report conformance with the Federal fleet requirements • Prepare and submit the agency Sustainability Plan • Ensure the agency's strategy for meeting the GHG emission and petroleum reduction goals is included in the Sustainability Plan and is aligned with the budget • Assemble the appropriate team and resources in the agency necessary to attain goals	• Ensure the overall agency fleet is right-sized to the fleet's mission • Provide support to fleet managers at each agency fleet location in selecting petroleum reduction strategies • Review and approve fleet location site-specific strategies • Consolidate individual site-specific strategies into an overall fleet petroleum reduction strategy • Facilitate the implementation of petroleum reduction strategies fleet wide • Monitor the performance of the overall agency fleet in reducing petroleum use • Ensure the overall agency fleet meets or exceeds all applicable fleet requirements, including agency-specific goals and requirements • Refine the strategy based on changes in fleet characteristics and performance	• Ensure the fleet at the fleet location is right-sized to that location's mission • Determine the optimal petroleum reduction strategy for that location (based on evaluating the fleet characteristics and requirements at the site) • Implement the optimal petroleum reduction strategy at the fleet location • Monitor the performance of the fleet location in reducing petroleum use • Ensure the fleet location is in compliance with all applicable fleet requirements • Refine the strategy based on changes in fleet characteristics and performance and location mission

Chapter 2 Creating an Agency-Specific Fleet Greenhouse Gas and Petroleum Reduction Plan

Purpose of this chapter	• **Present the strategies available to fleet managers to reduce fleet GHG emissions and petroleum consumption** • **Provide a framework to assist fleet managers in meeting E.O. 13514 and other Federal fleet requirements**
Target audience	• **Agency senior officials** • **Agency headquarters fleet managers**

2.1 Overview of Requirements

Agency fleets have two planning requirements related to GHG and petroleum reduction. **EISA Section 142** requires each agency to develop a plan to meet required petroleum reduction levels and alternative fuel consumption increases. The plan must identify the measures the agency will use and quantify projections for petroleum and alternative fuel consumption in future years.

Section 8 of E.O. 13514 requires agencies to develop and annually update Sustainability Plans that must include how the agency will achieve the sustainability goals and GHG reduction targets (including fleet GHG reduction targets) established under Section 2 of E.O. 13514 and prioritize agency actions based on life cycle return on investment. More information on agency Sustainability Plan requirements will be made available by the CEQ, Office of the Federal Environmental Executive (OFEE).

2.2 Applicability

Chapter 1.5 of this guidance document provides details on how to determine if an agency is subject to the E.O. 13514 and EISA Section 142 fleet planning requirements.

2.3 Reporting

EISA Section 142 requires agencies to develop a written plan, including implementation dates, to meet the required petroleum reduction and alternative fuel increase levels. The plan must "identify the specific measures the Federal agency will use to meet the consumption goals, and it must quantify the reductions in petroleum consumption and increases in alternative fuel consumption projected to be achieved by each measure each year."

The plan required under EISA Section 142 is one component of an agency's Sustainability Plan, addressing how the agency plans to meet the Federal fleet requirements associated with E.O. 13514. Agencies should consider submitting a single plan each year as a component of the Sustainability Plan (which is due earlier in the year), provided the fleet portion of this plan fulfills the EISA Section 142 requirements as those requirements are finalized. Details on Sustainability Plan reporting requirements will be provided by the CEQ Office of the Federal Environmental Executive (OFEE).

2.4 Developing an Agency-Specific Fleet Plan

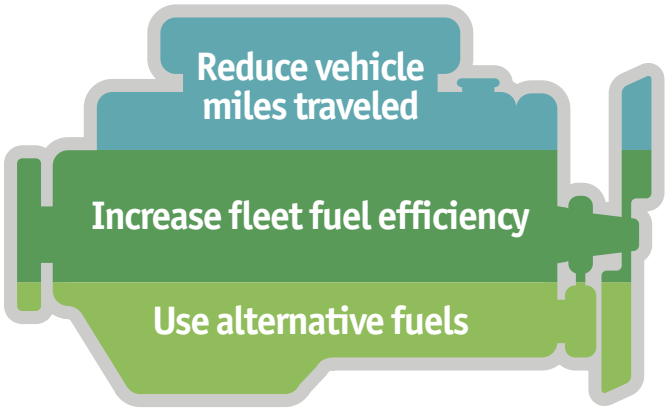
In developing a GHG and petroleum reduction plan for an agency fleet, the first step is to align the fleet component goals with the agency's Sustainability Plan. Goals may include compliance with EISA Section 142 requirements, saving money, getting to green on the OMB Scorecard, or investing in an agency fleet or infrastructure. Once set, this overarching goal must be aligned with existing regulatory requirements and the agency should set quantifiable annual targets for fleet GHG and petroleum reduction, alternative fuel use increases, renewable fuel infrastructure development, as well as other targets that may be required of or important to the agency.

Having identified the primary goal and annual targets, the agency should then determine the appropriate mix of the driving principles and their corresponding tactics. These principles and tactics will help the agency reach GHG and petroleum reduction targets and are described in the following section.

2.5 Driving Principles of Greenhouse Gas and Petroleum Reduction

In order to achieve the vision of E.O. 13514, meet mission-critical needs, and comply with all Federal goals and mandates, an agency must reduce its GHG emissions and petroleum consumption through the appropriate combination of the three driving principles displayed in figure 2-1. These strategies provide a framework for an agency to use when developing a strategic plan that can be specifically tailored to match the agency's fleet profile and meet its mission. Agency fleet managers should evaluate petroleum reduction strategies and tactics for each fleet location, based on an evaluation of site-specific characteristics, including availability of alternative fuel, fleet size, and fleet vehicle composition. In addition, agency fleet managers should employ best practices such as right sizing the agency fleet to the mission need.

