U.S. GOVERNMENT ACCOUNTABILITY OFFICE
441 G St. N.W.
Washington, DC 20548

August 8, 2016

The Honorable John Thune
Chairman
The Honorable Bill Nelson
Ranking Member
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable Bill Shuster
Chairman
The Honorable Peter DeFazio
Ranking Member
Committee on Transportation and Infrastructure
House of Representatives

Airport and Airway Trust Fund: Less Than Half of Noncommercial Jet Fuel Tax Receipts Are Transferred

Ensuring excise tax compliance on highway motor fuel has been an ongoing concern for federal agencies for decades. While several legislative changes were enacted in the 1980s and 1990s to reduce incentives to evade motor fuel taxes, in 2002, the Internal Revenue Service (IRS) testified that increases in federal and state excise tax rates had increased incentives for tax evasion. In testimony, the IRS identified several examples of fuel fraud, including the misuse of tax exemptions to evade excise taxes on diesel fuel, the transfer of motor fuel across state or local boundaries, the smuggling of motor fuel into the United States, and illegally blending motor fuel with other substances to reduce the effective excise tax rate.[1] Similarly, in 2003, the Secretary of Transportation called fuel fraud "a serious and growing problem that requires an equally serious Federal response."[2] At that time, the Department of Transportation's Inspector General testified that the Federal Highway Administration (FHWA) estimated that motor fuel tax evasion activities reduced excise tax receipts, which serve as a funding mechanism for and are deposited into the Highway Trust Fund, by at least $1 billion annually.[3]

Among the various types of fuel tax fraud, federal officials raised concerns about the diversion of jet fuel to diesel truck use because jet fuel taxes were lower than those for diesel. At the time, the two fuels were largely substitutable, but the federal excise tax for diesel fuel ($0.244 per gallon) was greater than the federal excise tax for jet fuel used in commercial aviation ($0.044

[1]Joseph Brimacombe, Deputy Director of Compliance, Small Business and Self Operating Divisions, IRS. *Schemes, Scams, and Cons: Fuel Tax Fraud*, testimony before the S. Comm. on Finance, 107th Cong. 64-76 (2002).

[2]Secretary of Transportation Norman Y. Mineta. *SAFETEA: Reauthorization of Surface Transportation Programs,* testimony before the S. Subcomm. on Transportation and Infrastructure, Comm. on Environment and Public Works, 108th Cong. 27-33 (2003).

[3]Ken Mead, Inspector General, Department of Transportation, Office, *Management of Cost Drivers on Federal-aid Highway Projects*, testimony before the U.S. House of Representatives, Subcomm. on Transportation, Treasury and Independent Agencies, Comm. on Appropriations, 108th Congress (2003).

per gallon) or noncommercial aviation ($0.219 per gallon).[4] In testimony, the Federal Highway Administrator cited a 2001 KPMG Consulting, Inc. (KPMG) study that reported that more gallons of jet fuel were being produced than consumed by the aviation industry.[5] The KPMG study estimated that over a 10-year period, this gap would result in approximately 39 billion gallons of jet fuel diverted to nonaviation use and approximately $8.3 billion in revenue loss to the Highway Trust Fund if truck operators were purchasing fuel that had been taxed at the noncommercial jet fuel tax rate.[6] The study noted that a scheme in the mid-1990s, in which six defendants pled guilty to illegally blending jet fuel with diesel fuel and selling the mixture at service stations and truck stops in Southern California, was illustrative of the opportunities for nonaviation jet fuel diversion.

Congress enacted a number of reforms that became effective in fiscal years 2005 and 2006 to counter potential fuel tax fraud involving jet fuel diversion.

- Beginning in fiscal year 2005, the jet fuel tax was moved from the point of sale and applied when jet fuel is either (1) removed from the terminal rack or (2) removed directly from a terminal into the fuel tank of an aircraft.[7] At the same time, by designating certain airport fuel terminals as secured, Congress limited the number of terminals where jet fuel used in commercial aviation was initially taxed at a rate of $0.044 per gallon when purchased; all other jet fuel used in commercial aviation was subject to an initial tax rate of $0.219 per gallon. In doing so, Congress established a process to maintain the pre-2005 effective tax rate of $0.044 per gallon on jet fuel used in commercial aviation. This process permitted either the registered ultimate purchaser or the ultimate vendor of such jet fuel (but not both) to claim a $0.175 per gallon refund.[8]

- In addition, as part of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Congress equalized tax rates for jet fuel and diesel fuel purchased at the terminal rack at $0.244 per gallon beginning in fiscal year 2006, and directed that initial tax receipts for sales of jet fuel taxed at $0.244 per gallon be deposited into the Highway Trust Fund.[9] Congress also established a process that maintained the pre-fiscal year 2006 effective tax rate of $0.219 per gallon on jet fuel used in noncommercial aviation, whereby companies selling this fuel could register with the IRS as “ultimate vendors” of jet fuel, and claim a $0.025 per gallon credit or refund for each sale.[10] Once a credit or refund is provided to the ultimate vendor, the Treasury

[4]The IRS defines noncommercial aviation as any use of aircraft other than in a business of transporting persons or property for compensation or hire by air. It also includes any use of an aircraft for a business use that is properly allocable to any transportation exempt from taxes. 26 C.F.R. § 48.4041-8(j). For the purposes of this report, noncommercial aviation refers to taxable noncommercial aviation activities.

[5]FHWA Administrator Mary E. Peters. *Schemes, Scams, and Cons: Fuel Tax Fraud*, testimony before the S. Comm. on Finance, 107th Cong. 78-87 (2002).

[6]KPMG Consulting, Inc., *Motor Fuel Leakage Analysis,* (Washington, D.C.: Dec. 17, 2001).

[7]Pub.L.No. 108-357, §853, 118 Stat. 1418, 1609(2004). The terminal rack refers to the mechanism used to dispense fuel products from the terminal into tank trucks or rail cars.

[8]Pub.L.No. 108-357, §853, 118 Stat. 1418, 1609(2004).

[9]Pub.L.No. 109-59 § 11161(c), 119 Stat. 1144, 1969(2005). For each gallon of jet fuel sold for domestic use, $.001 is transferred to the Leaking Underground Storage Tank Fund. 26 U.S.C. § 4081(a)(2)(B).

[10]Pub.L.No. 109-59 § 11161(c), 119 Stat. 1144, 1969(2005). Congress also established a similar process to maintain the pre-2005 effective tax rate of $0.044 per gallon on jet fuel used in commercial aviation and purchased from the

Department (Treasury) is required to transfer the remainder of the tax receipts from the sale from the Highway Trust Fund to the Airport and Airway Trust Fund. In cases where the vendor does not apply for a credit or refund or no credit or refund is provided to a vendor for the sale of jet fuel used in noncommercial aviation, the jet fuel tax receipts from the sale are not transferred from the Highway Trust Fund to the Airport and Airway Trust Fund. As a result, the Federal Aviation Administration (FAA) and aviation industry stakeholders have raised questions as to whether the Airport and Airway Trust Fund is receiving all taxes paid for sales of jet fuel used in noncommercial aviation.

The Fixing America's Surface Transportation (FAST) Act includes a provision that we conduct a study of the tax system for jet fuel used in noncommercial aviation and report within 180 days of enactment.[11] This report discusses: (1) what is known about ultimate vendors of jet fuel used in noncommercial aviation, (2) the extent to which the Airport and Airway Trust Fund has been credited for sales of jet fuel used for noncommercial aviation, and (3) the extent to which jet fuel has been diverted for nonaviation purposes. On June 1 and 2, 2016 we provided your staff with a preliminary briefing on the results of our review to meet the mandated reporting requirement in the FAST Act.[12] This report formally transmits the final briefing slides, which were updated on July 15, 2016 (see enc. I).

To determine what is known about ultimate vendors, we analyzed IRS data on ultimate vendors, credits and refunds from fiscal years 2006–2015; and analyzed data on jet fuel vendors from the Aircraft Owners and Pilots Association (AOPA) for 2015. We also interviewed 17 industry stakeholders, which included national aviation organizations and a non-generalizable sample of 4 vendors of jet fuel used in noncommercial aviation. The jet fuel vendors were selected based on size, whether the vendor was registered as an ultimate vendor of jet fuel, and whether the vendor had applied for a credit or refund on the sale of noncommercial jet fuel in the last 2 years. These interviews provided a sampling of views on topics related to our review and are not generalizable to all jet fuel vendors. To determine what is known about the extent to which the Airport and Airway Trust Fund has been credited for sales of jet fuel used in noncommercial aviation, we analyzed IRS data on transportation trust fund transfers from fiscal years 2000 – 2015; the most recent IRS data on fuel taxes from fiscal years 2006–2015 and FAA data on jet fuel consumption from fiscal years 2006–2015. To determine what is known about jet fuel used for nonaviation purposes, we reviewed relevant federal statutes and regulations, analyzed the most recent ARGUS International, Inc.[13] data on jet fuel prices and Energy Information Administration's (EIA) data on diesel fuel prices from 2002–2015. We also interviewed Treasury, FAA, FHWA, and IRS officials and industry stakeholders. To assess the reliability of the data used for these research questions, we reviewed prior GAO reports, IRS, FAA, and EIA documents, and interviewed officials from these agencies, as well as staff from AOPA and ARGUS International, Inc. We determined that the data were sufficiently reliable for the purposes of addressing our research questions. Additional information on our scope and methodology may be found in enclosure II.

