

# Federal Fleets & Petroleum Use: Status and Outlook

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National Renewable Energy Laboratory  
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# Agenda

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Federal fleet drivers

Federal fleet compliance

Understanding the challenge

Effective petroleum reduction strategies

# Relevant Drivers

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Energy Policy Act (EPAct) of 1992

Energy Policy Act (EPAct) of 2005

E.O. 13423 – Strengthening  
Environmental, Energy and  
Transportation Management (2007)

Energy Independence and Security Act  
(EISA) of 2007

National Defense Authorization Act  
(2008)



Agency initiatives—  
e.g., DOE's  
Transformational  
Energy Action  
Management (TEAM)  
initiative

## EPAct 1992 & 2005

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Established minimum AFV acquisition goals

- 75% of covered LDV acquisitions

Excludes vehicles:

- In fleets of less than 20 vehicles that cannot be centrally fueled
- Emergency
- Law enforcement
- Military tactical
- Garaged or operated outside of MSA/CMSA

Requires agencies to use AF in dual-fuel AFVs unless receive waiver from DOE because AF not available or unreasonably expensive

## E.O. 13423

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Established new petroleum and AF goals:

- *Reduce total petroleum consumption by agency by 2% annually through FY 2015*
- *Increase alternative fuel consumption by 10% annually (on cumulative basis)*
- Directs agencies to use plug-in hybrids once commercially available and at reasonable cost

Applies to agency fleets of 20 or more vehicles

Based on FY 2005 consumption levels

Revokes E.O. 13149

## EISA (2007) & NDAA (2008)

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### ***EISA:***

**§141.** Prohibits Federal fleets from acquiring vehicles that are not low GHG-emitting

**§142.** Requires Federal fleets to reduce petroleum use & increase AF use

**§246.** Requires Federal agencies to install renewable fuel pumps

**§526.** Prohibits Federal agencies from acquiring alternative or synthetic fuels unless they result in lower GHG emissions

### ***NDAA:***

**§2862.** Adds hybrids, advanced lean burn and other technologies to list of AFVs

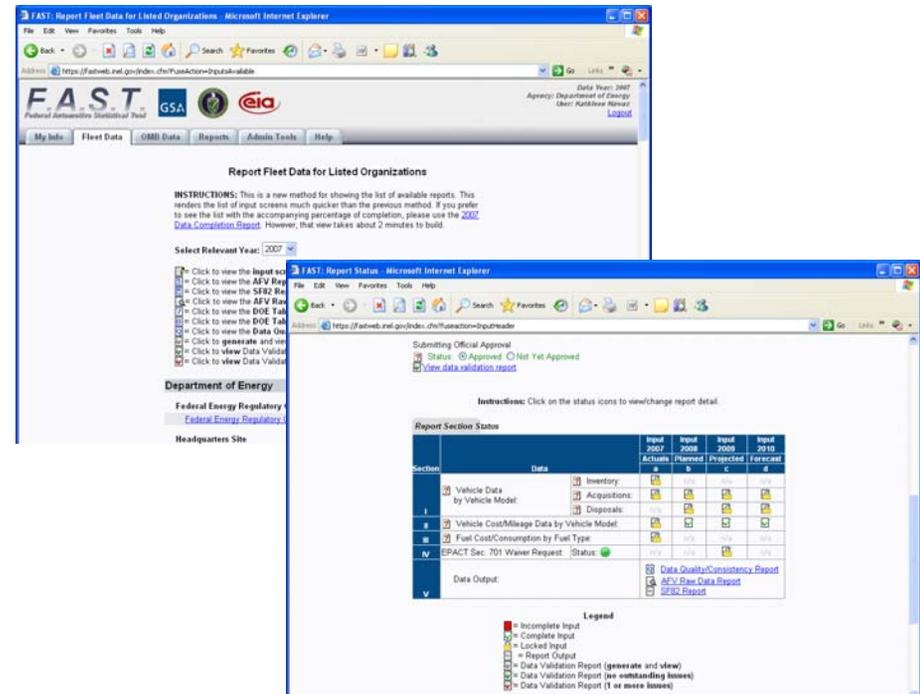
# Measuring Agency Compliance

Vehicles, fuel use and related data entered after close of FY

<https://fastweb.inel.gov/>

Data reported to Congress by agency each year

Basis for OMB transportation scorecards



**FAST: Report Fleet Data for Listed Organizations**

INSTRUCTIONS: This is a new method for showing the list of available reports. This renders the list of input screens much quicker than the previous method. If you prefer to see the list with the accompanying percentage of completion, please use the [2007 Data Completion Report](#). However, that view takes about 2 minutes to build.

Select Relevant Year: 2007

- Click to view the Input screen
- Click to view the AFV Report
- Click to view the SFED Report
- Click to view the AFV Plan
- Click to view the DOE Task
- Click to view the DOE Task
- Click to generate and view report
- Click to view Data Validation
- Click to view Data Validation

**Department of Energy**

Federal Energy Regulatory Commission

Headquarters Site

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**FAST: Report Status**

Submitting Official Approval  
 Status:  Approved  Not Yet Approved  
[View Data Validation Report](#)

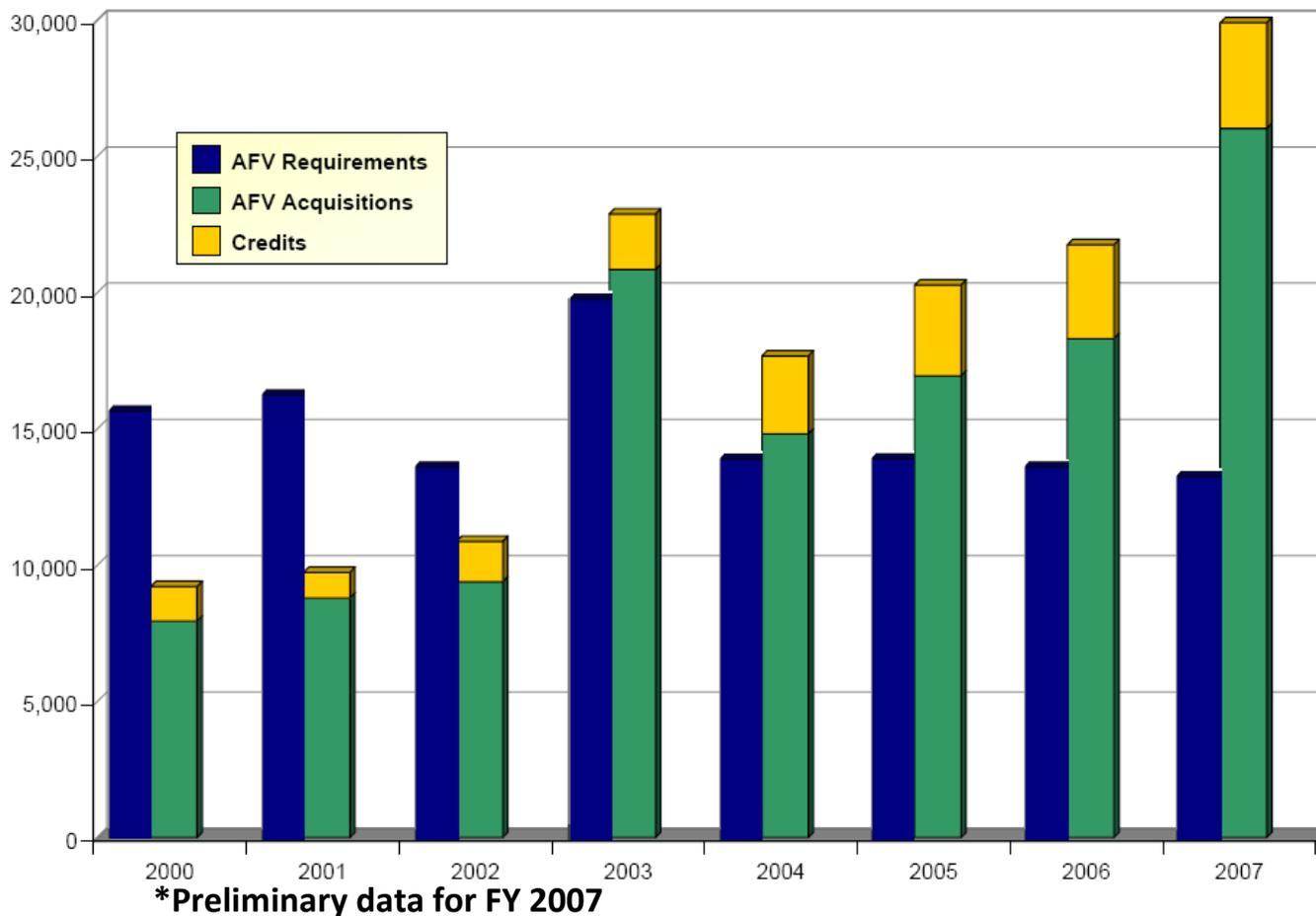
Instructions: Click on the status icons to view/change report detail.