Figure 2-1. *The Driving Principles of GHG and Petroleum Reduction*



Principle I—Reduce Vehicle Miles Traveled

Agency fleets can reduce their fuel consumption by implementing the following tactics to reduce VMT, including:

- Consolidating trips
- Eliminating trips by using tools such as video and Web conferencing for meetings
- Taking advantage of mass transportation and agency shuttles
- Improving routing to eliminate unneeded miles and avoid traffic conditions
- Using alternative modes of transportation such as bicycles and low-speed vehicles as appropriate.

Principle II—Increase Fleet Fuel Efficiency

This principle consists of tactics to increase the overall fuel efficiency of fleets (and subsequently reduce petroleum use), including:

- Acquiring higher fuel economy vehicles including by right-sizing vehicles to mission needs
- Acquiring hybrid electric vehicles (HEVs)
- Maintaining vehicles to improve vehicle fuel economy or replace inefficient vehicles that have exceeded their useful life
- Driving more efficiently (e.g., observing the speed limit and avoiding aggressive driving)
- Avoiding excessive idling.

Fleets should also note that they can maximize efficiency gains by focusing on increasing the fuel efficiency of their least efficient vehicles (e.g., MDVs and HDVs).

Principle III—Use Alternative Fuels

This principle focuses on maximizing the displacement of petroleum with alternative fuels. Alternative fuels include (but are not limited to): E85 (a blend of 85 percent ethanol and gasoline), neat (100 percent) biodiesel,[12] compressed natural gas (CNG), liquefied natural gas (LNG), liquefied petroleum gas (LPG), and electricity. Agencies should use low carbon alternative fuels whenever possible and should decide on the type of AFV and infrastructure based on the fleet location characteristics:

- E85, CNG, and other alternative fuels that require dedicated infrastructure and AFVs should be used at fleet locations where alternative fuel is currently available or at high-use locations where alternative fuel sites are planned in the near-term.
- Biodiesel blends, which require dedicated infrastructure but can be used in conventional diesel vehicles, are ideal for locations with high diesel fuel use.
- EVs and their charging infrastructure are best used in addition to other alternative fuels or in locations without access to other alternative fuels.

To maximize alternative fuel use, petroleum reduction, and GHG reductions:

- Acquire AFVs, including PHEVs, and place near areas with existing or planned alternative refueling sites
- Run dual-fueled vehicles on alternative fuel
- Install alternative fuel infrastructure in areas with highest AFV concentration
- Communicate and coordinate with nearby fleets (both regulated and private sector) to aggregate demand for alternative fuel.

[12] Biodiesel blends are not alternative fuels. However, the neat biodiesel component of biodiesel blends greater than 20 percent is counted toward alternative fuel goals.

Chapter 3 Defining Federal Fleet Greenhouse Gas Emission Reduction Requirements

Purpose of the chapter	• **Discuss the Federal fleet GHG emission reduction requirements established by E.O. 13514** • **Provide guidance in evaluating applicability, meeting requirements, determining compliance, and implementing a plan**
Target audience	• **Agency headquarters fleet managers**

3.1 Overview of Requirements

Each agency (subject to the GHG emission requirements) must:

- **Establish** a percentage reduction target for agency-wide reductions of scope 1 and 2 GHG emissions by FY 2020, relative to a FY 2008 baseline.
- **Report** this target to the CEQ Chair and the OMB Director.
- **Reduce** its GHG emissions generated from operating Federal fleet vehicles to assist in meeting this agency-wide reduction target starting from the FY 2008 baseline through the end of FY 2020.

3.2 Greenhouse Gas Basics for Federal Fleet Managers

Vehicles generate GHGs when fuels are burned. Scope 1 GHG emissions include direct GHG emissions from sources that are owned or controlled by the Federal agency. This includes certain contractor- or subcontractor-owned vehicles, as discussed in chapter 1.5. Generally, GHG emissions generated from operating internal combustion engine Federal fleet vehicles are classified as scope 1 GHG emissions.

Scope 2 GHG emissions result from the generation of electricity, heat, or steam purchased by a Federal agency. Generally, GHG emissions generated from the production of electricity purchased by a Federal agency that is used to power Federal fleet vehicles are classified as scope 2 GHG emissions.

Scope 3 GHG emissions include emissions from sources not directly controlled by a Federal agency but related to agency activities, such as employee travel and commuting. Therefore, by definition, no scope 3 GHG emissions are generated by Federal fleet vehicles.

The GHG emissions associated with fuel depend on the volume of fuel combusted, the density of the fuel, the life cycle carbon emissions of the fuel, and the fraction of carbon that is oxidized to GHGs. Therefore, GHG emissions for the Federal fleet are measured based on the amount and type of fuel burned in Federal fleet vehicles.

Emission factors for calculating GHG emissions will be provided in the E.O. 13514 Section 9 recommendations to CEQ (the E.O. 13514 Section 9 recommendations are consistent with relevant statutory requirements). Separate emission factors are developed for each fuel type for each gasoline gallon equivalent (GGE) of fuel consumed. These factors, combined with data agencies report in the Federal Automotive Statistical Tool (FAST)—an online tracking system accessible at http://fastweb.inel.gov—will be used to calculate agency fleet GHG emissions.