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terminal rack and taxed at $0.244 per gallon. This process permitted either the registered ultimate purchaser or the ultimate vendor of such jet fuel (but not both) to claim a $0.20 per gallon refund.

[11]Pub. L. No. 114-94, §42001, 129 Stat. 1312, 1762 (2015).

[12]The FAST Act was enacted on December 4, 2015, and the required reporting date is June 4, 2016.

[13]ARGUS International, Inc. is an aviation services company that provides data and research services.

We conducted this performance audit from January 2016 to August 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In summary:

- The total number of potentially registerable ultimate vendors of jet fuel used in noncommercial aviation is unclear, but is likely greater than the number that have registered based on industry information. In addition, of those that have registered, some vendors of jet fuel used in noncommercial aviation are not participating in the ultimate vendor credit and refund processes. For example, based on our analysis, in fiscal year 2015, only a quarter of all registered ultimate vendors filed a credit or refund claim for jet fuel used in noncommercial aviation, and over half of all registered ultimate vendors did not file any claim for jet fuel sales. Stakeholders we spoke to provided varying views on the registration and refund process, including: (1) that the ultimate vendor registration process is challenging; (2) that the small size of the credit or refund for jet fuel sold for noncommercial aviation purposes ($0.025 per gallon) may limit the incentive to file a claim for some vendors; and (3) that documentation required to claim a credit or refund may be difficult to obtain.

- We estimate that since fiscal year 2006, between $1 billion and $2 billion, or more than half of tax receipts for sales of noncommercial jet fuel, have not been transferred into the Airport and Airway Trust Fund from the Highway Trust Fund, based on analysis of FAA and IRS data. While noncommercial jet fuel consumption has been relatively constant from fiscal years 2000 through 2015, the number of jet fuel gallons taxed at the effective rate of $0.219 per gallon (the noncommercial rate) decreased significantly following the implementation of the tax changes in 2006. These trends suggest that more than half of jet fuel used in noncommercial aviation was taxed at an effective rate of $0.244 per gallon and as a result, between $1 billion and $2 billion in noncommercial jet fuel tax receipts have not been transferred to the Airport and Airway Trust Fund because no credit or refund that would trigger a transfer has been claimed by vendors for these sales. In addition, because many vendors were paying the $0.244 tax without claiming a credit or refund, we further estimate that the total amount of unclaimed credits or refunds may range from $120 million to $230 million since fiscal year 2006, which represents what vendors have effectively overpaid in fuel taxes. However, while vendor registration is required to obtain a credit or refund, filing for these credits or refunds is voluntary.

- Reported instances of jet fuel diversion for nonaviation purposes are rare and economic and technological disincentives may further discourage such activity. IRS officials stated that some instances of jet fuel diversion and fraud occurred prior to the enactment of SAFETEA-LU; however, because the agency is not required to retain tax records for more than 7 years, IRS could not provide documentation of such occurrences prior to the passage of SAFETEA-LU. Following the implementation of SAFETEA-LU, IRS officials stated that jet fuel diversion virtually ceased. Department of Transportation officials stated that they were not aware of any jet fuel diversion taking place while a majority of the industry stakeholders we spoke to stated that jet fuel diversion was nonexistent. In addition, on average, between 2002 and 2015, the average retail price of jet fuel was $2.00 per gallon higher than the average retail price of highway diesel. Further, efforts to avoid paying the federal excise tax on motor fuel or jet fuel can result

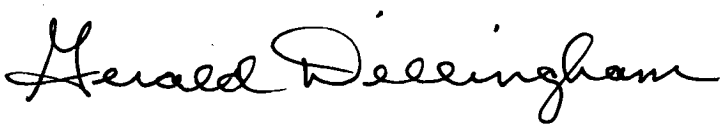
in financial penalties or jail, additionally disincentivizing jet fuel diversion. Finally, engine technology improvements and fuel composition changes since 2007 limit incentives for jet fuel diversion.

Agency Comments

We provided the Departments of Transportation and Treasury, and IRS with a draft of this report for review and comment. The Departments of Transportation and Treasury, and IRS provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees and to the Secretaries of Transportation and Treasury and the Commissioner of the IRS. This report will also be available at no charge on the GAO website at http://www.gao.gov.

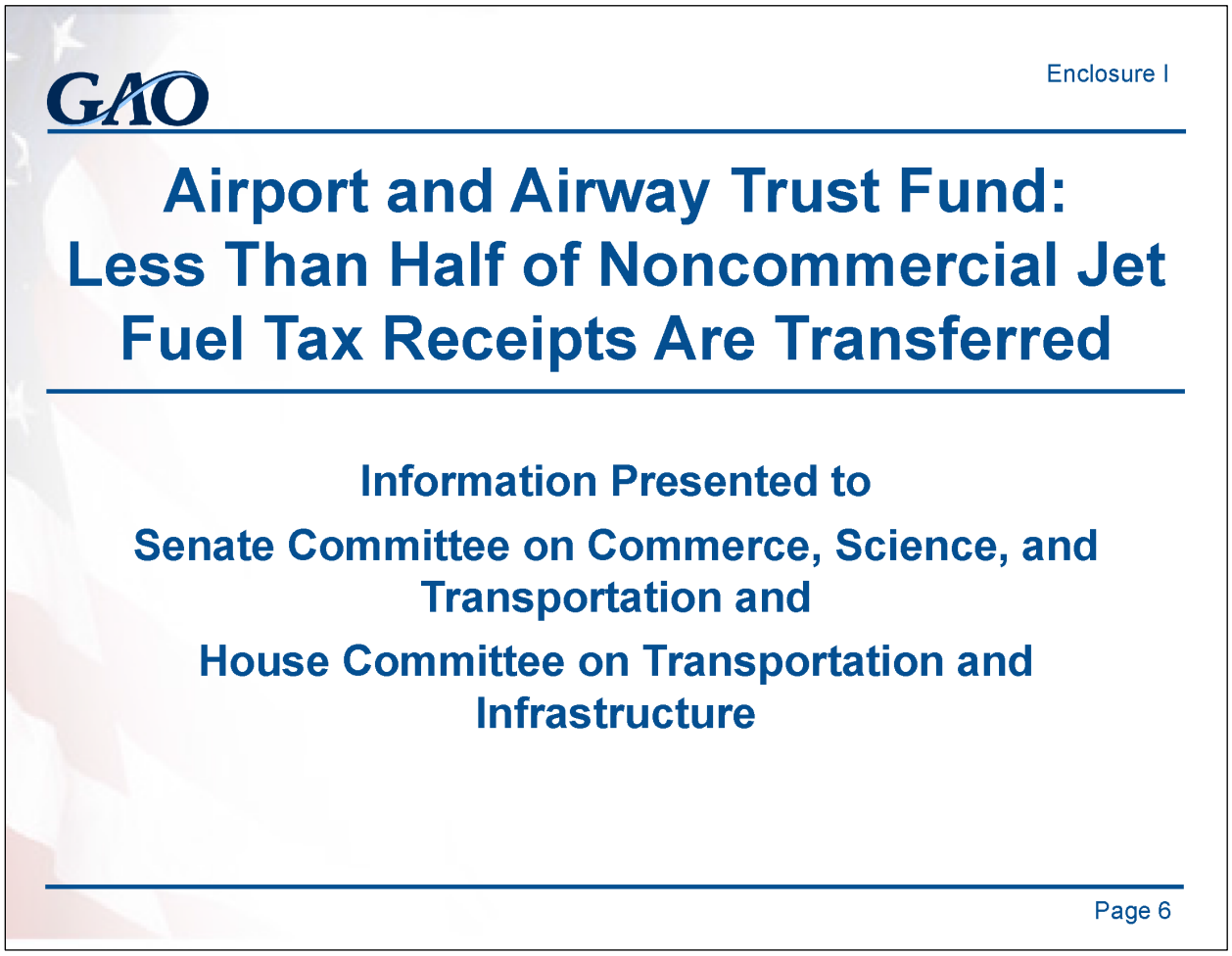
Should you or your staff have questions concerning this report, please contact me at (202) 512-2834 or dillinghamg@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report were Paul Aussendorf, Assistant Director; Amy Abramowitz, Melissa Bodeau, Amy Bowser, Russ Burnett, David Hooper, Jessica Lucas Judy, Joshua Ormond, Alexandra Rouse, and Matt Voit.