Section	Data	Input			
		2007	2008	2009	2010
		Actual	Planned	Projected	Forecast
Vehicle Data by Vehicle Model	Inventory				
	Acquisitions				
	Disposals				
Vehicle Cost/Mileage Data by Vehicle Model					
Fuel Cost/Consumption by Fuel Type					
EPACT Sec. 701 Waiver Request	Status				
Data Output:					

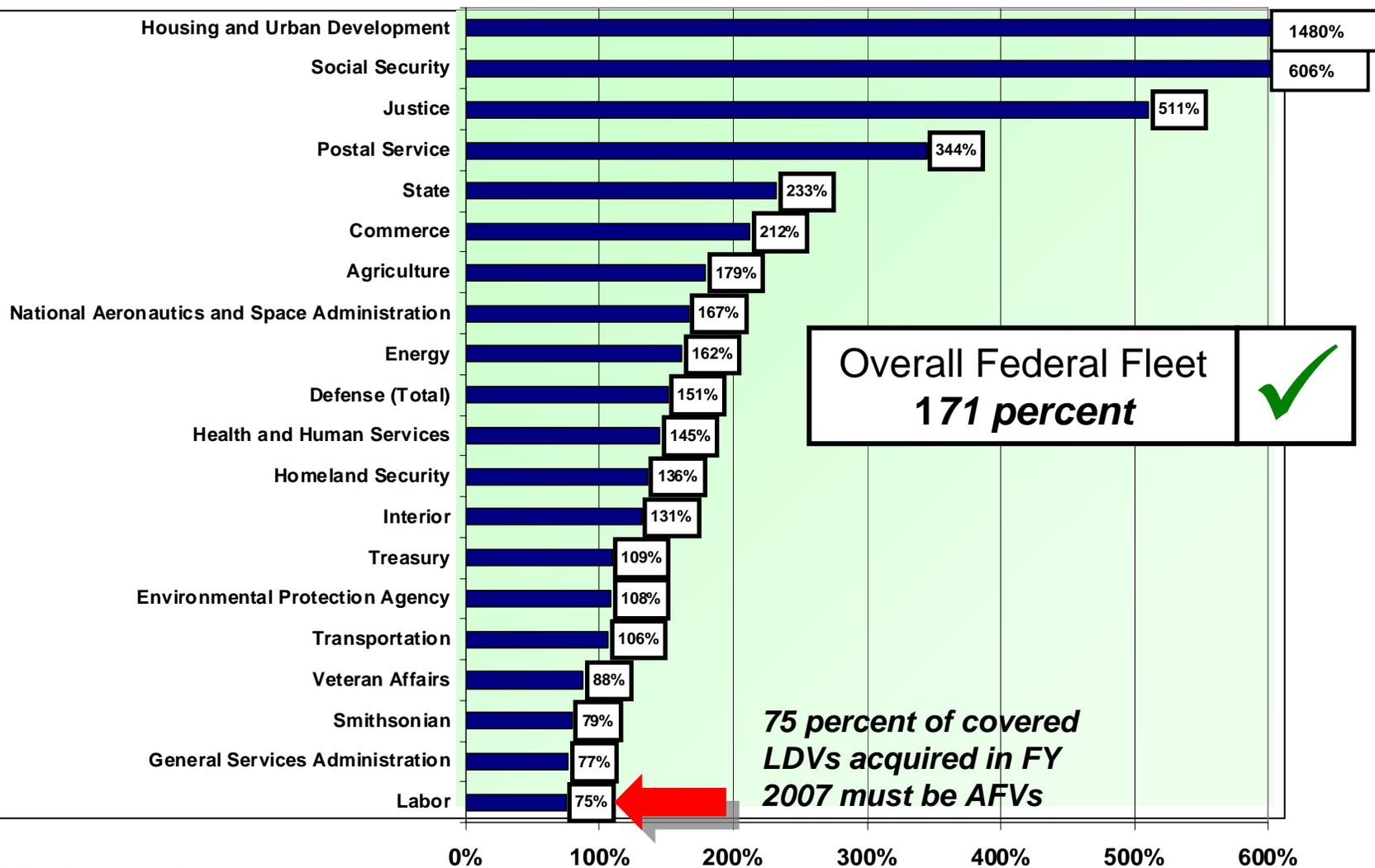
**Legend**

- Incomplete Input
- Complete Input
- Locked Input
- Report Output
- Data Validation Report (generate and view)
- Data Validation Report (no outstanding issues)
- Data Validation Report (1 or more issues)