3.3 Applicability

Chapter 1.5 of this guidance document provides details on how to determine which agencies and vehicles are subject to the E.O. 13514 GHG emission reduction requirements.

3.4 Determining an Agency's Greenhouse Gas Reduction Requirements

Determining Your FY 2008 Fleet GHG Emission Baseline

An agency's FY 2008 fleet GHG emission baseline is simply the GHG emissions associated with all fuel used in all non-exempt fleet vehicles as reported in FAST as discussed in chapter 1.5.

Each agency must review their FY 2008 fuel consumption figures currently in FAST for accuracy.

Determining Your Agency's GHG Emission Reduction Requirements

Each agency (subject to the E.O. 13514 GHG emission reduction requirements) must reduce its fleet vehicle GHG emissions by the amount necessary for the agency to achieve its percentage target for reducing scope 1 and 2 emissions by the end of FY 2020, relative to the agency's FY 2008 baseline for scope 1 and 2 emissions.

3.5 Reporting

As discussed above, GHG emissions are calculated in most cases by multiplying fuel use for each fuel type by the GHG emission factor for that fuel type. Therefore, agencies use fuel consumption data for their fleets as reported in FAST and calculate associated GHG emissions.

3.6 Approaches to Greenhouse Gas Emission Reduction

As discussed in chapter 1.3, minimizing petroleum use is the primary means to ensure reductions in GHG emissions—by reducing VMT, increasing fleet fuel efficiency, and switching fuel use to lower GHG-emitting methods, such as alternative fuels.

Each agency should consider how the petroleum reduction strategies and framework discussed in the *DOE Comprehensive Federal Fleet Management Handbook* can help meet their GHG emission reduction goals. Each agency has the flexibility to evaluate a variety of options to ensure its strategy best fits the mission and makeup of its fleets.

Chapter 4 Overall Petroleum Reduction Requirements

Purpose of this chapter	• **Discuss the Federal fleet petroleum reduction requirements established by E.O. 13514, E.O. 13423, and EISA Section 142** • **Provide guidance in evaluating applicability, meeting requirements, determining compliance, and implementing a plan**
Target audience	• **Agency headquarters fleet managers**

4.1 Overview of Requirements

One statute and two executive orders prescribe the petroleum reduction requirements for Federal fleets. E.O. 13514 and E.O. 13423 require Federal fleets to reduce annual petroleum usage by two percent per year compared to a FY 2005 baseline. E.O. 13423 requires two percent reductions each year through the end of FY 2015; E.O. 13514 extends the petroleum reductions through FY 2020. EISA Section 142 requires a 20 percent total reduction in annual petroleum consumption no later than FY 2015 and for each year thereafter.

- **E.O. 13514** requires agencies that operate fleets of at least 20 motor vehicles to reduce their total consumption of petroleum products by a minimum of two percent annually through the end of FY 2020, relative to a baseline of FY 2005.
- **E.O. 13423**[13] Section 2(g) requires agencies that operate fleets of at least 20 motor vehicles to reduce their fleet's petroleum consumption by two percent annually through the end of FY 2015 relative to agency baselines for FY 2005 (thus yielding an approximately 20 percent reduction over the FY 2005–FY 2015 period).
- **EISA Section 142**[14] requires agencies that operate fleets of at least 20 motor vehicles to reduce their petroleum consumption each year to meet the October 1, 2015, goal of at least 20 percent lower annual petroleum consumption as compared to agency baselines for FY 2005. EISA Section 142 also directs DOE to establish interim milestones to assess annual agency progress toward accomplishing the petroleum reduction goals. Note that the EISA Section 142 requirements went into effect at the beginning of FY 2010.

Similarities and Differences Among Petroleum Reduction Requirements

As shown in table 4-1, agencies must comply with EISA Section 142, E.O. 13514, and E.O. 13423 in adhering to overall petroleum reduction requirements. The three requirements all use agency FY 2005 levels as their baselines. E.O. 13514 and E.O. 13423 apply to the same fleets (20 or more motor vehicles in the United States) and associated vehicles, and count the same fuel used in those fleets and vehicles toward the petroleum consumption targets.

E.O. 13423 requires 2 percent reductions each year through the end of FY 2015. E.O. 13514 goes into effect beginning in FY 2010 and extends the 2 percent reductions each year through the end of FY 2020. EISA Section 142 requires a 20 percent reduction in annual petroleum consumption not later than FY 2015 and for each year thereafter. If an agency fails to attain the 2 percent decrease in any year, in the following year it shall attain both the percentage missed and the 2 percent decrease due for that following year.

[13] E.O. 13423 remains in effect despite the signing of E.O. 13514. On March 11, 2009 the Omnibus Appropriations Act, 2009 (Public Law 111–8) was signed into law. Section 748 of that act states that "Executive Order 13423 (72 Fed. Reg. 3919; Jan. 24, 2007) shall remain in effect hereafter except as otherwise provided by law after the date of the enactment of this Act."

[14] DOE currently is in the process of preparing a NOPR that, if promulgated, would establish a more detailed framework for complying with the petroleum reduction requirements set forth in EISA Section 142. Because this rule has not been finalized, the draft guidance related to EISA Section 142 requirements may change.