Gerald L. Dillingham, Ph.D.
Director
Physical Infrastructure Issues

Enclosures – 2

Enclosure I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Enclosure I
Airport and Airway Trust Fund: Less Than Half of Noncommercial Jet Fuel Tax Receipts Are Transferred
Information Presented to
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Introduction: Jet Fuel Fraud and Diversion Questions

- In the early 2000s, federal officials reported that the $0.025 per gallon difference between the federal excise tax for diesel fuel ($0.244 per gallon) and for jet fuel used in noncommercial aviation[1] ($0.219 per gallon), combined with the substitutability of the two fuels, could be encouraging diversion of jet fuel from aviation to truck usage.
  - Federal officials cited a 2001 KPMG Consulting, Inc. (KPMG) study that reported that more gallons of jet fuel were being produced than consumed by the aviation industry. KPMG estimated that over a ten-year period, this gap would result in approximately 39 billion gallons of jet fuel diverted to nonaviation use and approximately $8.3 billion in revenue loss for highway projects if truck operators were purchasing fuel that had been taxed at the noncommercial jet fuel tax rate.
  - In 2002 and 2003, Internal Revenue Service (IRS) officials testified that they were addressing areas of excise tax non-compliance, including the diversion of jet fuel to motor vehicles to illegally evade diesel fuel taxes.
  - In 2002, Federal Highway Administration (FHWA) officials testified that the potential for jet fuel diversion into the highway system results in financial losses to the Highway Trust Fund (HTF).

[1]The IRS defines noncommercial aviation as any use of aircraft other than in a business of transporting persons or property for compensation or hire by air. It also includes any use of an aircraft for a business use that is properly allocable to any transportation exempt from taxes. 26 C.F.R. § 48.4041-8(j). For the purposes of this report, noncommercial aviation refers to taxable noncommercial aviation activities.

Introduction: Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) Jet Fuel Tax Changes

To address fuel diversion concerns, beginning in fiscal year 2006, Congress:

1) Equalized tax rates for jet fuel and diesel fuel purchased at the terminal rack[2] at $0.244 per gallon, and
2) Directed that initial tax receipts for sales of jet fuel taxed at $0.244 per gallon be deposited into the HTF.[3]

In addition, Congress established a process that maintained the pre-2006 effective tax rate of $0.219 per gallon on noncommercial jet fuel, whereby companies selling this fuel could:

1) Register with the IRS as "ultimate vendors" of jet fuel, and
2) Claim a $0.025 per gallon credit or refund for each sale of jet fuel used in noncommercial aviation.[4]

[2]The terminal rack refers to the mechanism used to dispense fuel products from the terminal into tank trucks or rail cars.
[3]Pub.L.No. 109-59 § 11161(c). Tax receipts from jet fuel put directly into the fuel tank of a noncommercial aircraft are deposited directly into the Airport and Airway Trust Fund.
[4]Pub.L.No. 109-59 § 11161(c). SAFETEA-LU also provides for a tax rate of $0.219 per gallon for jet fuel removed from an airport terminal into any aircraft. 26 USC 4081(a)(2)(C). Special rules and rates also apply for removals of jet fuel at secure airport terminals for commercial use and foreign trade.

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Introduction: Tax Change Implications

- Once a credit or refund is provided to the ultimate vendor, the Treasury Department (Treasury) is required to transfer the remainder of the tax receipts from the sale from the HTF to the Airport and Airway Trust Fund (AATF).
- In cases where the vendor does not apply for a credit or refund or no credit or refund is provided to a vendor for the sale of jet fuel used in noncommercial aviation, the jet fuel tax receipts from the sale are not transferred from the HTF to the AATF.
- The Federal Aviation Administration (FAA) and aviation industry stakeholders have raised questions as to whether the AATF is receiving all taxes paid by noncommercial aviation users.

Mandate

The Fixing America's Surface Transportation (FAST) Act included a provision for us, within 180 days of enactment, to conduct a study of jet fuel used in noncommercial aviation and include estimates of:

- The number of vendors of jet fuel used in noncommercial aviation that are registered as an ultimate vendor;
- The number of vendors of jet fuel used in noncommercial aviation;
- The total amount of refund payments paid to registered ultimate vendors of jet fuel used in noncommercial aviation;
- The total amount of refund payments that would be made if all noncommercial aviation fuel vendors were registered as ultimate vendors and filed for refunds for all fuel sold to noncommercial buyers and the difference between this amount and the amount of refunds paid; and
- The number of diesel truck operators fraudulently using jet fuel taxed for use in aviation.[5]

[5]*See* Pub. L. No. 114-94, §42001, 129 Stat. 1312, 1762 (2015)

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Research Questions

This briefing provides information on the following questions:

1) What is known about ultimate vendors of jet fuel used in noncommercial aviation?

2) What is known about the extent to which the Airport and Airway Trust Fund has been credited for sales of jet fuel used for noncommercial aviation?

3) What is known about the extent to which jet fuel has been diverted for nonaviation purposes?

Scope and Methodology

- To determine what is known about ultimate vendors, we analyzed IRS data on ultimate vendors, refunds and credits from fiscal years 2006–2015 and analyzed data on jet fuel vendors from the Aircraft Owners and Pilots Association (AOPA) for 2015. We also interviewed 17 industry stakeholders, including national aviation organizations and a non-generalizable sample of 4 vendors of jet fuel used in noncommercial aviation. The jet fuel vendors were selected based on size, whether the vendor was registered as an ultimate vendor of jet fuel, and whether they had applied for a refund on the sale on noncommercial jet fuel in the last 2 years. These interviews provided a sampling of views on topics related to our review and are not generalizable to all jet fuel vendors.

- To determine what is known about the extent to which the AATF has been credited for sales of jet fuel used in noncommercial aviation, we analyzed IRS data on transportation trust fund transfers from fiscal years 2000–2015; the most recent IRS data on fuel taxes from fiscal years 2006–2015; and FAA data on aviation fuel consumption from fiscal years 2006–2015.

Scope and Methodology (continued)

- To determine what is known about jet fuel used for nonaviation purposes, we reviewed relevant federal statutes and regulations, analyzed the most recent ARGUS International, Inc.[6] data on jet fuel prices and Energy Information Administration (EIA) data on diesel fuel prices from 2002–2015, and interviewed FAA, FHWA, and IRS officials and industry stakeholders.

- To assess the reliability of the data used for these research questions, we reviewed prior GAO reports, IRS, FAA and EIA documents, and interviewed officials from these agencies, as well as staff from AOPA and ARGUS International, Inc. We determined that the data were sufficiently reliable for the purposes of our research questions.

[6]ARGUS International, Inc. is an aviation services company that provides data and research services.

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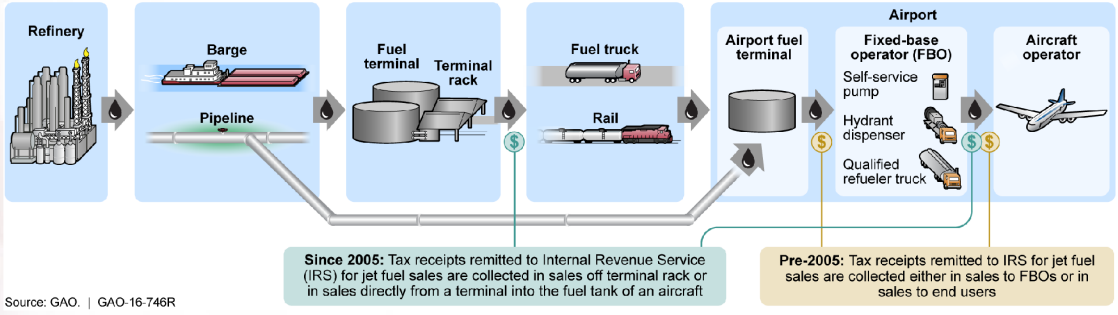
Background: Distribution of Jet Fuel

- Jet fuel is generally distributed to aircraft via fuel terminals located at airports by way of:
  - Pipeline, either from the refinery or from another fuel terminal, or
  - Ground transport, such as fuel truck or rail, where fuel is generally distributed from a terminal rack.
- Fixed-base operators (FBOs) often operate fuel terminals located at airports. FBOs are commercial businesses that operate at airports and provide aviation services to multiple types of customers, such as commercial and noncommercial aviation customers.

Background: Noncommercial Jet Fuel Taxation

- Prior to fiscal year 2005, the tax on jet fuel was applied at the point of sale either (1) to the FBO or (2) to the aircraft operator. Since fiscal year 2005, as part of efforts to combat jet fuel diversion, the jet fuel tax is applied when jet fuel is either (1) removed from the terminal rack or (2) removed directly from a terminal into the fuel tank of an aircraft.[7]

Figure 1: Noncommercial Jet Fuel Distribution Process and Point of Taxation



Source: GAO. | GAO-16-746R

[7]See Pub.L.No. 108-357.