# Federal Fleet Compliance\* – EPA Act

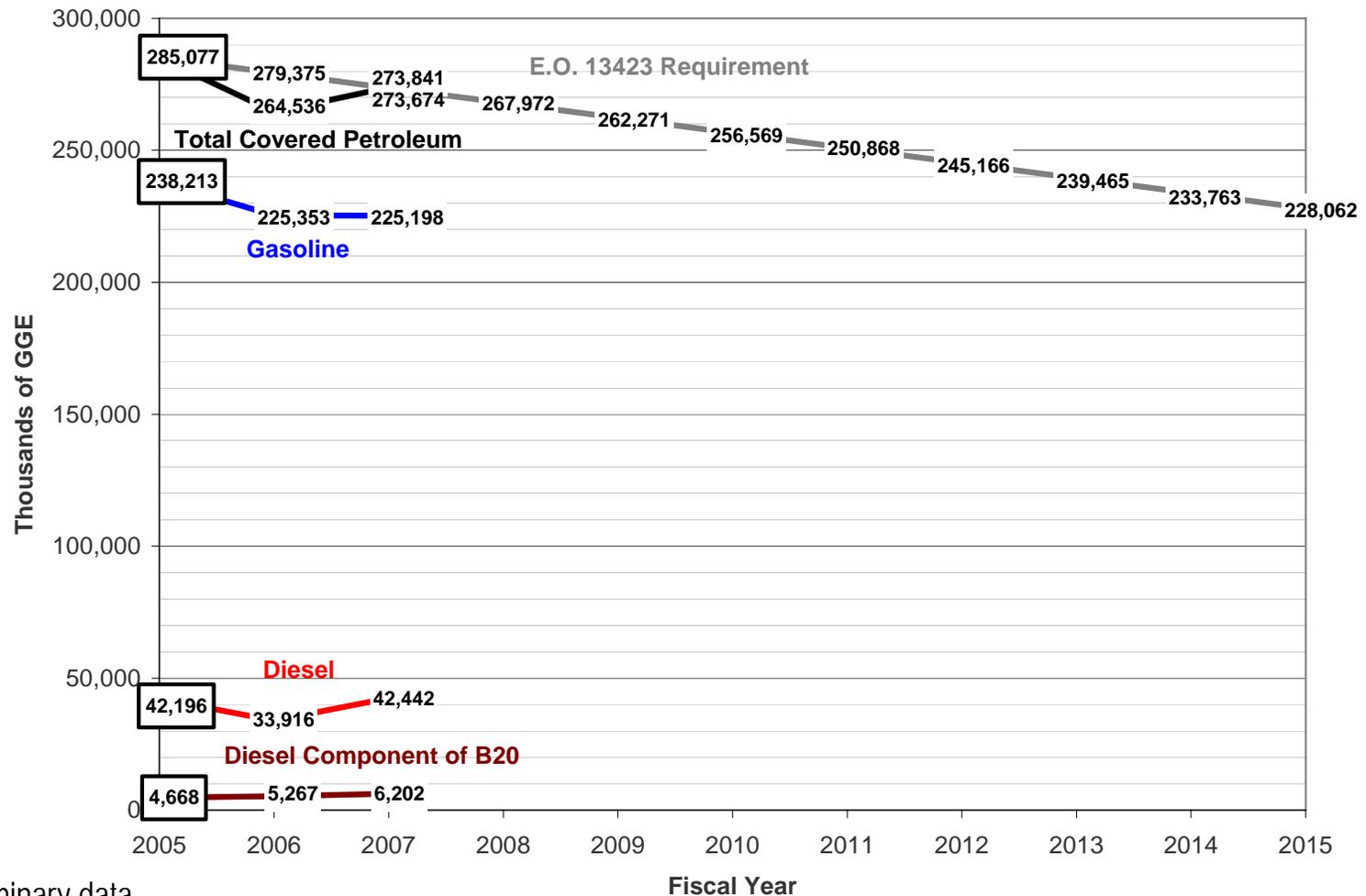


# EPAct Compliance by Agency (FY07\*)



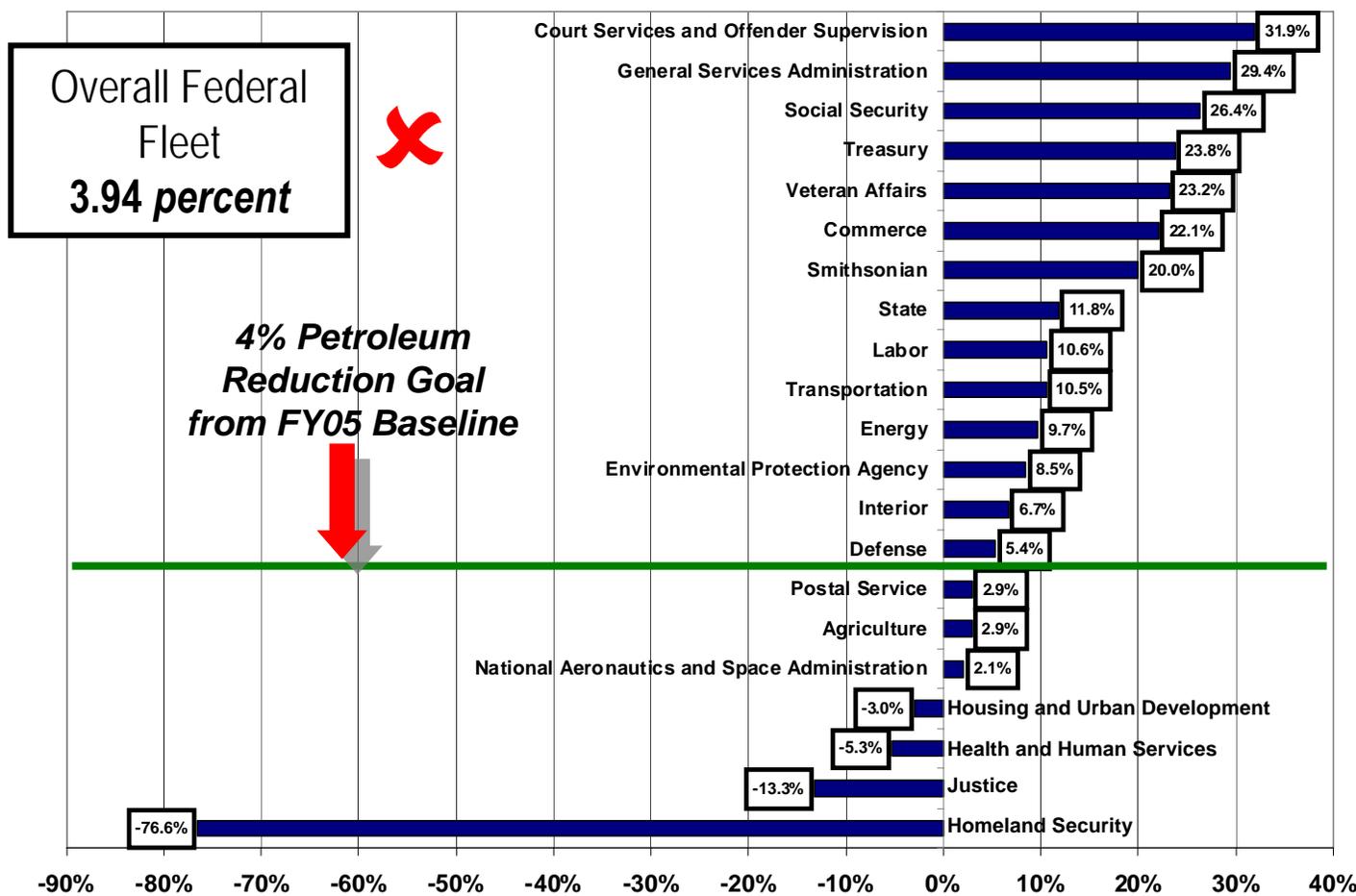
\* Preliminary data

# Federal Fleet Petroleum Consumption (FY07)\*



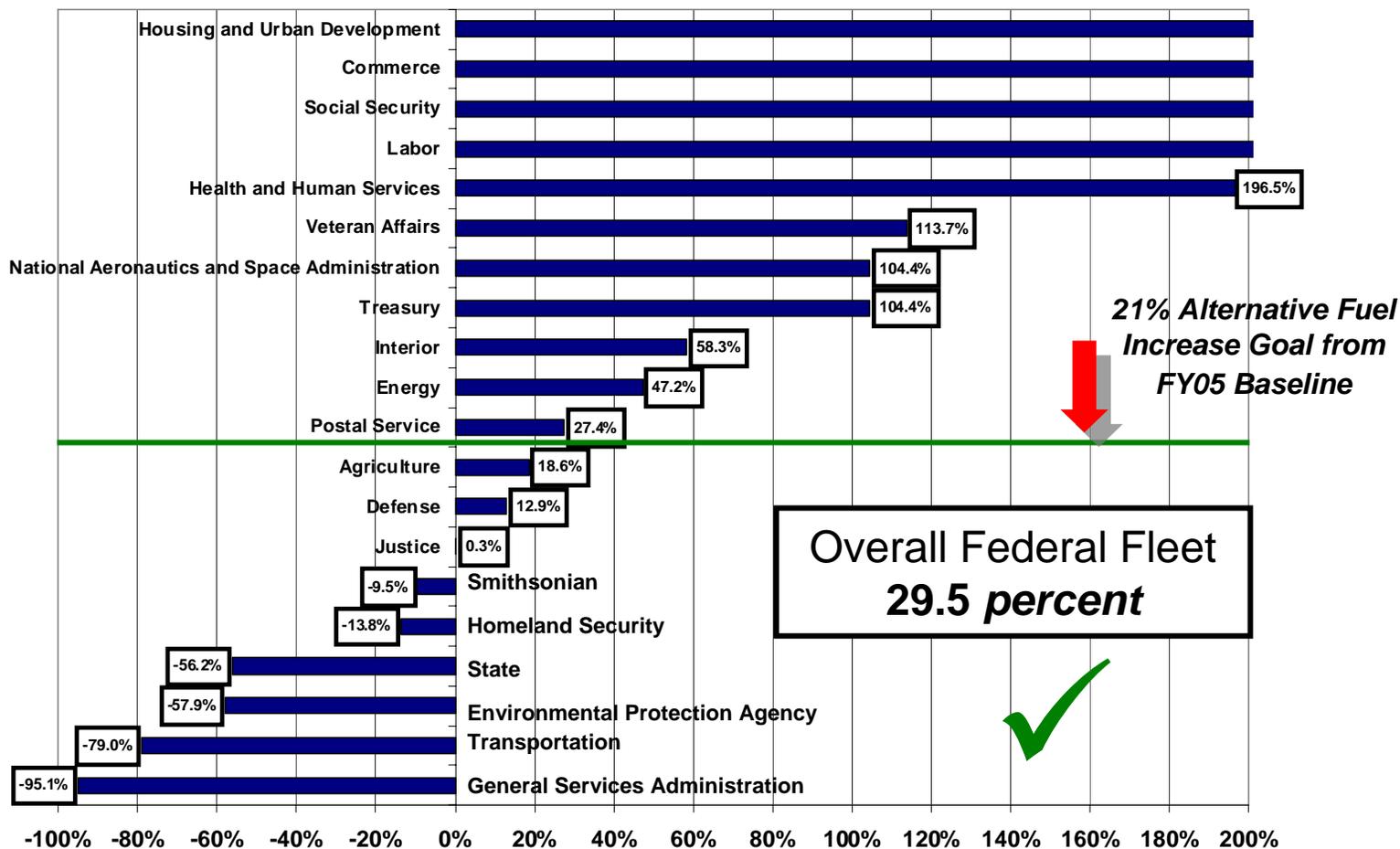
\*Preliminary data

# E.O. 13423 Petroleum Consumption (FY07)\*



\*In covered Federal agencies; preliminary data

# E.O. 13423 Alternative Fuel Use (FY07)\*



\*In covered Federal agencies; preliminary data

# Understanding the Challenge

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Annually, each fleet is mandated to:

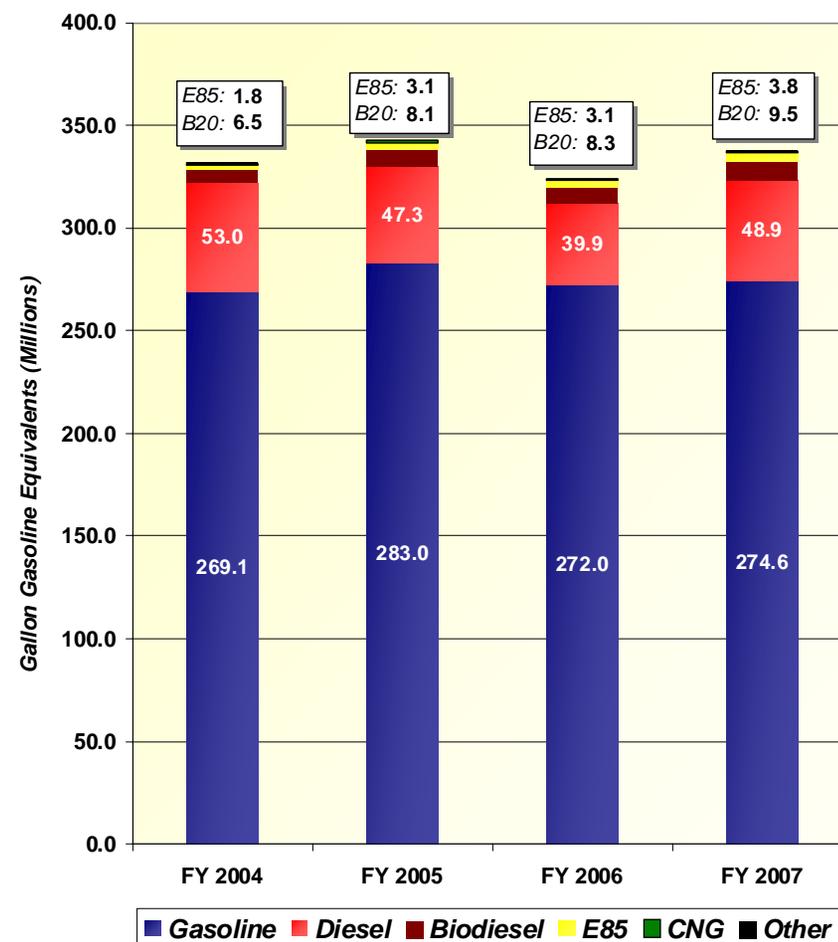
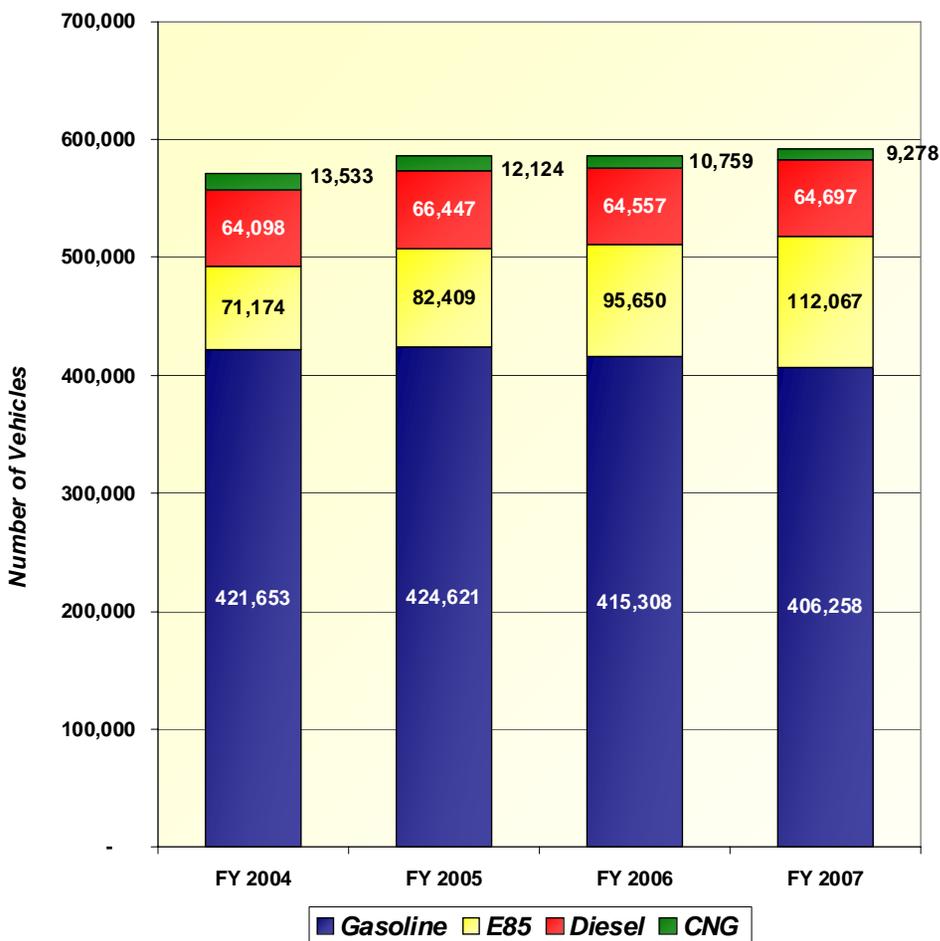
- Reduce total petroleum consumption by 2%
- Increase alternative fuel consumption by 10% (cumulative)