Table 4 -1. *Comparison of Petroleum Reduction Requirements*

Fiscal Year	E.O. 13423	EISA Section 142	E.O. 13514	Overall Requirement
2005	Baseline	Baseline	Baseline	Baseline
2006	2%			2%
2007	4%			4%
2008	6%			6%
2009	8%			8%
2010	10%		10%	10%
2011	12%		12%	12%
2012	14%		14%	14%
2013	16%		16%	16%
2014	18%		18%	18%
2015	20%	20%	20%	20%
2016			22%	22%
2017			24%	24%
2018			26%	26%
2019			28%	28%
2020			30%	30%

4.2 Applicability

Chapter 1.5 of this guidance document provides details on how to determine which agencies and vehicles are subject to the E.O. 13514, E.O. 13423, and EISA Section 142 petroleum reduction requirements.

4.3 Determining an Agency's Subject Petroleum Reduction Requirements

Each agency (subject to the petroleum reduction requirements) must reduce its petroleum consumption (referred to as "subject" petroleum consumption) by a minimum of two percent annually, starting from the FY 2005 baseline through the end of FY 2020 (see table 4-1).

> Each agency must review their FY 2005 subject petroleum consumption figures currently in FAST for accuracy and work with DOE to determine their appropriate baseline. Subject petroleum consumption may be referred to in FAST as covered petroleum.

Determining the FY 2005 petroleum baseline

An agency's FY 2005 petroleum baseline is simply the total petroleum used in all subject vehicles in an agency's fleet as reported in FAST for FY 2005. This excludes fuel use by exempt vehicles as described in chapter 1.5 (e.g., law enforcement, emergency vehicles, and military tactical vehicles).

Fuel Used to Calculate Petroleum Use (Subject Petroleum)

Fuel that **is counted** includes **all petroleum fuel used in all vehicles that are subject** to the petroleum reduction requirements, as outlined below:

- **Gasoline** fuel consumption in subject vehicles

  AND

- Diesel fuel consumption in subject vehicles

  AND

- **Diesel component of biodiesel blends** (20 percent or greater) used in subject vehicles

Fuel that **is not counted** includes:

- **Petroleum** (gasoline, diesel, and the diesel component of biodiesel blends) **used in exempt vehicles**

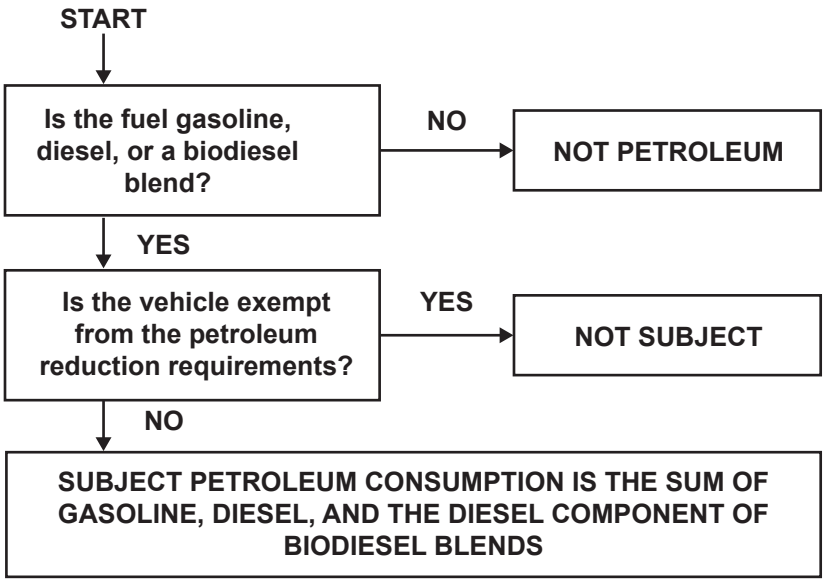
  OR

- **Alternative fuels (e.g. electricity, CNG, E85, etc.)**

  OR

- **Biodiesel component of biodiesel blends** (20 percent or greater)

Figure 4-1. *Determining Fuel Counted Toward Subject Petroleum Consumption*



Calculating the Subject Diesel Component of Biodiesel Blends

Start with the volume of biodiesel blends used in subject vehicles. Multiply this volume by the percentage of the biodiesel blend that is diesel. For example, B20 is a blend of 80 percent diesel and 20 percent biodiesel.

If a subject vehicle uses 100 gallons of B20, 80 gallons count toward subject diesel fuel consumption. The remaining 20 gallons count toward pure biodiesel consumption, an alternative fuel.

How Subject Petroleum Consumption Is Measured

Petroleum consumption is measured in GGEs, which translate the energy content of fuel into units representing the energy content of one gallon of gasoline. table 4-2 presents the fuel conversion ratio table to convert subject petroleum “natural” units to GGEs.

Table 4-2. *Subject Petroleum Conversion Ratio Table*[15]

Fuel Type	Natural Units	Conversion to GGE
B20	gallons	112.6% (gal x 1.126 = GGE)
Diesel	gallons	114.7% (gal x 1.147 = GGE)
Gasoline	gallons	No conversion needed

Example: Agency with FY 2005 Baseline of 1 Million Gasoline Gallon Equivalents

Table 4-3. *Calculation of Example Subject Petroleum Reduction Requirements Based on a FY 2005 Petroleum Baseline of 1 Million GGE*