Background: Ultimate Vendors of Jet Fuel

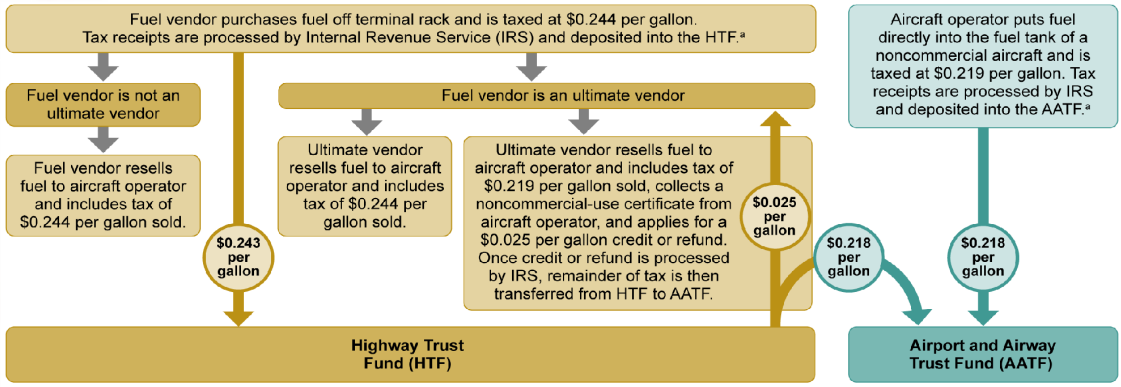
- As previously discussed, beginning in fiscal year 2006, Congress established a process for jet fuel vendors to obtain credits and refunds for jet fuel used in noncommercial aviation.[8]
- For jet fuel initially taxed at the rate of $0.244 per gallon, to become eligible to claim credits or refunds for jet fuel used in noncommercial aviation, companies need to
  1) be registered as an ultimate vendor of jet fuel with the IRS;
  2) not include the $0.025 per gallon claim amount in the sale price of jet fuel to an aircraft operator; and
  3) collect a signed certificate from the aircraft operator stating that the fuel is for noncommercial use.
- Ultimate vendors may include FBOs, refineries, and wholesalers.
- Not all ultimate vendors sell jet fuel used in noncommercial aviation.
  - For example, IRS also permits companies to register as ultimate vendors of jet fuel to claim refunds for jet fuel used in commercial or nontaxable aviation.

[8]Pub.L.No. 109-59 § 11161, 119 Stat. 114, 1969 (2005).

Background: Noncommercial Jet Fuel Tax Receipt Trust Fund Deposits and Transfers

- Biweekly, Treasury allocates excise tax receipts to the Airport and Airway Trust Fund (AATF) for noncommercial jet fuel usage based on estimates of tax liability, taking into account the expected credit and refund claims that will ultimately transfer money out of the Highway Trust Fund (HTF) and into the AATF. Then, on a quarterly basis, Treasury makes adjustments to the estimates based on actual tax liability and credit and refunds claims certified by IRS. Depending on the accuracy of the initial estimates, the actual transfers from the HTF to the AATF could be either positive or negative.

Figure 2: Process of Depositing and Transferring Noncommercial Jet Fuel Tax Receipts into Transportation Trust Funds



Source: GAO analysis of Internal Revenue Service data. | GAO-16-746R

aFor each gallon of jet fuel sold for domestic use, $.001 is transferred to the Leaking Underground Storage Tank Fund.

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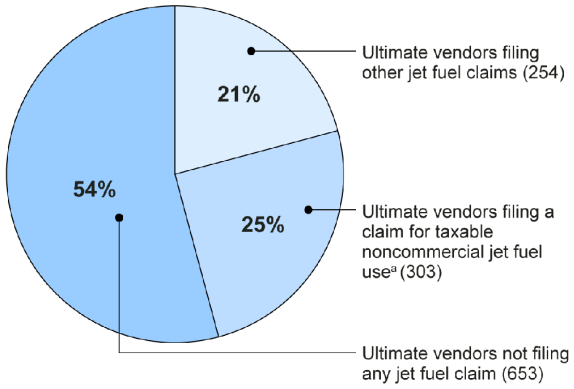
Objective 1 Summary: Ultimate Vendors of Jet Fuel Used in Noncommercial Aviation

- In fiscal year 2015, only a quarter of registered ultimate vendors filed a credit or refund claim for jet fuel used in noncommercial aviation.
- Following the new requirements imposed in 2006, ultimate vendor registrations increased. In addition, credits, and refunds provided to ultimate vendors of noncommercial jet fuel increased.
- The number of ultimate vendors of jet fuel used in noncommercial aviation is unclear, making the number of potential registrants unclear.
- IRS has issued approximately $97 million in noncommercial jet fuel refunds and credits since 2006, according to our analysis of IRS data.
- FBOs and other stakeholders identified challenges with the refund and registration process.

Objective 1: Claim Activity by Ultimate Vendors of Jet Fuel

- In fiscal year 2015, only a quarter of registered ultimate vendors filed a credit or refund claim for jet fuel used in noncommercial aviation.

Figure 3: Number and Percentage of Registered Ultimate Vendors of Jet Fuel Used in Aviation Filing Various Jet Fuel Tax Claims, Fiscal Year 2015

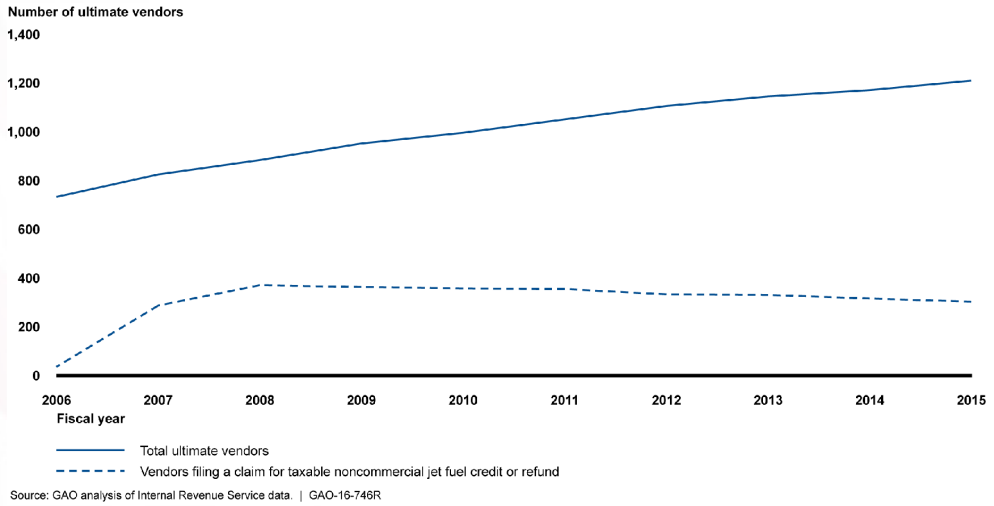


Source: GAO analysis of Internal Revenue Service data. | GAO-16-748R

[a]Includes ultimate vendors that also filed credit or refund claims for jet fuel used in commercial or nontaxable aviation activities in addition to filing a claim for a credit or refund for jet fuel used in noncommercial aviation.

Objective 1: Registrations of Ultimate Vendors and Claims for Credits or Refunds for the Sale of Noncommercial Jet Fuel

Figure 4: Ultimate Vendors Filing Claims for Credits and Refunds for Sale of Jet Fuel Used in Taxable Noncommercial Aviation and Total Ultimate Vendors, Fiscal Years 2006–2015



Source: GAO analysis of Internal Revenue Service data. | GAO-16-746R

Note: Prior to fiscal year 2006, ultimate vendors could claim refunds or credits for jet fuel used in commercial or nontaxable aviation activities, but not noncommercial activities.

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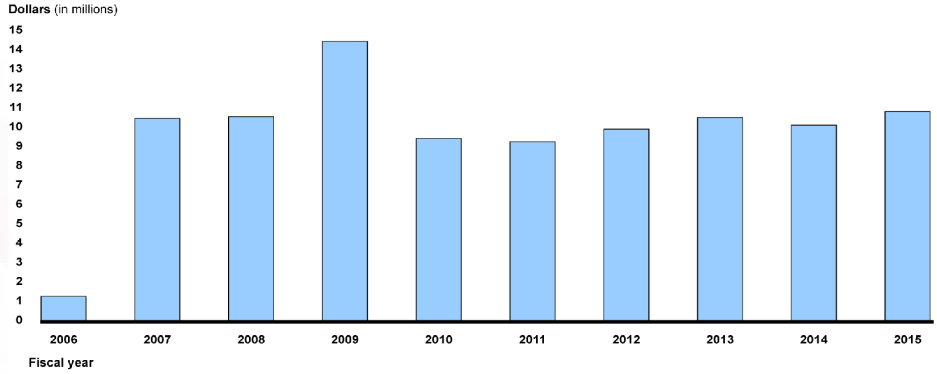
Objective 1: Potential Number of Ultimate Vendors is Unclear

- We identified 2,440 FBOs that provide jet fuel at airports in the United States, but could not determine how many of these vendors sell jet fuel to noncommercial operators.
- Neither the Department of Transportation (DOT) nor IRS track the number of noncommercial jet fuel vendors.
- We did not request access to tax information for this review and therefore could not get IRS data on the identity of each registered ultimate vendor. IRS provided us with aggregate information on registered ultimate vendors and the type of claims filed, so we were unable to determine how many of these 2,440 FBOs were registered with the IRS as an ultimate vendor.

Objective 1: IRS Credits and Refunds on Sales of Noncommercial Jet Fuel

- IRS has issued approximately $97 million in noncommercial jet fuel credits and refunds since 2006, according to our analysis of IRS data.
- The average refund or credit for the sale of jet fuel used in noncommercial aviation for ultimate vendors filling such a claim in fiscal year 2015 was approximately $36,000.