***But how? By implementing a comprehensive fleet-specific petroleum reduction strategy that includes the following elements:***

- Buying vehicles capable of using alternative fuels
- Building new alternative fuel infrastructure
- Ensuring AFVs and diesel vehicles use available infrastructure
- Buying hybrid vehicles
- Right-sizing the fleet
- Increasing fuel economy of fleet
- Fleet efficiencies (e.g., reducing vehicle miles travelled)

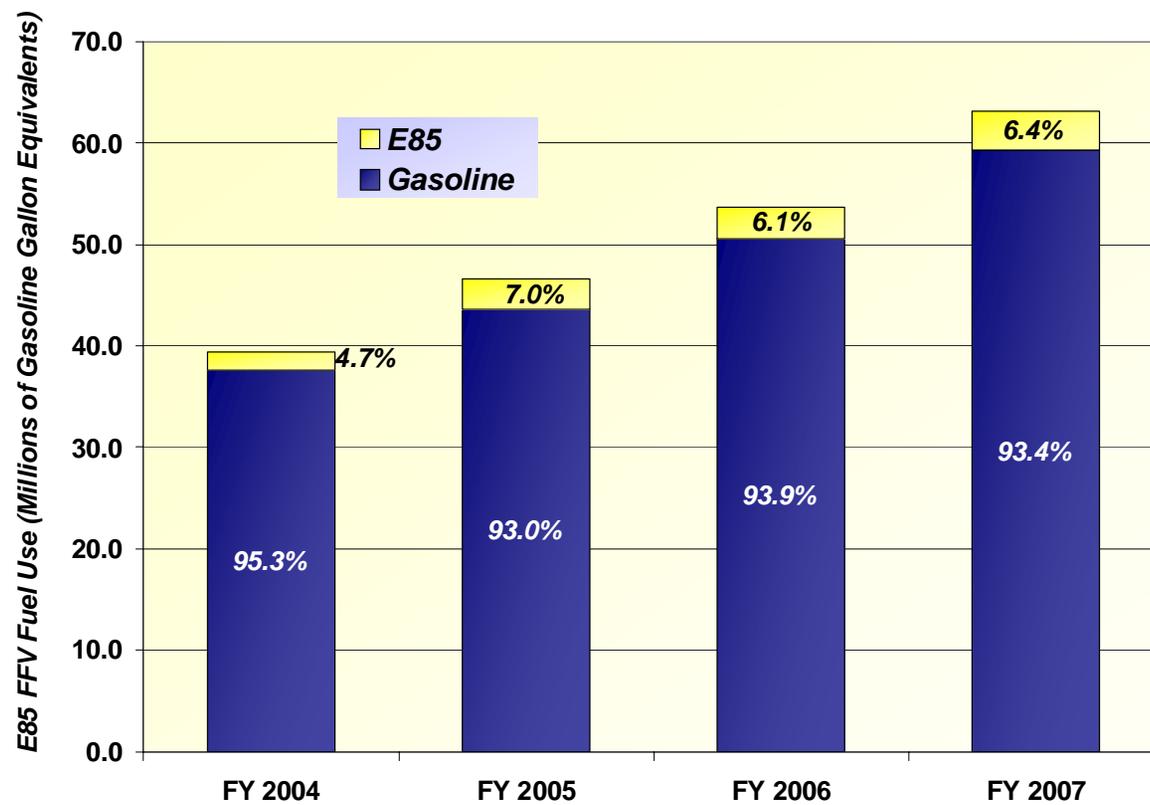
There are 121,778 AFVs in the Federal Fleet (21% of all FY07 vehicles)

... but AF use is small (7,025,521 GGE or 2.6% of fuel use in FY07)



# Low Use of E85 in Federal FFVs

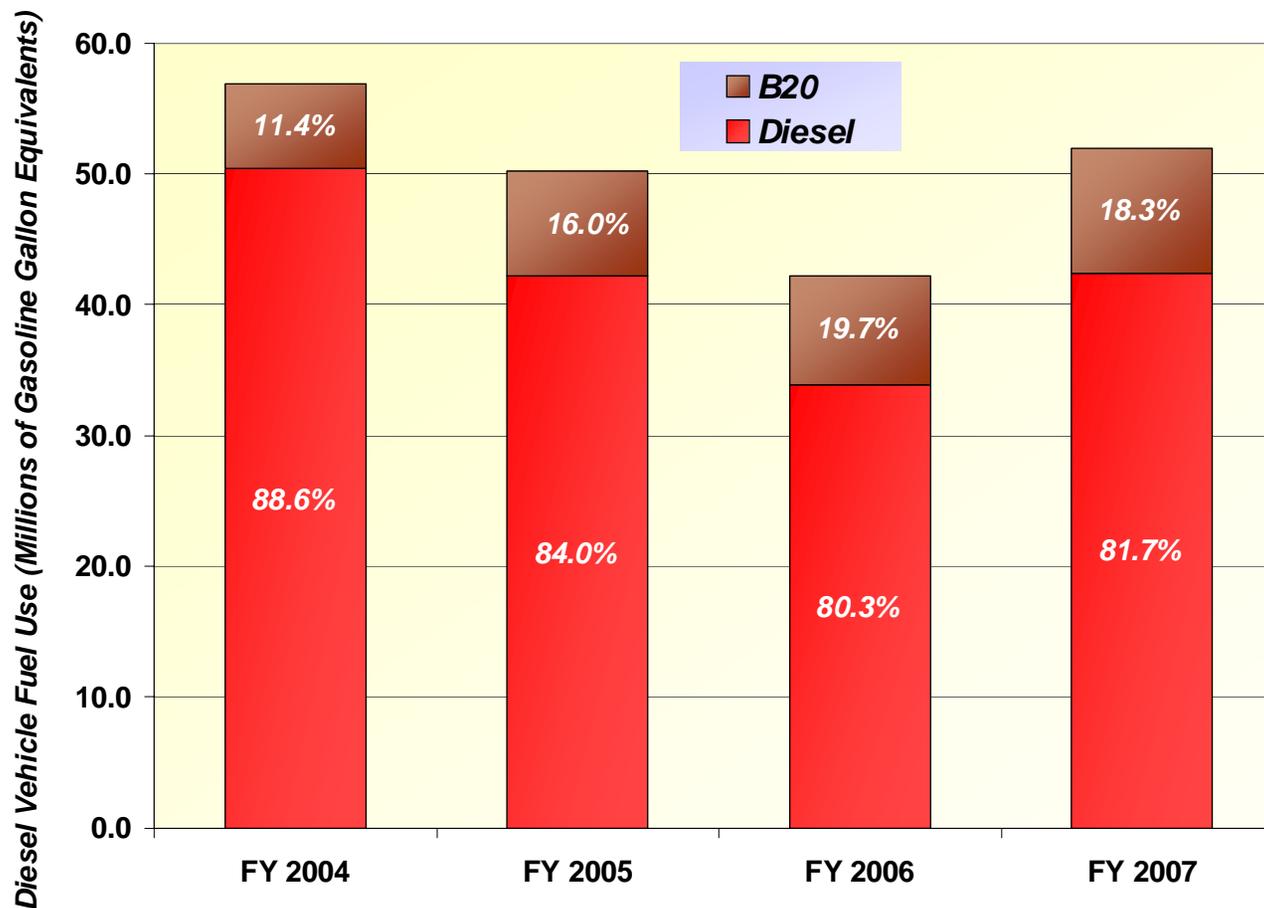
(6.4% in FY07)