Fiscal Year	FY 2005 Petroleum Baseline (GGE)	Annual Cumulative Subject Petroleum Reduction Requirement (Percent of FY 2005 Baseline)	Required Reduction in Subject Petroleum From FY 2005 Baseline (GGE)	Maximum Subject Petroleum Usage (GGE)
2005 (Baseline)	**1,000,000**	**Not Applicable (Baseline)**	**Not Applicable**	**1,000,000**
2006	1,000,000	2% (of FY 2005 Baseline)	20,000	**980,000**
2007	1,000,000	4%	40,000	**960,000**
2008	1,000,000	6%	60,000	**940,000**
2009	1,000,000	8%	80,000	**920,000**
2010	1,000,000	10%	100,000	**900,000**
2011	1,000,000	12%	120,000	**880,000**
2012	1,000,000	14%	140,000	**860,000**
2013	1,000,000	16%	160,000	**840,000**
2014	1,000,000	18%	180,000	**820,000**
2015	1,000,000	20%	200,000	**800,000**
2016	1,000,000	22%	220,000	**780,000**
2017	1,000,000	24%	240,000	**760,000**
2018	1,000,000	26%	260,000	**740,000**
2019	1,000,000	28%	280,000	**720,000**
2020	1,000,000	30%	300,000	**700,000**

[15] Sources: FAST and DOE Transportation Energy Data Book, Edition 28 (available at http://cta.ornl.gov/data/index.shtml).

4.4 Reporting

To track compliance with the petroleum reduction requirements, Federal agencies are required to collect petroleum consumption data from their fleets and report the information to DOE using FAST, an online tracking system accessible at http://fastweb.inel.gov. For more information on how petroleum reporting fits into annual reporting requirements, see the *DOE Comprehensive Federal Fleet Management Handbook* that complements this guidance.

Agency compliance with petroleum reduction requirements is accomplished as follows:

- **Collect fleet petroleum consumption data**. Petroleum consumption data is available from several sources:
  - **GSA Reports Carryout**. GSA Fleet provides agencies with a fleet card for each "wet-leased"[16] vehicle. This fleet card is for the purchase of fuel and minor maintenance and allows GSA and its customers to track vehicle fuel use. This data can be obtained from GSA through the Reports Carryout application. The Fuel Use Report in Reports Carryout lets agency fleet managers monitor fuel use at the vehicle and transaction levels. Managers also have the ability to look at summary data by vehicle and by reporting level.
  - **Agency fleet card data**. For vehicles not leased through GSA, fuel transaction data can be requested from the credit card vendor used by the agency.
  - **Agency fleet fueling center fuel management systems**. Agencies should use fuel management systems at each fleet fueling center to capture fuel transaction data for each fleet vehicle.
  - **Manual collection**. Agencies without automated fuel data systems may have to collect data from fuel transaction receipts. This is the least preferred method of data collection.
- **Enter fiscal year petroleum consumption data** in the FAST system from October through December following each FY, including:
  - **Percentage of B20 fuel used in subject vehicles**. This data is collected in order to determine the percentage of the diesel component of B20 that is counted toward subject petroleum versus exempt petroleum. Enter the estimated percentage of the B20 (if any) that was consumed in vehicles subject to the petroleum reduction requirements.
  - **Fuel use for each fuel type** (in natural units or GGE), including separating gasoline and diesel use by exempt vehicles.
- **Review the fuel consumption report** in FAST to determine agency compliance:
  - **Use the Petroleum Consumption Report** in FAST to verify petroleum consumption data and annual compliance with reduction requirements. This report provides an agency-wide sum of the individual components of subject petroleum consumption (gasoline, diesel, and the diesel component of B20) for all agency data submitted above for each FY. The report also provides the compliance status for each FY, comparing the agency's subject petroleum consumption with the requirement for each FY.

4.5 Approaches to Petroleum Reduction

DOE recommends that each agency consider how the GHG emission and petroleum reduction strategies discussed throughout this document can help an agency meet its petroleum reduction goals. Each agency has the flexibility to evaluate a variety of options to ensure its strategy best fits the mission and makeup of its fleets. The primary approaches include:

- **Increase overall fleet fuel economy** by acquiring higher fuel economy vehicles (e.g., more fuel efficient vehicles and other advanced technology vehicles) and right-sizing vehicles.
- **Reduce VMT** by consolidating trips, training drivers to drive efficiently, increasing use of videoconferencing and Web conferencing, using mass transportation/agency shuttles, and/or promoting alternative active transportation (bicycles and walking).

[16] GSA "wet-leased" vehicles typically include the cost of maintenance and fuel. Specific lease terms may vary.

- M**aximize use of low-carbon alternative fuels** by acquiring and locating AFVs where alternative fuels are available, maximizing use of alternative fuel in dual-fuel AFVs, installing alternative fuel infrastructure at high-use fueling centers, and coordinating with other nearby fleets to aggregate the demand for alternative fuels in locations where availability is lacking. Whenever possible, use low carbon alternative fuels. Federal fleets are encouraged to reach out to other EPAct 1992 regulated fleets (i.e., state government and fuel provider fleets) and any relevant private or local government fleets. Federal agencies are also strongly encouraged to establish relationships with a local Clean Cities coalition, if one exists. More information on these entities can be found in the Federal fleet management handbook that complements this guidance.
- **Maximize use of biodiesel** by optimizing the number of diesel vehicles, maximizing use of biodiesel blends higher than 20 percent (B20) in diesel vehicles, installing biodiesel infrastructure at high-use fueling centers, and coordinating with other nearby fleets to aggregate the demand for biodiesel or biodiesel blends in locations where availability is lacking.
- **Acquire EVs and PHEVs**[17] to replace gasoline vehicles where electricity is generated using zero- or low-carbon power sources like renewable, nuclear, or natural gas.

[17] E.O. 13423 requires agencies to use PHEVs when commercially available at a cost reasonably comparable to non-PHEVs.