Figure 5: Internal Revenue Service Credits and Refunds on Sales of Taxable Noncommercial Jet Fuel, Fiscal Years 2006–2015



Source: GAO analysis of Internal Revenue Service data. | GAO-16-746R

Objective 1: Views on Ultimate Vendor Registration and Refund Process

FBOs and other stakeholders we spoke to provided varying views on the registration and refund process, including:

- Ultimate vendor registration is challenging.
  - IRS notes that registering to become an ultimate vendor may take, on average, 13.5 hours; credit and refund claims may take, on average, up to 2 hours to prepare and submit and include between 15 to 54 hours of recordkeeping activities, depending on individual returns.
- Refund payments occur months after the sale.
  - IRS officials stated that refund payments are processed by the end of the quarter after the sale was reported to the IRS.
- The small refund amount ($0.025 per gallon) may limit the incentive to file a claim for some vendors.
- Noncommercial aircraft operators can't apply for a refund.
- Documentation that certifies the fuel is used in noncommercial aviation may be difficult to obtain from an aircraft operator or for any self-fueling sales.

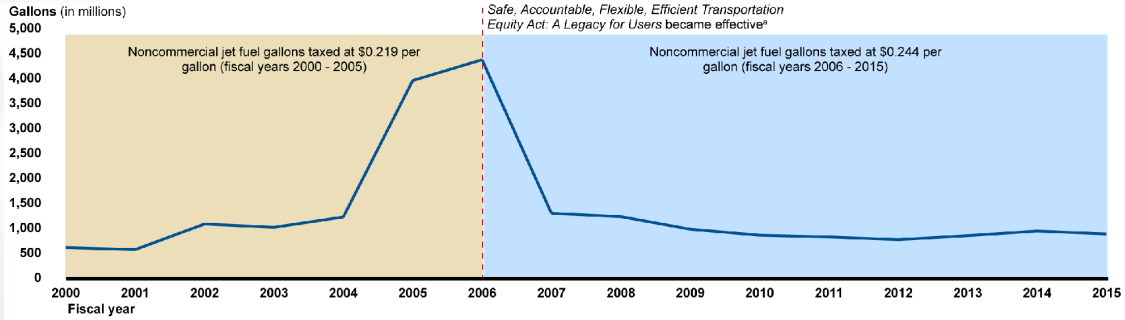
Objective 2 Summary: Noncommercial Jet Fuel Sales Credited to the AATF

- Noncommercial jet fuel consumption has been relatively constant from fiscal years 2000 through 2015; however, the number of jet fuel gallons taxed at the effective rate of $0.219 per gallon (noncommercial rate) decreased significantly in the years following the SAFETEA-LU tax changes in 2006.
- Using FAA and IRS data, we estimate that, since fiscal year 2006, about $850 million in noncommercial jet fuel tax receipts were transferred into the AATF from the HTF, compared with an estimated $1.9 billion to $2.9 billion in taxes paid on that fuel over the same time.
- Using FAA and IRS data, we estimate that, since fiscal year 2006, $120 million to $230 million in potential credits or refunds available for the sale of noncommercial jet fuel have been unclaimed by jet fuel vendors.
- Using FAA and IRS data, we estimate that, since fiscal year 2006, $1 billion to $2 billion in tax receipts have not been transferred into the AATF from the HTF for sales of noncommercial jet fuel.

Objective 2: Estimate of Noncommercial Jet Fuel Consumption

- Our analysis suggests that noncommercial jet fuel consumption has been relatively constant from fiscal year 2000 through fiscal year 2015, excluding fiscal year 2006, the year SAFETEA-LU tax changes became effective. IRS officials attributed the increases in 2005 and 2006 to legislative changes and potential delayed claims for credits and refunds.

Figure 6: Estimate of Noncommercial Jet Fuel Gallons Sold, Fiscal Years 2000–2015



Source: GAO analysis of Internal Revenue Service data. | GAO-16-746R

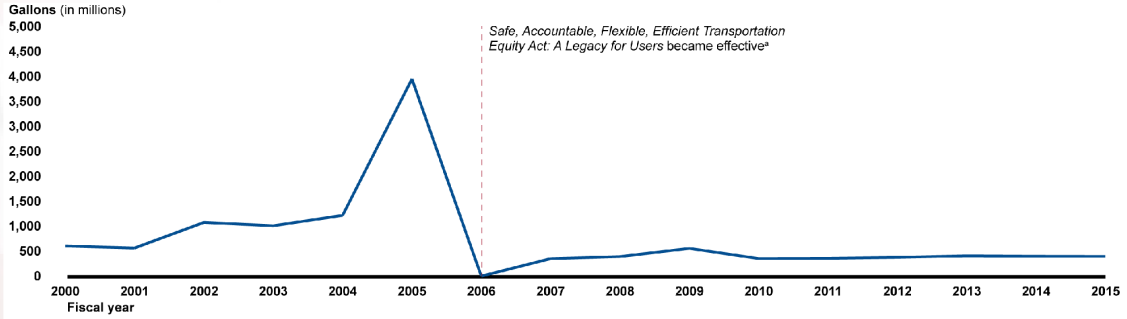
Note: This analysis assumes that from fiscal years 2000–2005, certain credits and refunds claimed for sales of jet fuel (IRS No. 69) were attributable to taxable commercial aviation activities. This estimate assumes that the following amounts from fiscal years 2006 - 2015 are all minimal and therefore have little effect on the analysis: the number of noncommercial gallons of jet fuel initially taxed at $0.219 per gallon; the number of gallons of both kerosene and jet fuel taxed at $0.244 per gallon for nontaxable or commercial purposes and left unclaimed for credits or refunds; and the number of gallons of kerosene used for taxable purposes and taxed at $0.244 per gallon.

[a]Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) required that fuel sold for noncommercial use off the terminal rack would be taxed at $0.244 per gallon and eligible vendors could apply for a $0.025 per gallon credit or refund. SAFETEA-LU also provides for a tax rate of $0.219 per gallon for jet fuel removed from an airport terminal into any aircraft. Special rules and rates also apply for removals of jet fuel at secure airport terminals for commercial use and foreign trade.

Objective 2: Jet Fuel Sales of Gallons Effectively Taxed at Noncommercial Rate, Fiscal Years 2000–2015

- The average number of jet fuel gallons taxed at an effective rate of $0.219 per gallon (noncommercial rate) from fiscal years 2006–2015 was approximately three-quarters less than the average number of jet fuel gallons taxed at that rate during the six years prior to SAFETEA-LU.

Figure 7: Estimated Jet Fuel Sales of Gallons Taxed at Effective Rate of $0.219 per Gallon, Fiscal Years 2000–2015



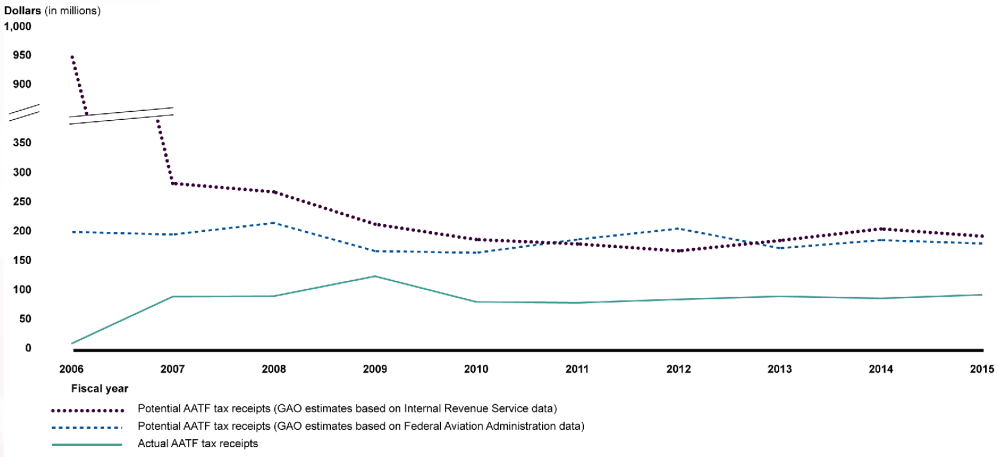
Source: GAO analysis of Internal Revenue Service data. | GAO-16-746R

Note: Excluding data from fiscal years 2005 and 2006, the average number of jet fuel gallons taxed at an effective rate of $0.219 per gallon (noncommercial rate) after SAFETEA-LU was approximately fifty percent less than the average number of jet fuel gallons taxed at that rate prior to SAFETEA-LU. This analysis assumes that from fiscal years 2000–2005 certain credits and refunds claimed for sales of jet fuel (IRS No. 69) were attributable to taxable commercial aviation activities. This analysis also assumes that from fiscal years 2006–2015, the number of gallons of both kerosene and jet fuel sold for nontaxable or commercial purposes and taxed at $0.219 per gallon and left unclaimed for credits or refunds are minimal, and thus have little effect on the analysis.

[a]Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) required that fuel sold for noncommercial use off the terminal rack would be taxed at $0.244 per gallon and eligible vendors could apply for a $0.025 per gallon credit or refund. SAFETEA-LU also provides for a tax rate of $0.219 per gallon for jet fuel removed from an airport terminal into any aircraft. Special rules and rates also apply for removals of jet fuel at secure airport terminals for commercial use and foreign trade.