- Lack of commercial infrastructure
- Lack of E85 pumps at Federal Fueling Centers
- Limited use of existing infrastructure

# Higher use of B20 in Federal Diesel Vehicles

*(but still low—18.3% in FY07)*



- High DOD use (Marines & Air Force) and USPS
- More B20 use at Federal Fueling Centers
- Lack of commercial infrastructure
- Limited use of existing infrastructure

# DOE's TEAM Initiative

Focused on top 20 DOE sites

Objective is to exceed EPACT & E.O. 13423 requirements

Strategy for cutting petroleum use in DOE fleets 2.4M GGE (47%) by FY12

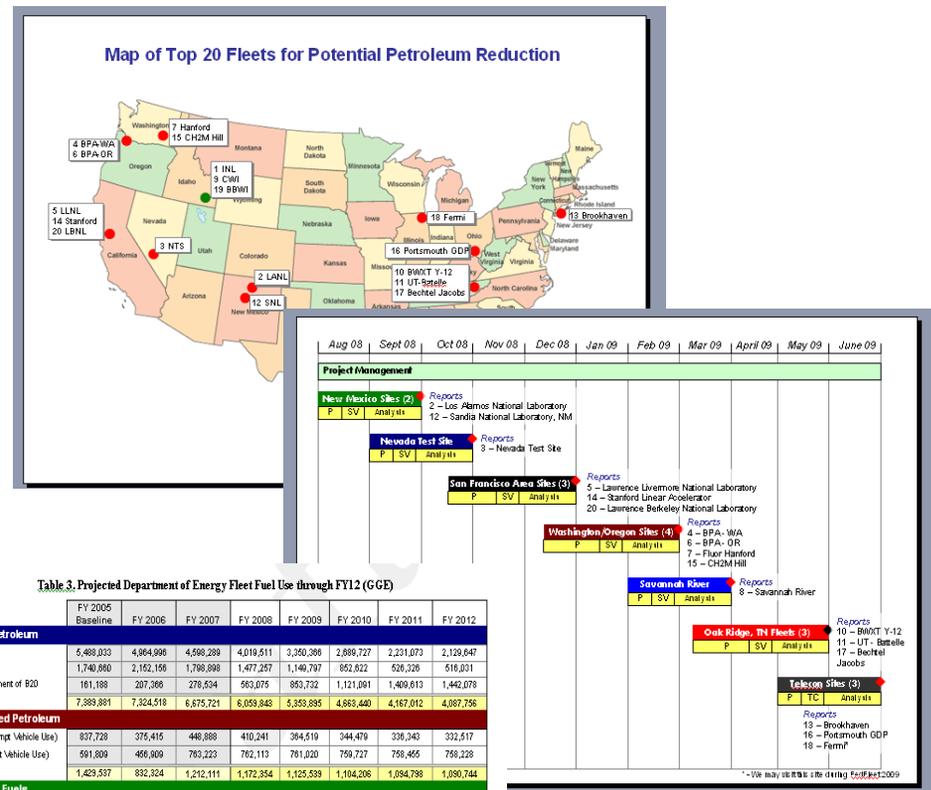


Table 3. Projected Department of Energy Fleet Fuel Use through FY12 (GGE)

	FY 2005 Baseline	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
<b>Covered Petroleum</b>								
Gasoline	5,488,033	4,964,996	4,596,289	4,019,511	3,350,368	2,899,727	2,231,073	2,129,647
Diesel	1,740,960	2,152,156	1,796,898	1,477,267	1,149,797	852,822	526,326	518,031
Diesel Component of B20	161,188	207,368	276,534	563,075	853,732	1,121,091	1,409,813	1,442,073
<b>Total</b>	<b>7,389,881</b>	<b>7,324,518</b>	<b>6,675,721</b>	<b>6,059,843</b>	<b>5,353,895</b>	<b>4,863,440</b>	<b>4,167,012</b>	<b>4,087,756</b>
<b>Non-Covered Petroleum</b>								
Gasoline (Exempt Vehicle Use)	837,728	375,415	449,889	410,241	364,519	344,479	336,343	332,517
Diesel (Exempt Vehicle Use)	591,809	456,909	783,223	762,113	791,020	759,727	758,465	758,228
<b>Total</b>	<b>1,429,537</b>	<b>832,324</b>	<b>1,233,112</b>	<b>1,172,354</b>	<b>1,155,539</b>	<b>1,104,206</b>	<b>1,094,788</b>	<b>1,090,744</b>
<b>Alternative Fuels</b>								
B100 (Including Biodiesel Component of B20)	102,304	107,814	153,644	229,078	306,767	379,252	457,470	471,140
CNG	69,548	59,096	40,371	97,131	157,335	163,074	166,260	174,307
Electric	417	0	0	0	0	0	0	0
EB5	401,895	525,188	679,367	1,123,816	1,661,468	2,220,395	2,570,960	2,868,033
LNG	37,147	37,195	44,173	43,731	43,200	42,848	42,408	41,964
LPG	12,488	321	205	203	201	199	197	195
<b>Total</b>	<b>623,780</b>	<b>728,524</b>	<b>918,360</b>	<b>1,493,958</b>	<b>2,168,050</b>	<b>2,805,767</b>	<b>3,238,392</b>	<b>3,253,640</b>
<b>All Fuels</b>	<b>9,443,198</b>	<b>8,885,436</b>	<b>8,006,192</b>	<b>7,226,156</b>	<b>6,648,484</b>	<b>6,573,413</b>	<b>6,501,203</b>	<b>6,432,140</b>

# TEAM Strategy Elements

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- 1: Acquire AFVs and use alternative fuel
- 2: Use biodiesel blends
- 3: Acquire hybrids
- 4: Implement fleet efficiency measures

# 1. Acquire AFVs and Use Alternative Fuel

- 1 Install E85 infrastructure**
  - Without current E85 refueling availability
  - With sufficient potential E85 usage by FY 2012
- 2 If E85 available, maximize E85 FFV acquisitions**
  - Replace all gasoline light-duty vehicles with E85 FFVs
  - Replace gasoline medium-duty vehicles with E85 FFVs
- 3 If CNG available, replace medium/heavy duty gas vehicles with CNG AFVs (when possible)**
- 4 Use alternative fuel (>95 percent)**



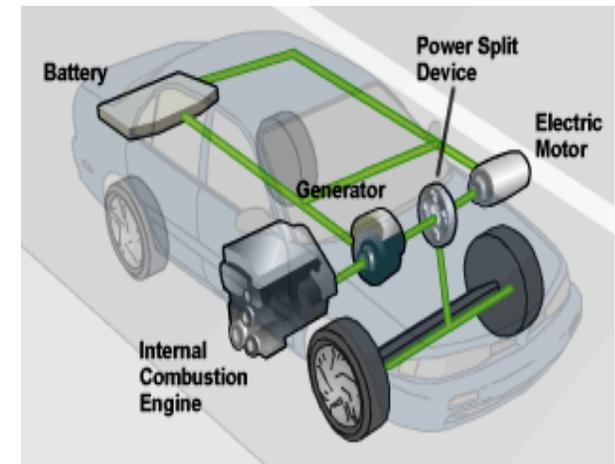
## 2. Use Biodiesel Blends

- 1 Install B20 infrastructure**
  - Without current B20 refueling availability
  - With sufficient potential B20 usage by FY 2012
- 2 If B20 available, replace medium/heavy duty gasoline vehicles with diesel vehicles (when possible)**
- 3 Use B20 (>95 percent)**



## 3. Acquire Hybrids

- 1 Petroleum reduction strategy **for fleet locations without** current or future **E85 availability**
- 2 **Replace light-duty gasoline SUVs and compact sedans with hybrids**
- 3 **Average fuel use** of hybrid vehicles is estimated to be **30 percent less** than similar non-hybrid gasoline vehicles



## 4. Implement Fleet Efficiency Measures

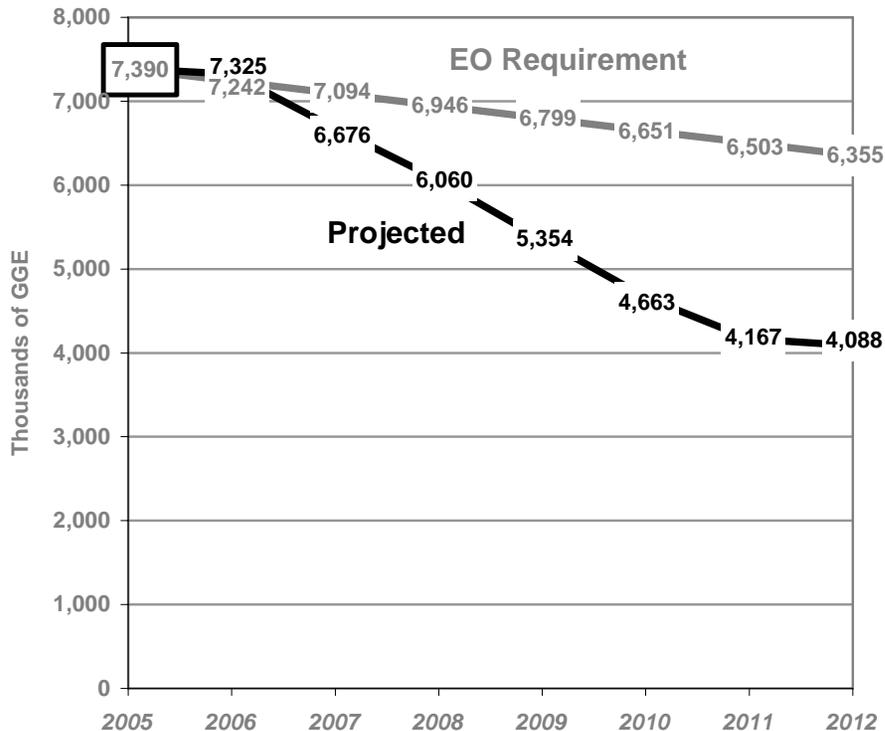
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- 1 Reduce vehicle miles travelled (VMT)
- 2 Teleconferencing
- 3 Ride-sharing
- 4 NEVs
- 5 Others