Chapter 5 Overall Alternative Fuel Use Increase Requirements

Purpose of this chapter	• **Discuss the Federal fleet alternative fuel use increase requirements established by E.O. 13423 and EISA Section 142** • **Provide guidance in evaluating applicability, meeting requirements, determining compliance, and implementing a plan**
Target audience	• **Agency headquarters fleet managers**

5.1 Overview of Requirements

One statute and one executive order prescribe the Federal fleet alternative fuel use requirements. Both require Federal fleets to increase alternative fuel use each year compared to a FY 2005 baseline. E.O. 13423 requires agencies to increase annual alternative fuel use by 10 percent each year compared to the previous year. EISA Section 142 requires at least "a 10 percent increase in annual alternative fuel consumption, as calculated from the baseline established by the Secretary for FY 2005," not later than October 1, 2015.

- **E.O. 13423 Section 2(g)** requires agencies that operate a fleet of at least 20 motor vehicles to increase the total alternative fuel consumption by 10 percent annually relative to the agency baselines for FY 2005. The requirement to annually increase the use of alternative fuels by 10 percent is measured relative to the prior year's alternative fuel usage levels, thus yielding an approximately 159 percent increase over the FY 2005–FY 2015 period.
- **EISA Section 142** requires agencies that operate a fleet of at least 20 motor vehicles to achieve at least "a 10 percent increase in annual alternative fuel consumption, as calculated from the baseline established by the Secretary for FY 2005," not later than October 1, 2015. EISA Section 142 also directs DOE to establish interim milestones to assess annual agency progress toward accomplishing the petroleum reduction goals. Note that the EISA Section 142 requirements went into effect at the beginning of FY 2010.

Similarities and Differences Among Alternative Fuel Use Requirements

As shown in table 5-1, agencies must comply with E.O. 13423 and EISA Section 142 in adhering to overall alternative fuel use increase requirements. E.O. 13423 requires agencies to annually increase the use of alternative fuels by 10 percent measured relative to the prior year's alternative fuel use levels. EISA Section 142 requires agencies to achieve at least a 10 percent increase in alternative fuel consumption no later than the end of FY 2015 "and for each year thereafter." **Since E.O. 13423 prescribes greater alternative fuel consumption increase requirements than EISA Section 142, compliance with E.O. 13423 will ensure compliance with EISA Section 142.**

E.O. 13423 alternative fuel use requirements are cumulative, that is, the alternative fuel use goal is measured relative to the prior year's alternative fuel usage rather than directly from the FY 2005 baseline. If an agency fails to attain the 10 percent increase in any year, in the following year it shall attain both the percentage missed and the 10 percent increase due for that following year.

Additionally, the effective dates for the E.O. 13423 and EISA Section 142 annual alternative fuel use increase requirements are different. EISA Section 142 goes into effect beginning in FY 2010.

Table 5-1. *Comparison of Alternative Fuel Use Increase Requirements*

Fiscal Year	E.O. 13423	EISA Section 142	Overall Requirement
2005	Baseline	Baseline	Baseline
2006	10%		10%
2007	21%		21%
2008	33.1%		33.1%
2009	46.4%		46.4%
2010	61.1%		61.1%
2011	77.2%		77.2%
2012	94.9%		94.9%
2013	114.4%		114.4%
2014	135.8%		135.8%
2015	159.4%	10%	159.4%

5.2 Applicability

Chapter 1.5 of this guidance document provides details on how to determine which agencies and vehicles are subject to the E.O. 13423 and EISA Section 142 alternative fuel use increase requirements.

5.3 Determining an Agency's Requirements

Each agency (subject to the alternative fuel use requirements) must increase its alternative fuel consumption by a minimum of 10 percent compounded annually, starting from the FY 2005 baseline through the end of FY 2015 (see table 5-1).

Determining an Agency's Alternative Fuel Consumption Baseline

The FY 2005 alternative fuel baseline is the value submitted through FAST for FY 2005. As with the petroleum value, if this number is found to be incorrect, the concerned Federal agency should contact DOE.

> Each agency must review its FY 2005 alternative fuel consumption figures currently in FAST for accuracy and work with DOE to determine its appropriate baseline.

Fuels Classified as Alternative Fuels

Alternative fuels are defined by Section 301 of EPAct 1992, and may be modified by the Secretary of Energy by rule. The following fuels are currently defined or designated as alternative fuels:

- Pure methanol, denatured ethanol, and other alcohols
- Blends of 85 percent or more of methanol, denatured ethanol, and other alcohols with gasoline or other fuels (including E85 and M85)
- Natural gas and liquid fuels domestically produced from natural gas (including CNG and LNG)
- LPG including propane
- Coal-derived liquid fuels
- Electricity

- Biodiesel (B100)
- Fuels (other than alcohol) derived from biological materials
- Hydrogen
- P-Series fuels[18]

Fuel Counted In Calculating Alternative Fuel Use

Fuel that **is counted** includes:

- **All alternative fuels used in all vehicles,** including vehicles considered exempt under the alternative fuel use requirements.
- **Biodiesel component of biodiesel blends** greater than 20 percent used in all vehicles, including vehicles considered exempt.
- **All electricity used in EVs and in low-speed electric vehicles** (LSEVs).

Fuel that **is not counted** includes:

- **Petroleum** (gasoline, diesel, and the diesel component of biodiesel blends) **used in any vehicle.**
- **Blends of less than 85 percent of methanol, denatured ethanol, and other alcohols** with gasoline or other fuel.

Counting Electricity Used In Electric Vehicles Toward Alternative Fuel Use

All electricity used to charge EVs (from the grid, including electricity generated at the Federal site) **will be counted** toward agencies' alternative fuel use requirements. Currently, all electricity consumed in battery electric vehicles (BEVs) and PHEVs counts toward an agency's alternative fuel consumption. Beginning in FY 2010, agencies may also count all electricity consumed in an agency's LSEVs toward meeting its alternative fuel use increase requirements.