Objective 2: Actual and Estimated Potential Tax Receipts for Noncommercial Jet Fuel Deposited in the AATF

Figure 8: Actual and Estimated Potential Tax Receipts for Taxable Noncommercial Jet Fuel Sales Deposited into the Highway Trust Fund and Transferred to the Airport and Airway Trust Fund (AATF), Fiscal Years 2006–2015



Source: GAO analysis of Internal Revenue Service data. | GAO-16-746R

Note: This estimate assumes that the following amounts are all minimal and therefore have little effect on the analysis: the number of noncommercial gallons of jet fuel initially taxed at $0.219 per gallon; the number of gallons of both kerosene and jet fuel taxed at $0.244 per gallon for nontaxable or commercial purposes and left unclaimed for credits or refunds; and the number of gallons of kerosene used for taxable purposes and taxed at $0.244 per gallon. In addition, the data from the Federal Aviation Administration's General Aviation survey presented here reflects only taxable noncommercial activities.

Objective 2: Actual and Estimated Potential Tax Receipts, and Credits and Refunds for Noncommercial Jet Fuel

Table 1: Difference Between Actual and Estimated Potential Tax Receipts Transferred into the Airport and Airway Trust Fund from the Highway Trust Fund, and Credits and Refunds Claimed for Taxable Noncommercial Jet Fuel Sales, Fiscal Years 2006–2015

	Fiscal Years 2006–2015		Fiscal Year 2015	
	Analysis of FAA Data	Analysis of IRS Data	Analysis of FAA Data	Analysis of IRS Data
Estimated Potential Noncommercial Jet Fuel Tax Receipts	$1.9 billion	$2.9 billion	$182 million	$195 million
Actual Noncommercial Jet Fuel Tax Receipts Transferred into the Airport and Airway Trust Fund from the Highway Trust Fund	$850 million	$850 million	$95 million	$95 million
Estimated Percentage of Noncommercial Tax Receipts Transferred into Airport and Airway Trust Fund from the Highway Trust Fund	45 percent	30 percent	52 percent	49 percent
Estimated Noncommercial Jet Fuel Tax Receipts Not Transferred into the Airport and Airway Trust Fund from the Highway Trust Fund	$1 billion	$2 billion	$87 million	$100 million
Estimated Amount of Unclaimed Credits and Refunds for Jet Fuel Used in Taxable Noncommercial Aviation	$120 million	$230 million	$10 million	$11 million

Source: GAO analysis of Internal Revenue Service (IRS) and Federal Aviation Administration (FAA) data. | GAO-16-746R

Note: This estimate assumes that the following amounts are all minimal and therefore have little effect on the analysis: the number of noncommercial gallons of jet fuel initially taxed at $0.219 per gallon; the number of gallons of both kerosene and jet fuel taxed at $0.244 per gallon for nontaxable or commercial purposes and left unclaimed for credits or refunds; and the number of gallons of kerosene used for taxable purposes and taxed at $0.244 per gallon. In addition, the data from the FAA General Aviation survey data presented here reflect only taxable noncommercial activities. Differences in the estimated amount of tax receipts and refunds between the analysis of FAA and IRS data are primarily due to differences in the estimated consumption of jet fuel used in taxable noncommercial aviation in fiscal year 2006.

Objective 3 Summary: Jet Fuel Diverted for Nonaviation Purposes

- Stakeholders reported that jet fuel diversion for nonaviation purposes is possible but evidence of it occurring is rare.
- Economic incentives for jet fuel diversion are limited, while disincentives, such as tax penalties, are higher.
- Engine technology improvements and fuel composition changes since 2007 limit incentives for jet fuel diversion.

Objective 3: Jet Fuel Diversion for Nonaviation Purposes

- IRS officials stated that they confirmed that one taxpayer was charged with civil fraud related to the sale of jet fuel used in commercial aviation in the late 1980s.
  - IRS officials stated that some instances of jet fuel diversion and fraud occurred prior to the passage of the SAFETEA-LU provisions and virtually ceased following the passage of the law. However, IRS officials noted that they are not required to retain records for longer than seven years, and as a result, could not provide documentation of such occurrences prior to the passage of SAFETEA-LU.

- DOT officials and industry stakeholders we spoke to stated that instances of jet fuel diverted or used for nonaviation purposes are rare.
  - DOT officials stated they were not aware of any jet fuel diversion taking place while a majority of the industry stakeholders we spoke to stated that jet fuel diversion was nonexistent.
  - A few industry stakeholders told us that jet fuel may have been blended with diesel fuel to lower the freezing point of diesel fuel during the winter months.
  - A few industry stakeholders stated that jet fuel may be used as fuel in off-highway vehicles that operate only on the airport property.

Objective 3: Economic Incentives for Jet Fuel Diversion

- On average, between 2002 and 2015, the average retail price of jet fuel was $2.00 per gallon (75 percent) higher than the retail price of highway diesel.
  - This analysis was based on a survey of retail prices for jet fuel reported by FBOs to ARGUS International, Inc. and published in *Business and Commercial Aviation* over that time and retail prices for diesel fuel collected by the Energy Information Administration (EIA).
- The average refinery price of diesel and jet fuel has been roughly comparable since 2002, according to the EIA.
- In addition, efforts to avoid paying the federal excise tax on motor fuel or jet fuel can result in financial penalties or jail.[9]

[9]26 U.S.C. § 7201

Objective 3: Differences in Engine Technology and Fuel Composition

- Beginning with model year 2007 vehicles, the Environmental Protection Agency (EPA) adopted new emission standards for diesel engines.[10] These standards were based on the adoption of high-efficiency emission-reducing technologies that require diesel fuel with reduced sulfur content.
- As a result, EPA introduced requirements for the use of ultra low sulfur diesel fuel that reduced the maximum amount of sulfur in diesel fuel from 500 to 15 parts per million.
  - In contrast, jet fuel may contain up to 200 times as much sulfur (3,000 parts per million).
- Use of higher sulfur jet fuel in newer diesel engines may damage these emission-reducing technologies and inhibit their ability to reduce emissions.

[10]*See* 66 Fed. Reg 5002 (Jan. 18, 2001).

Enclosure II: Objectives, Scope, and Methodology

The research questions of this report were to examine what is known about (1) ultimate vendors of jet fuel used in noncommercial aviation, (2) the extent to which the Airport and Airway Trust Fund has been credited for sales of jet fuel used for noncommercial aviation, and (3) the extent to which jet fuel has been diverted for nonaviation purposes.[1] In general, we reviewed relevant statutes, regulations and prior GAO and Inspector General reports, analyzed data and interviewed federal officials from the Department of Treasury, the Department of Transportation, and the Internal Revenue Service (IRS); and interviewed 17 industry stakeholders, including national aviation organizations, such as the National Air Transportation Association and the National Business Aviation Association, and jet fuel vendors.

Ultimate Vendors of Jet Fuel Used in Noncommercial Aviation

To determine what is known about ultimate vendors of jet fuel used in noncommercial aviation, we analyzed IRS data on ultimate vendors, and claims for credits and refunds from fiscal years 2006–2015. We analyzed IRS data from the Compliance Database Warehouse (CDW)[2] and Issue Based Management Information System (IBMIS)[3] on the number of registered ultimate vendors of jet fuel used in aviation filing various jet fuel tax claims, such as claims for credits and refunds for commercial, nontaxable, and noncommercial aviation activity. IRS uses data from the CDW to support research, analyses and tax studies and uses data from IBMIS to assist audit and examination activities. We also analyzed IRS data from the IBMIS on the total number of ultimate vendors registered with the IRS and the number of registered ultimate vendors that filed at least one claim for credits or refunds in noncommercial aviation in fiscal year 2015 to determine the percentage of ultimate vendors filing claims for jet fuel used in noncommercial aviation. To assess the overall quality of the data, we reviewed documentation associated with the CDW and IBMIS databases, and interviewed IRS officials about the completeness and accuracy of the data, the process of data entry and data extraction, and data analysis procedures. We found the data sufficiently reliable for our purposes. We did not seek individual vendor names because this is proprietary taxpayer information.

Additionally, we analyzed IRS certification data from the Airport and Airway Trust Fund certification letters on actual tax receipts credited to the Airport and Airway Trust Fund for sales of noncommercial jet fuel from fiscal years 2006–2015 to determine the number of gallons claimed for credits and refunds for jet fuel used in noncommercial aviation. To determine the amount in dollars of those credits and refunds, we multiplied the number of gallons by the claim rate of $0.025 per gallon. To assess the overall reliability of the data, we reviewed documentation associated with IRS certification data from Airport and Airway Trust Fund certification letters, and interviewed IRS officials about the completeness and accuracy of the

[1]The IRS defines noncommercial aviation as any use of aircraft other than in a business of transporting persons or property for compensation or hire by air. It also includes any use of an aircraft for a business use that is properly allocable to any transportation exempt from taxes. 26 C.F.R. § 48.4041-8(j). For the purposes of this report, noncommercial aviation refers to taxable noncommercial aviation activities, unless otherwise indicated.

[2]Data from the CDW came from the following IRS databases: Business Master File, Business Return Transaction File, and Individual Return Transaction File.