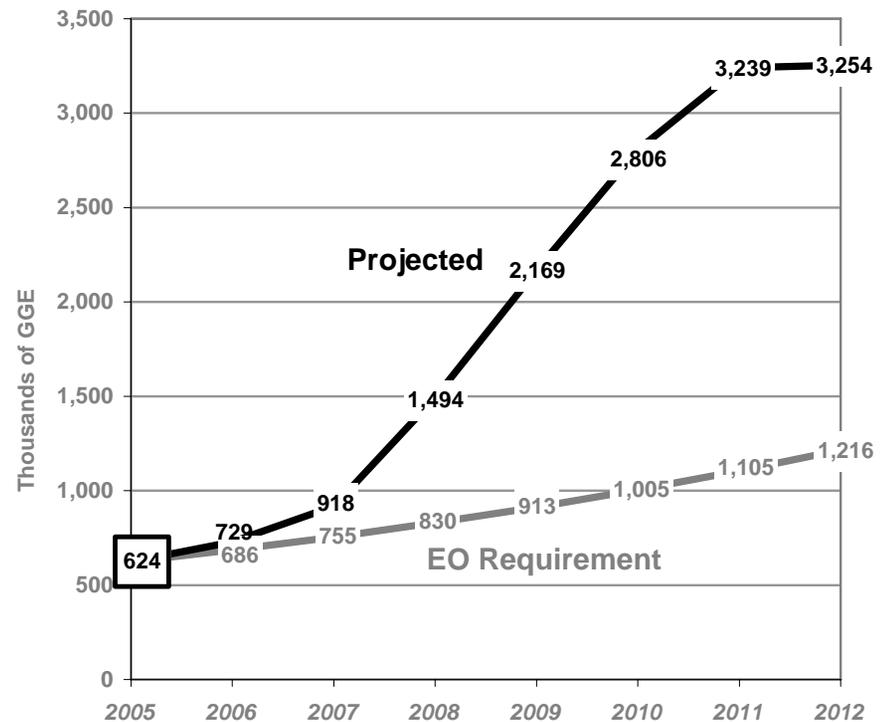
### Projected Covered Petroleum Compliance

Implementing this strategy will reduce covered petroleum use by **39 percent** ...



### Projected Alternative Fuel Compliance

And increase alternative fuel use by **254 percent** compared to use in FY 2007



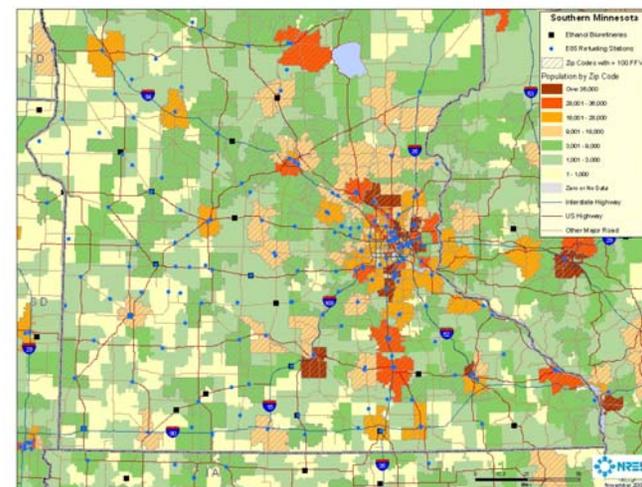
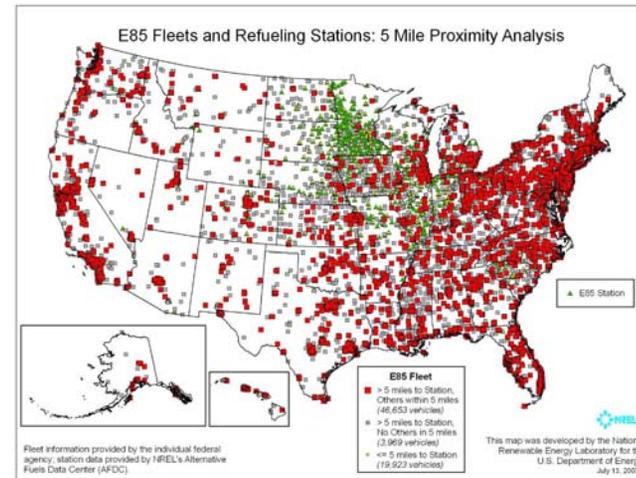
# Expanding Alternative Fuel Infrastructure

DOE held "Industry Day" on June 12<sup>th</sup>--brought together Federal fleets and fuel providers

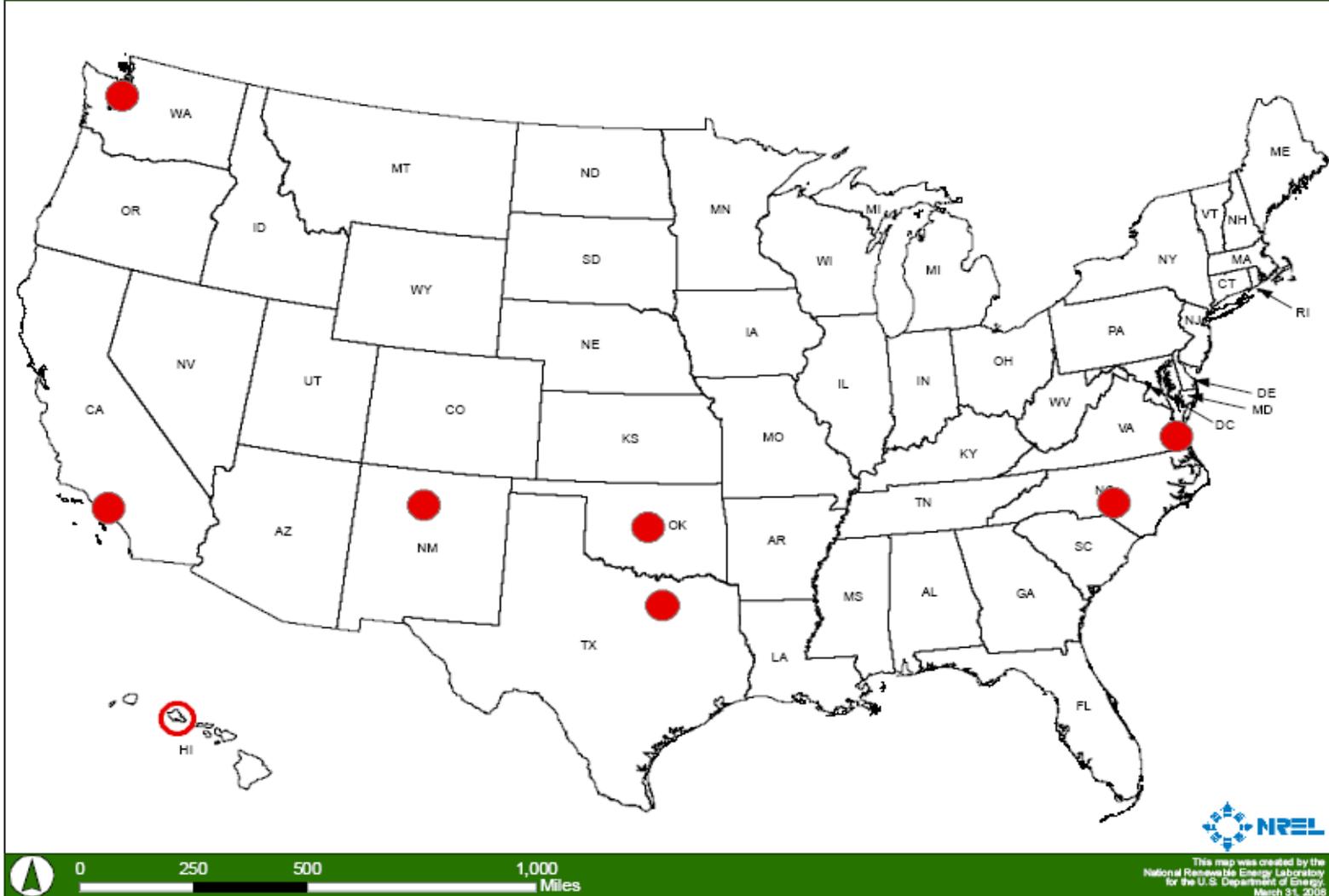
DOE analyzed location information on AFVs lacking infrastructure