It is important to note that electricity generated by the internal combustion engine or regenerative braking system, which recharges the vehicle's battery, is **not** counted toward agency alternative fuel use requirements. Also, gasoline used in HEVs and PHEVs does not count toward agency alternative fuel use requirements (but will count toward an agency's petroleum use when used in subject vehicles).

Measuring and Reporting Electric Vehicle Electricity Consumption

To receive alternative fuel use credit for the electricity used to charge BEVs, LSEVs, and PHEVs, agencies will have to report EV electricity consumption in FAST.[19] Reporting EV electricity use may be a challenge for fleet managers. Since electricity used to charge EVs is frequently reported as electricity consumed by a facility, electricity consumption for EVs must be metered separately from facility consumption. This can be done at dedicated EV charging stations (EVCSs). If EVCS infrastructure does not exist at a particular facility, electricity consumption may be monitored on the vehicle itself and then subtracted from a facility's electricity consumption totals and reported in FAST. Other methodologies may also be appropriate for calculating EV electricity use.

Federal agencies are responsible for the accurate measurement and reporting of electricity used in BEVs, LSEVs, and PHEVs. As is the case for HEVs, the electricity generated by the regenerative braking component of PHEVs does not count toward alternative fuel use.

Biodiesel Blends as an Alternative Fuel

Under the EPAct 1992 definition, biodiesel blends are not considered an alternative fuel. However, for biodiesel

[18] Clear liquid fuels, between 89 and 93 octane, designed for use in flex fuel vehicles and containing 35 percent natural gas liquids, 45 percent ethanol, and 25 percent biomass-derived fuel.

[19] FAST will be updated during FY 2010 to accommodate agency reporting of HEV and PHEV acquisitions as well as electricity consumption as an alternative fuel in LSEVs.

blends equal to or **greater than 20 percent**, agencies may count the pure biodiesel component of the blend toward agency alternative fuel use requirements.[20]

How do you calculate the pure biodiesel component of biodiesel blends?

Multiply the volume of biodiesel blend fuel by the percentage of the biodiesel blend that is biodiesel (e.g., 20 percent for B20). For example, if a vehicle uses 100 gallons of B20, 20 gallons count as pure biodiesel consumption toward agency alternative fuel use requirements.

How Alternative Fuel Use Consumption Is Measured

Alternative fuel consumption is measured in GGE, which translates the energy content of fuel into units representing the energy content of one gallon of gasoline. table 5-2 presents the fuel conversion ratio table to convert alternative fuel "natural" units to GGE.

Table 5-2. *Alternative Fuel Conversion Ratio Table*[21]

Fuel Type	Natural Units	Gasoline Gallon Equivalent
B20	gallons	112.6% (gal x 1.126 = GGE)
B100	gallons	101.5% (gal x 1.015 = GGE)
CNG	gallons at 2,400 psi	18% (gal x 0.18 = GGE)
	gallons at 3,000 psi	22.5% (gal x 0.225 = GGE)
	gallons at 3,600 psi	27% (gal x 0.27 = GGE)
	hundred cubic feet	83% (ccf x 0.83 = GGE)
E85	gallons	72% (gal x 0.72 = GGE)
Electricity	kWh	3% (kWh x 0.03 = GGE)
LNG	gallons @ 14.7 psi and – 234°F	66% (gal x 0.66 = GGE)
LPG	gallons	74% (gal x 0.74 = GGE)
M85	gallons	57% (gal x 0.57 = GGE)

Determining Alternative Fuel Use Increase Requirements for an Agency

Under E.O. 13423, each agency must increase its alternative fuel consumption by 10 percent annually (from the previous year) starting from the FY 2005 alternative fuel baseline through the end of FY 2015. EISA Section 142 requires agencies to increase its alternative fuel consumption each year to meet the FY 2015 goal of at least 10 percent greater annual alternative fuel consumption as compared to the agency's FY 2005 level. Figure 5-1 presents an example of the alternative fuel consumption requirements under E.O. 13423 and EISA Section 142 for an agency with a FY 2005 alternative fuel baseline of 100,000 GGE.

It is important to note that the alternative fuel increase requirement under E.O. 13423 is not a straight-line increase. Instead, it is compounded annually, such that each agency's requirement increases each year. For example, if an agency has an alternative fuel baseline of 100 GGE, its requirement in FY 2010 is 161 GGE, and in FY 2011 its requirement is 177 GGE (i.e., 10 percent of 161, added to the 161 GGE requirement of FY 2010).