[3]Data from the IBMIS came from the IRS's Excise 637 database.

data, the process of data entry and data extraction, and data analysis procedures. We found the data sufficiently reliable for our purposes.

To assess the number of potential ultimate vendors of jet fuel used in noncommercial aviation, we analyzed Aircraft Owners and Pilots Association's (AOPA) data on the number of fixed-base operators (FBO) that provided jet fuel at airports in the United States for 2016. We could not determine how many of these vendors sell jet fuel to noncommercial operators, or if there are additional jet fuel vendors that sell jet fuel to noncommercial operators that were not part of AOPA's data. To assess the overall reliability of the data, we interviewed AOPA staff; we found the data sufficiently reliable for our purposes.

In addition, we reviewed applicable statutes and regulations regarding ultimate vendor and claim requirements, such as eligibility requirements, claim paperwork, and time estimates for recordkeeping and submitting IRS forms, and interviewed IRS officials to obtain information on the ultimate vendor registration and refund process. We also interviewed a non-generalizable sample of four vendors of jet fuel used in noncommercial aviation. To identify potential interview candidates for jet fuel vendors, we analyzed AOPA FBO data. We divided the data into two groups: companies that were identified as operating more than three FBOs and companies that were identified as operating three or less FBOs. We randomly selected 10 companies in each group, and contacted a representative from each company to screen candidates for our in-depth interviews. From this candidate data, we selected three FBOs to interview; FBOs were selected to reflect variation in (1) size, (2) whether vendors were registered as an ultimate vendor of jet fuel, and (3) whether they had applied for a credit or refund for the sale on noncommercial jet fuel in either 2014 or 2015. Because we were unable to identify an FBO from our candidate pool that was registered as an ultimate vendor and did not receive a credit or refund for sales of noncommercial jet fuel in the last 2 years, we contacted National Air Transportation Association to help us identify an additional FBO to fit our final criteria. These interviews provided a sampling of views on topics related to our review and are not generalizable to all jet fuel vendors.

Credits to the Airport and Airway Trust Fund for Sales of Noncommercial Jet Fuel

We analyzed IRS data on jet fuel gallons taxed and sold for noncommercial use from fiscal years 2000–2015 to understand how noncommercial jet fuel consumption and tax receipts had changed following the enactment of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (see table 2). We assumed that data on sales of jet fuel as reported to the IRS are an appropriate approximation of jet fuel consumption; however, we were unable to determine the extent to which instances of fraudulent diversion of jet fuel affected this approximation. We estimated jet fuel gallons consumed and taxed from fiscal years 2000–2005 and fiscal years 2006–2015 using different data sources, as a result of changes in how data on noncommercial jet fuel sales, credits, and refunds were reported beginning in fiscal year 2006 as part of IRS's implementation of the tax changes in SAFETEA-LU. For the fiscal year 2000–2005 period, we used data from the IRS Airport and Airway Trust Fund certification letters, which detail the amount of jet fuel tax receipts collected by IRS and deposited into the Airport and Airway Trust Fund and which IRS officials consider the official record of jet fuel tax receipts.[4] Prior to the implementation of SAFETEA-LU in fiscal year 2006,

[4]Since 1998, our prior reports have reviewed the process IRS uses to develop the data for the Airport and Airway Trust Fund certification letters. We are required annually to assist the Department of Transportation's Office of Inspector General in ascertaining whether the net excise tax revenue distributed to the Airport and Airway Trust Fund and the Highway Trust Fund is supported by the underlying records. See, for example, GAO, *Independent Auditor's Report on Applying Agreed-Upon Procedures: Fiscal Year 2015 Excise Tax Distributions to the Airport and Airway Trust Fund and the Highway Trust,* GAO-16-109R (Washington, D.C.: Nov. 5, 2015).

all noncommercial jet fuel tax receipts collected by the IRS were deposited into the Airport and Airway Trust Fund. Beginning in fiscal year 2006, when certain sales of jet fuel used in noncommercial aviation were deposited initially in the Highway Trust Fund as part of implementation of the SAFETEA-LU changes, the Airport and Airway Trust Fund certification letters began to not reflect all noncommercial jet fuel sales. Accordingly, for this period, we used IRS data from the CDW, which contains data from fiscal year 2006–2015 on noncommercial jet fuel sales, credits, and refunds, to estimate noncommercial jet fuel gallons consumed and taxed.

Table 2. Internal Revenue Service's Excise Tax Numbers and Credit Reference Numbers (CRN) Used in Noncommercial Jet Fuel Tax Analyses

Data element	Explanation
No. 35	Sales of kerosene and jet fuel taxed at $0.244 per gallon
No. 69	Sales of jet fuel taxed at $0.219 per gallon
No. 95	Aggregated credits and refunds for sales of jet fuel for CRN 355, CRN 369, and CRN 377 from IRS Form 8849 and IRS Form 4136
CRN 346	Credits and refunds for sales of kerosene and jet fuel taxed at $0.244 per gallon and used for nontaxable purposes
CRN 347	Credits and refunds for sales of kerosene taxed at $0.244 per gallon and used in certain intercity and local buses
CRN 355	Credits and refunds for sales of jet fuel taxed at $0.219 and used in commercial aviation
CRN 369	Credits and refunds for sales of kerosene and jet fuel taxed at $0.219 per gallon and used for nontaxable purposes
CRN 377	Credits and refunds for sales of jet fuel taxed at $0.044 per gallon and used for nontaxable commercial purposes
CRN 414	Credits and refunds for sales of kerosene taxed at $0.244 per gallon and exported
CRN 417	Credits and refunds for sales of jet fuel taxed at $0.244 and used in commercial aviation
CRN 418	Credits and refunds for sales of jet fuel taxed at $0.244 per gallon and used in taxable noncommercial aviation

GAO analysis of Internal Revenue Service information. | GAO-16-746R

Specifically:

1. To estimate the consumption of jet fuel used in noncommercial aviation in fiscal years 2000–2005, we used data from the IRS Airport and Airway Trust Fund certification letters to the Department of Treasury to calculate the difference between the number of gallons of kerosene and jet fuel taxed at $0.219 per gallon reported to IRS (No. 69) and the number of gallons of kerosene and jet fuel taxed at that rate and subsequently claimed for credits and refunds for nontaxable or commercial purposes (No. 95). We obtained the amount of tax receipts for No. 69 and converted to gallons by dividing the dollar amount by the noncommercial tax receipt rate of $0.218 per gallon.[5] We obtained the amount of credits and refunds reported in IRS certification data for No. 95 and converted to gallons by dividing the dollar amount by the claim rate of $0.175 per gallon

[5]Pub.L.No. 109-59, § 11161(c) 119 Stat. 1144, 1969(2005). For each gallon of jet fuel sold for domestic use, $.001 is transferred to the Leaking Underground Storage Tank Fund. 26 U.S.C. § 4081(a)(2)(B).

for jet fuel used in taxable commercial activities.[6] We then subtracted the number of gallons claimed for credits and refunds from the number of gallons taxed and sold, to estimate the number of gallons of jet fuel consumed for noncommercial use in fiscal years 2000–2005.

2. To estimate the consumption of jet fuel used in noncommercial aviation for fiscal years 2006–2015, we analyzed IRS data from the CDW on gallons that were initially taxed at $0.244 (No. 35) and subtracted the number of gallons of kerosene and jet fuel initially taxed at that rate and subsequently claimed for credits and refunds for nontaxable or commercial purposes (CRNs 346, 347,414, and 417).[7]

3. To corroborate the estimate of the consumption of jet fuel used in noncommercial aviation for fiscal years 2006–2015, we also calculated the amount of tax receipts that could have been deposited into the Airport and Airway Trust Fund for sales of noncommercial jet fuel using Federal Aviation Administration's (FAA) data from the annual General Aviation and Part 135 Survey (GA Survey), and the FAA Aerospace Forecast, and IRS data from CDW. We obtained FAA data on the number of jet fuel gallons reported to have been consumed for noncommercial aviation from the GA Survey and the FAA Aerospace Forecast[8] and converted the data to fiscal year from calendar year by summing two figures: (1) 0.25 multiplied by the previous calendar year's consumption data and (2) 0.75 multiplied by the current calendar year's consumption data. We subtracted IRS data on the number of gallons of kerosene and jet fuel that were claimed for credits and refunds for nontaxable purposes from the FAA jet fuel consumption estimate (CRNs 346 and 369). We found that this estimation generally aligned with our estimate of the consumption of jet fuel used in noncommercial aviation for fiscal years 2006–2015 using IRS data from the CDW.

4. To estimate the number of gallons of jet fuel jet fuel used in noncommercial aviation taxed at the effective rate of $0.219 per gallon in fiscal years 2000–2005, we used the same approach as outlined in step 1. To estimate the number of such gallons of jet fuel for fiscal years 2006–2015, we estimated the amount of jet fuel taxed at the effective rate of $0.219 per gallon by analyzing IRS data from the CDW on gallons that were

[6]For 2000–2005 IRS No. 95 contains aggregated information on credits and refunds processed at three different claim rates: $0.219 per gallon for kerosene and jet fuel taxed at $0.219 per gallon and used in nontaxable aviation (CRN 369), $0.175 per gallon for jet fuel taxed at $0.219 per gallon and used in taxable commercial aviation activities (CRN 355), and $0.044 per gallon for jet fuel taxed at $0.044 per gallon and used in nontaxable commercial aviation activities (CRN 377). Within the data for IRS No. 95, we could not determine the proportion of credits and refunds that were issued across the three claim rates. Given that sales of jet fuel used in taxable commercial aviation activities comprise the largest portion of total jet fuel sales according to IRS data, we assumed that all of the credits and refunds in IRS No. 95 were attributable to taxable commercial aviation activities.