Fuel providers have approached DOE eager to supply these fleets

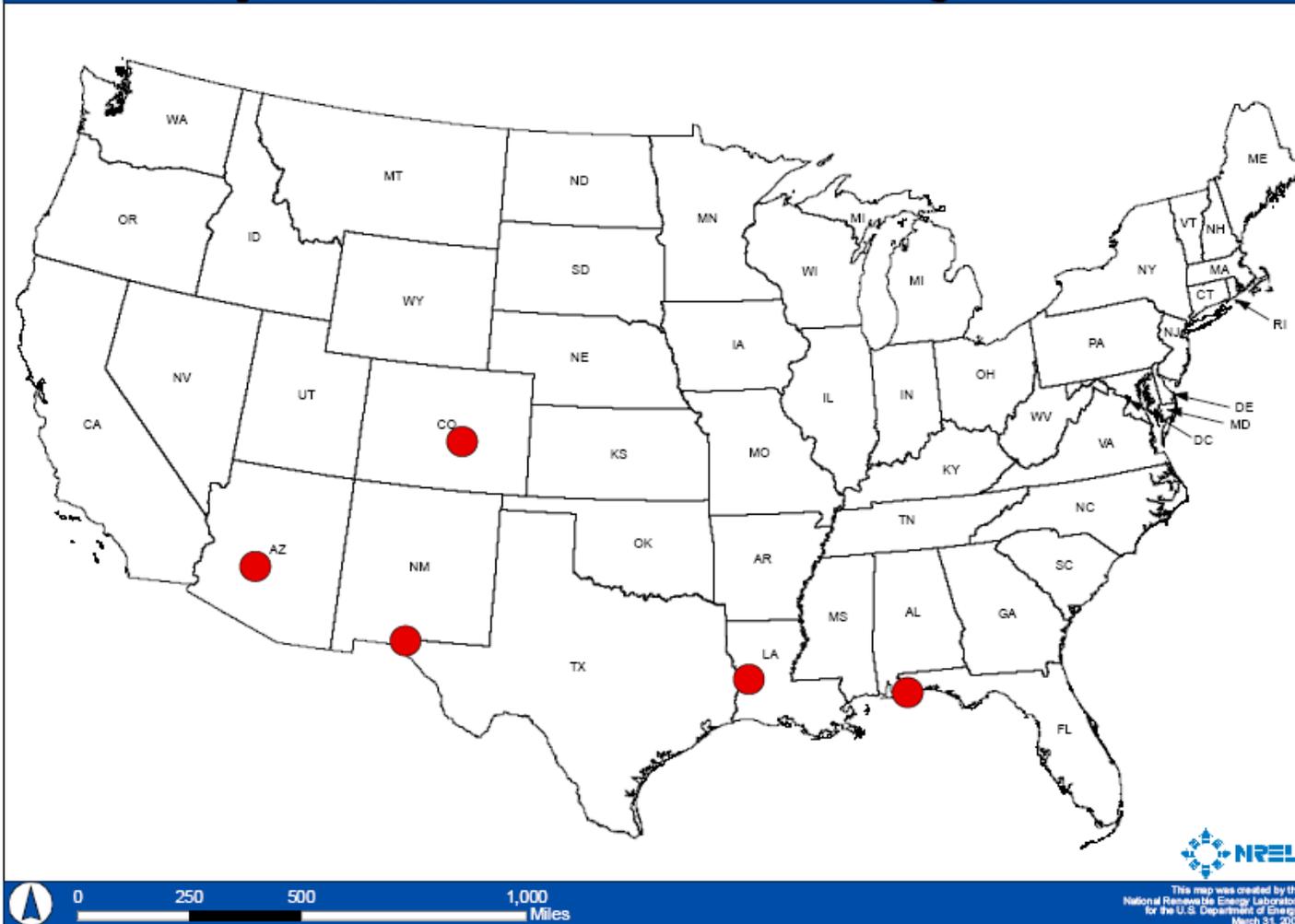
Opened dialog for evaluating contract and other mechanisms for making AF available to fleets



### Top Federal Fleet Locations for E85 Refueling Facilities



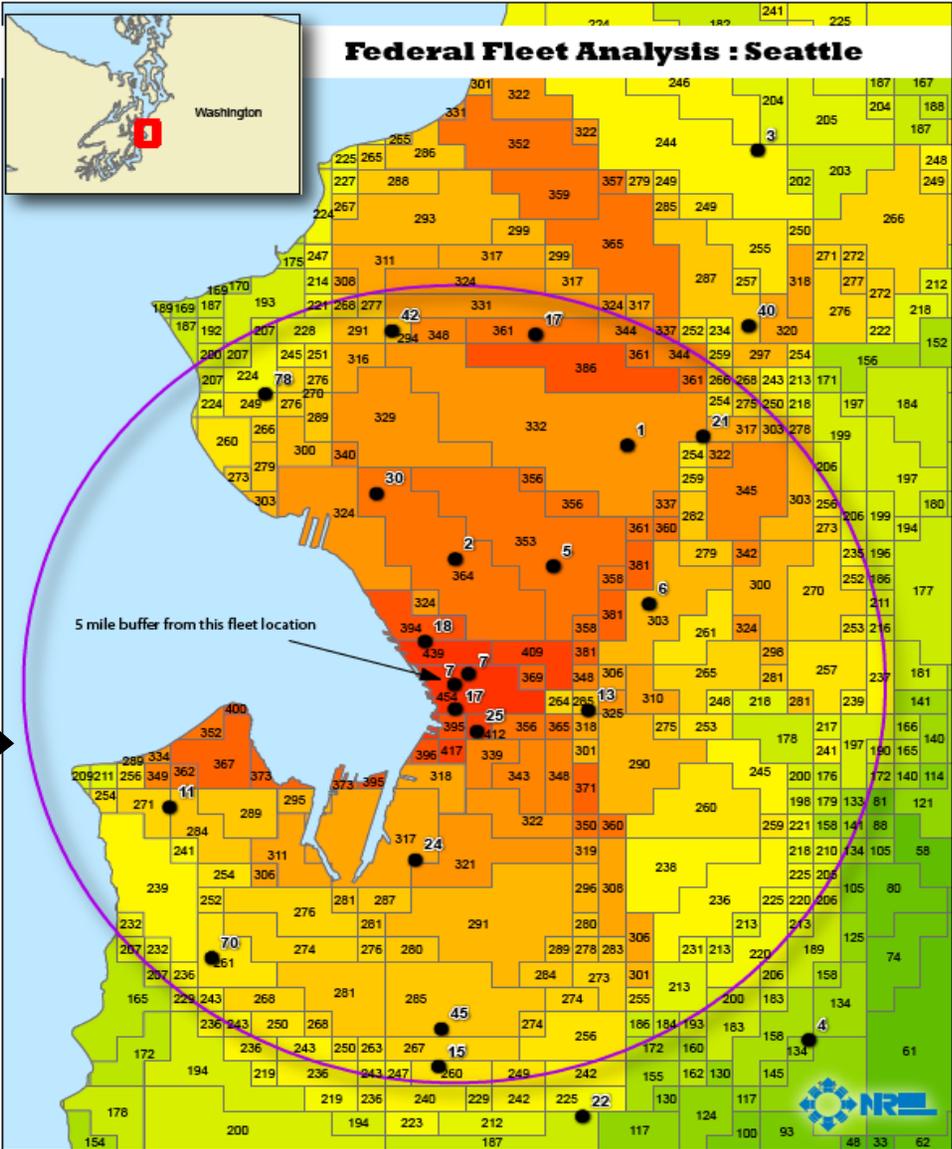
### Top Federal Fleet Locations for CNG Refueling Facilities



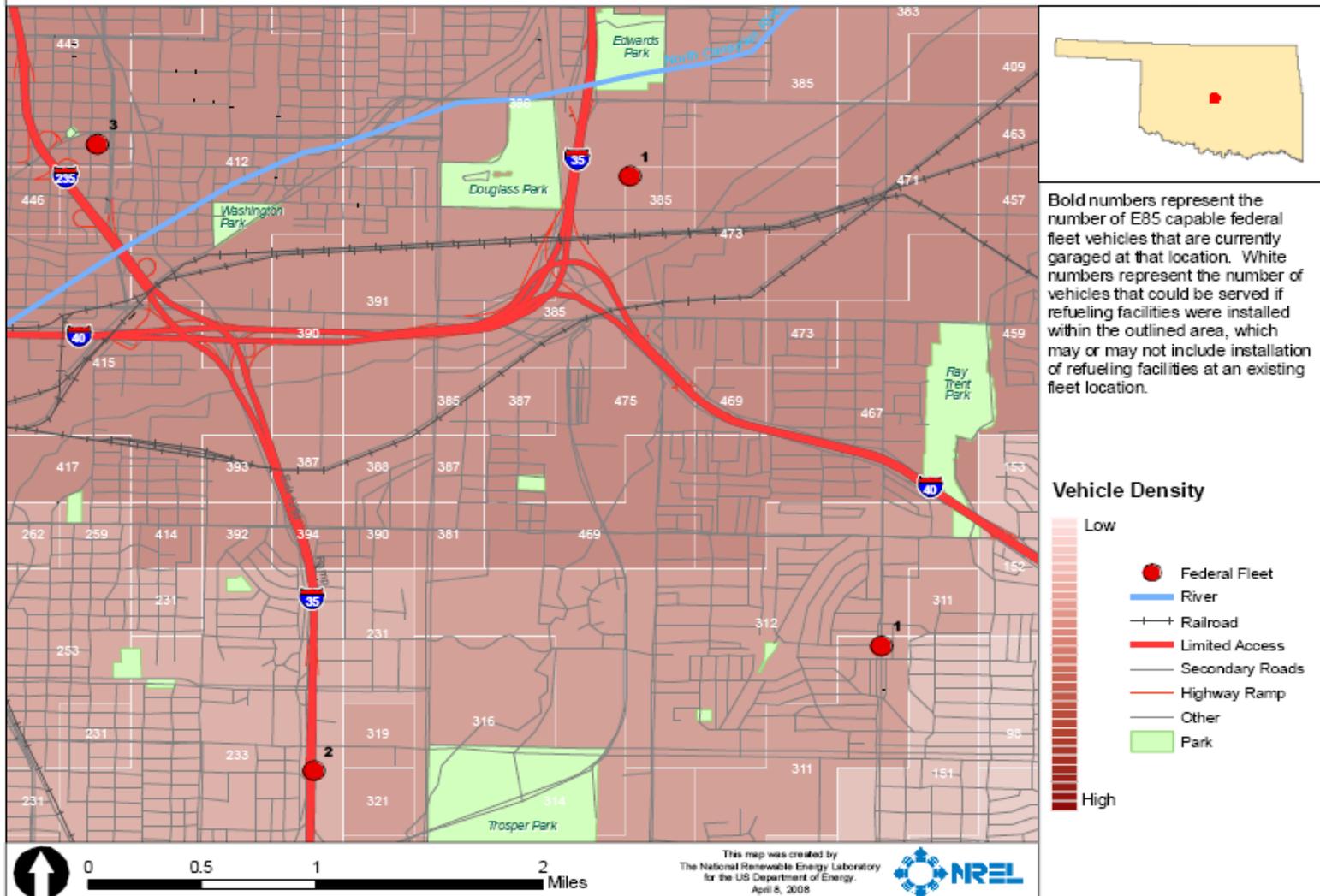
This map was created by the National Renewable Energy Laboratory for the U.S. Department of Energy. March 31, 2008