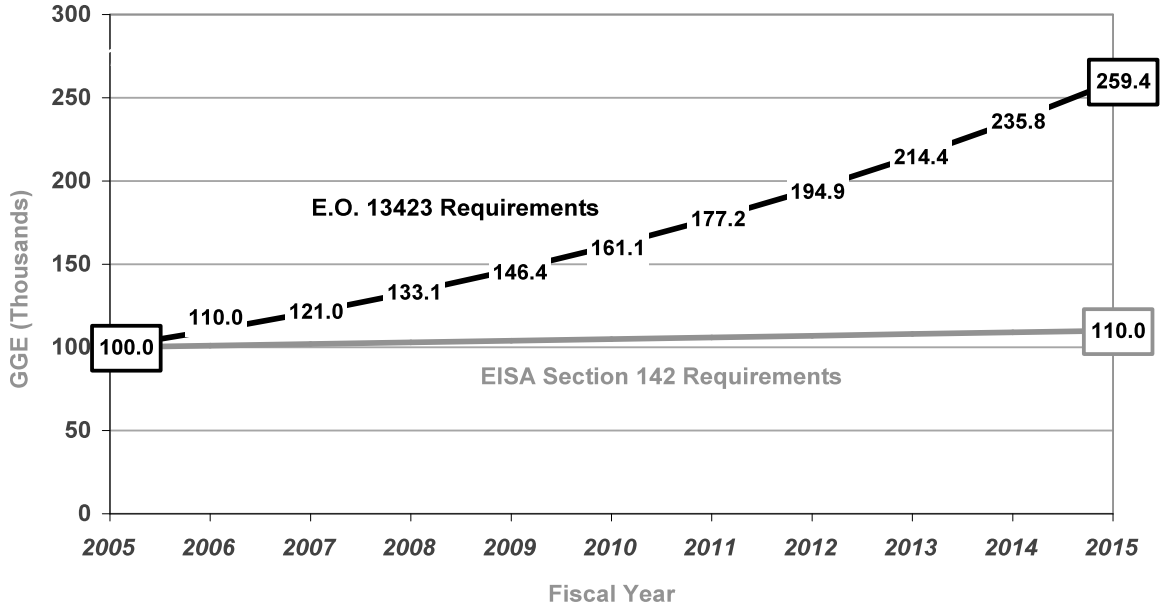
To determine the alternative fuel consumption each year, agencies must sum together all types of alternative fuel consumed by their subject fleet, including biodiesel used in blends of B20 or higher. The agency will then compare this to the alternative fuel consumption requirement for that year to determine compliance.

[20] 450 gallons of B100 or 2,250 gallons of B20 equal one EPAct credit.

[21] Sources: FAST and DOE Transportation Energy Data Book, Edition 28 (available at http://cta.ornl.gov/data/index.shtml).

Furthermore, it is important to understand that the increase is based on the FY 2005 alternative fuel baseline and each year's projected requirement, not the agency's actual achievement. For example, if the fleet with a 100 GGE alternative fuel baseline were to use only 80 GGE of alternative fuel in FY 2010, their requirement in FY 2011 would not be 88 GGE (i.e., a 10 percent addition to the FY 2010 level of 80 GGE). Instead, it would still be the 177 GGE it would have been required to achieve if it had achieved its goal of 161 GGE in FY 2010. Similarly, an agency will not be required to use more alternative fuel if it over-complies one year (e.g., use of 200 GGE in FY 2010 will not establish the FY 2011 requirement at 220 GGE).

Figure 5-1. *Example Alternative Fuel Consumption Requirements Based on a FY 2005 Alternative Fuel Baseline of 100,000 GGE*



5.4 Reporting

To track compliance with the alternative fuel use increase requirements, DOE requires Federal agencies to collect alternative fuel consumption data from their fleets and report the information to DOE using FAST, an online tracking system accessible at http://fastweb.inel.gov. For more information on how alternative fuel use reporting fits into annual reporting requirements, see the *DOE Comprehensive Federal Fleet Management Handbook*.

> DOE is aware that some retail alternative fuel stations may report alternative fuel purchased as a different fuel type (typically as conventional fuel). Similarly, some retail stations may report conventional fuel as an alternative fuel. It is important that fleet managers review fuel transaction data and correct fuel type as necessary.

Agency compliance with alternative fuel use increase requirements is accomplished as follows:

- **Collect** fleet alternative fuel consumption data. Alternative fuel consumption data is available from several sources, as outlined in the handbook that complements this guidance document.
- **Enter** fiscal year alternative fuel consumption data in the FAST system from October through December following each fiscal year.
- **Review** the Fuel Consumption Report in FAST to determine agency compliance.
  - Use the Petroleum Consumption Report in FAST to verify alternative fuel consumption data and annual compliance. This report provides an agency-wide sum of the individual components of subject alternative fuel consumption for all agency data submitted above for each fiscal year. The report also provides the compliance status for each fiscal year, comparing the agency's alternative fuel consumption with the requirement for each fiscal year.

5.5 Approaches to Increasing Alternative Fuel Use

DOE recommends that each agency consider how the strategies and framework discussed in the *DOE Comprehensive Federal Fleet Management Handbook* can help an agency meet their alternative fuel use goals. Typically, employing the following primary approaches will ensure that each agency meets or exceeds its alternative fuel use goals:

- **Maximize use of alternative fuels** by acquiring and locating AFVs where alternative fuels are available, maximizing use of alternative fuel in dual-fuel AFVs, and installing alternative fuel infrastructure at high-use fueling centers.
- **Maximize use of B100 or biodiesel blends** of 20 percent or higher by optimizing the number of diesel vehicles, maximizing use of biodiesel in diesel vehicles, and installing biodiesel infrastructure at high-use fueling centers.
- **Communicate and coordinate with other nearby fleets,** including EPAct 1992 regulated fleets (i.e., state government and fuel provider fleets) and any relevant private or local government fleets, as well as with a local Clean Cities coalition, if one exists, to aggregate the demand for alternative fuels in locations where availability is lacking. This approach may be particularly well suited for locations where one fleet, by themselves, cannot attract alternative fuel infrastructure but where the pooled demand of numerous fleets can attract and support expanded or new infrastructure.
- **Acquire EVs** to replace gasoline vehicles in locations near facilities and parking structures with electric outlets, and HEVs in areas with limited alternative refueling, or as appropriate.

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