[7]We also analyzed data on gallons of jet fuel that were taxed at $0.219. However, from fiscal year 2006–2015, the number of gallons initially taxed at $0.219 and claimed for credits and refunds in nontaxable or commercial purposes exceeded the number of gallons initially taxed at $0.219. Therefore, we assume that the number of noncommercial gallons of jet fuel taxed at $0.219 per gallon is minimal.

[8]Data obtained from the GA Survey came from Tables 5.1 "General Aviation and Air Taxi Total Fuel Consumed and Average Fuel Consumption Rate by Aircraft Type", and data obtained from the FAA Aerospace Forecast came from Table 23 "Total Jet Fuel and Aviation Gasoline Fuel Consumption."

initially taxed at $0.244 and had $0.025 per gallon credits or refunds for noncommercial aviation use applied against them (CRN 418).[9]

5. To determine the amount of tax receipts that could potentially be deposited into the Airport and Airway Trust Fund for sales of jet fuel used in noncommercial aviation in fiscal years 2006–2015, we multiplied the estimates for noncommercial jet fuel consumption (steps 2 and 3) by the tax rate of $0.218 per gallon.[10] We compared the resulting amounts to the actual tax receipts that were credited to the Airport and Airway Trust Fund from the IRS Airport and Airway Trust Fund certification letters.

6. To estimate the potential amount of credits and refunds that could have been provided to jet fuel vendors for all sales of jet fuel used in noncommercial aviation and initially taxed at $0.244 per gallon, we multiplied the estimates for noncommercial jet fuel consumption (steps 2 and 3) by the claim rate of $0.025 per gallon.

7. To determine the amount of credits and refunds that were claimed by jet fuel vendors for sales of noncommercial jet fuel from 2006–2015, we divided the amount of tax receipts that were credited to the Airport and Airway Trust Fund from the IRS Airport and Airway Trust Fund certification letters for sales of jet fuel used in noncommercial aviation by the tax rate of $0.218 per gallon.[11] We multiplied the resulting gallons by the claim rate of $0.025 per gallon and compared the number to our estimates of the amount of credits and refunds that could have been provided for sales of jet fuel used in noncommercial aviation (from step 6).

Because much of IRS's data on noncommercial jet fuel taxation we obtained is collected and aggregated with tax data relating to jet fuel used for other aviation purposes (e.g., commercial or nontaxable uses) or combined with tax data on kerosene, we made the following assumptions as part of our analysis:

- The number of gallons of both kerosene and jet fuel taxed at $0.244 per gallon included in the data for No. 35, used for nontaxable or commercial purposes, and left unclaimed for credits or refunds is minimal. Compared to the value of a credit or refund for jet fuel used in noncommercial aviation (CRN 418), the dollar amount of the credits and refunds available for nontaxable (CRN 346) or commercial (CRN 417) uses is approximately 99 percent and 82 percent, respectively, of the amount of tax initially paid. As a result, a strong economic incentive exists for companies to make claims for sales of jet fuel taxed at $0.244 and used for nontaxable and commercial uses, and thus the number of these gallons that are unclaimed for credits or refunds is likely minimal.

- Similarly, the number of gallons of both kerosene and jet fuel taxed at $0.219 per gallon included in the data for No. 69 and left unclaimed for credits or refunds for either nontaxable or commercial uses is minimal. The dollar amount of the credits and refunds available for nontaxable (CRN 369) or commercial (CRN 355) uses is approximately 99

[9]As noted previously, we assumed that the number of noncommercial gallons of jet fuel taxed at $0.219 per gallon is minimal.

[10]As noted previously, for each gallon of jet fuel sold for domestic use, $.001 is transferred to the Leaking Underground Storage Tank Fund.

[11]As noted previously, for each gallon of jet fuel sold for domestic use, $.001 is transferred to the Leaking Underground Storage Tank Fund.

percent and 80 percent, respectively, of the amount of tax initially paid. As a result, a strong economic incentive exists for companies to make claims for sales of jet fuel taxed at $0.219 and used for nontaxable and commercial uses, and thus the number of these gallons that are unclaimed for credits or refunds is likely minimal.

- In addition, the number of gallons of kerosene used for taxable purposes and taxed at $0.244 per gallon included in the data for No. 35 is minimal and has a negligible effect on our analysis. According to Energy Information Administration (EIA) data from the Petroleum and Other Liquids database from 2000–2015, the percentage of kerosene-based products supplied in the United States (net of exports and imports) that are kerosene is approximately 1 percent, while the percentage of kerosene-based products that are jet fuel is approximately 99 percent.

To assess the overall reliability of IRS data for these specific analyses, we reviewed documentation associated with the IRS database, CDW, and the IRS Airport and Airway Trust Fund certification letters, and interviewed IRS officials about the completeness and accuracy of the data, the process of data entry and data extraction, and data analysis procedures. As part of our assessment of the reliability of the CDW data, we noted and IRS officials confirmed that there were some anomalies in the jet fuel tax data extracted from CDW for fiscal years 2006 and 2007. These anomalies resulted in data that suggested reduced noncommercial jet fuel credit and refund claims activity compared to other years in our analyses. Specifically, for the fiscal year 2006 data, IRS attributed these anomalies, which were also reflected in the Airport and Airway Trust Fund certification letters, to the transition resulting from implementing changes in SAFETEA-LU and delayed claims for credits and refunds. For fiscal years 2006 and 2007, IRS officials stated that the CDW data may not fully reflect all of the credits and refunds filed for sales of jet fuel because CDW contains only partial data on jet fuel tax credits and refunds for those 2 years. Given the anomalies in the CDW data in fiscal year 2006 and 2007, we corroborated estimates from 2006 through 2015 with an analysis of jet fuel consumption and taxation based on FAA's GA Survey and FAA's Aerospace Forecast data, as noted above, and found our estimates generally aligned. Our assessment of the reliability of these multiple data sources revealed limitations, which we note in this report. Recognizing these limitations, we determined that the data were sufficiently reliable for the specific purpose of estimating broad trends in noncommercial jet fuel consumption and taxation in fiscal years 2000–2015.

We also assessed the reliability of the data in the Airport and Airway Trust Fund certification letters. Based on interviews with IRS officials and our prior reports reviewing the certification of Airport and Airway Trust fund tax receipts, we determined that these data were sufficiently reliable for our purposes.

To assess the reliability of the EIA data, we reviewed documentation associated with EIA's Petroleum and Other Liquids database, and interviewed EIA officials about the quality of the data, the process of data entry and data extraction, and data analysis procedures. We found the data sufficiently reliable for our purposes. To assess the reliability of the FAA data, we reviewed documentation associated with the GA Survey and FAA's Aerospace Forecast and interviewed agency officials regarding the survey methodology. Agency officials identified changes in the GA Survey's methodology from 2005 through 2013 that limit the comparability of the data across years, including changes to the survey's design, sample size and composition, and the process for determining fuel consumption. Additionally, we previously reported that the GA Survey has

suffered from methodological and conceptual limitations.[12] Due to these limitations, the FAA data are used only to corroborate our other analysis and to develop a range of estimates, and we found the data to be sufficiently reliable for these purposes.

Jet Fuel Diversion

To determine what is known about jet fuel used for nonaviation purposes, we reviewed relevant federal statutes and regulations, including statutes outlining the financial and judicial penalties associated with avoiding paying federal excise taxes and Environmental Protection Agency regulations for emission standards for diesel engines, and sulfur requirements for diesel fuel and jet fuel. We also analyzed the most recent ARGUS International, Inc. (ARGUS) data on jet fuel prices and EIA data on diesel fuel prices from 2002–2015, and interviewed DOT and IRS officials and industry stakeholders.[13] To assess the reliability of ARGUS data, we interviewed ARGUS staff about the various data elements and data sources. We determined that the data were sufficiently reliable for our purposes. To assess the reliability of EIA data, we reviewed documentation associated with the collection of diesel price data from 2002–2015 and interviewed EIA officials about the completeness and accuracy of the data, various data elements, and data analysis procedures. We determined that the data were sufficiently reliable for our purposes.

We conducted this performance audit from January 2016 to August 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

(100562)

[12]Our prior work has highlighted limitations within the GA Survey data. See GAO, *General Aviation Safety: Additional FAA Efforts Could Help Identify and Mitigate Safety Risks*, GAO-13-36 (Washington, D.C.: Oct. 4, 2012).

[13]ARGUS International, Inc. is an aviation services company that provides data and research services. The data on retail price of jet fuel were based on a survey of retail prices across the United States; it was conducted by ARGUS and published in *Business and Commercial Aviation* magazine.