# Proximity of Federal fleet FFVs to hypothetical E85 station

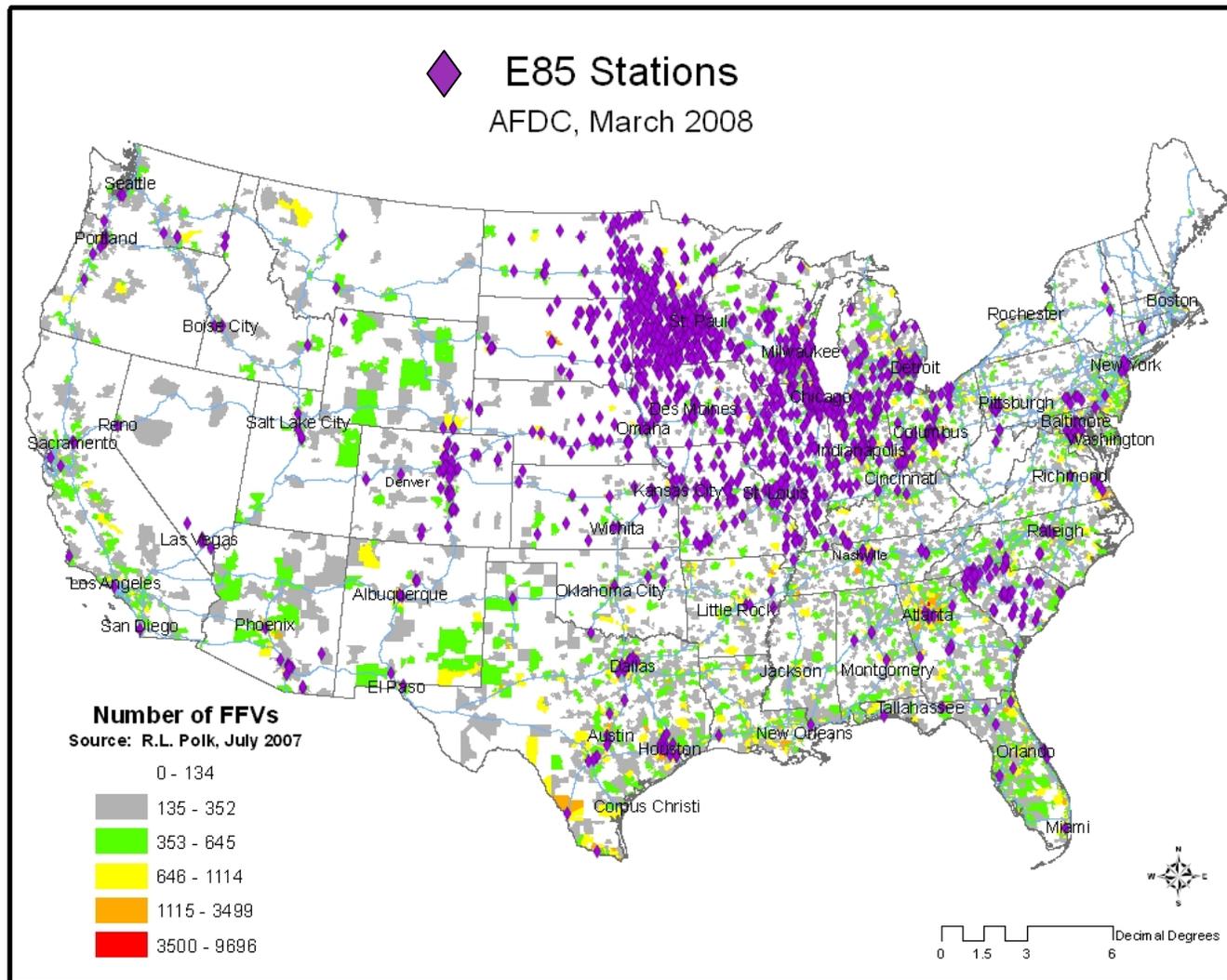
14 of 21 Federal agencies garage vehicles within this 5 mile radius

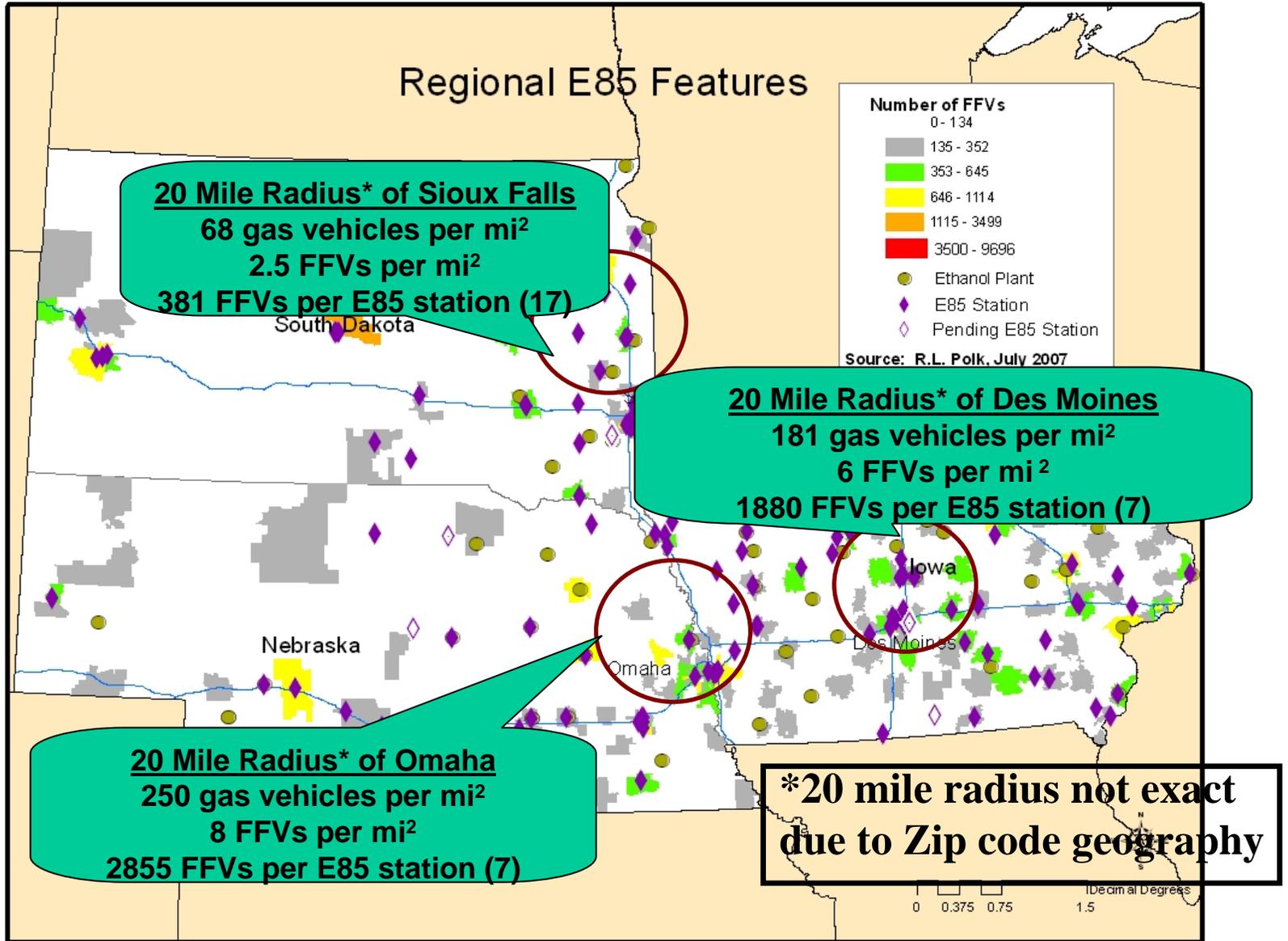


## Potential E85 Refueling Station Locations : Oklahoma City, OK



# Public Sector Potential





# In Conclusion

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- Legislation & mandates require Federal agencies to reduce petroleum use
- Acquiring AFVs & using AF effective strategy to achieve goal
- Federal fleet has acquired over 120,000 AFVs; 92% FFVs
- DOE focus on identifying “hot spots” of AF infrastructure opportunity
- DOE organizing public/private WG to facilitate infrastructure



# QUESTIONS?

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