



U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF INSPECTOR GENERAL

# EPA Could Improve the SmartWay Transport Partnership Program by Implementing a Direct Data Verification Process

Report No. 12-P-0747

August 30, 2012



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## Abbreviations

CO2	Carbon Dioxide
DERA	Diesel Emission Reduction Act
EPA	U.S. Environmental Protection Agency
FY	Fiscal year
GAO	U.S. Government Accountability Office
GHG	Greenhouse gas
IFTA	International Fuel Tax Agreement
IRS	Internal Revenue Service
MIT	Massachusetts Institute of Technology
NHTSA	National Highway Traffic Safety Administration
NOx,	Nitrogen Oxides
OAR	Office of Air and Radiation
OIG	Office of Inspector General
OMB	Office of Management and Budget
OTAQ	Office of Transportation and Air Quality
PM	Particulate matter

**Cover photo:** A truck that is outfitted with fuel saving technologies as part of the SmartWay Technology Upgrade Project. (EPA photo)

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# At a Glance

## Why We Did This Review

We sought to determine how the U.S. Environmental Protection Agency (EPA) ensures the validity of the SmartWay Transport program results. EPA established the SmartWay Transport Partnership in 2004. It is a voluntary collaboration between EPA and the freight industry (carriers, shippers, logistics companies, etc.) to improve fuel efficiency and reduce environmental impacts from freight transport. Almost 2,900 SmartWay partners, employing about 650,000 trucks, have traveled nearly 43 billion miles on average each year, according to EPA. Since the program's inception, EPA estimates it has saved about 50 million barrels of oil (as of March 2011), resulting in reduced air pollution. Also, envisioned future carbon dioxide reductions from EPA's September 2011 standards for heavy-duty 2014–2018 model year vehicles will depend heavily on EPA's SmartWay technologies and strategies.

**This report addresses the following EPA Goal or Cross-Cutting Strategy:**

- *Taking action on climate change and improving air quality*

For further information, contact our Office of Congressional and Public Affairs at (202) 566-2391.

The full report is at:  
[www.epa.gov/oig/reports/2012/20120830-12-P-0747.pdf](http://www.epa.gov/oig/reports/2012/20120830-12-P-0747.pdf)

## ***EPA Could Improve the SmartWay Transport Partnership Program by Implementing a Direct Data Verification Process***

### What We Found

Recent studies corroborate EPA's claims that its SmartWay Transport Partnership program helps remove marketplace barriers in order to deploy fuel efficient technologies faster. To calculate SmartWay program emission reductions, EPA relies on self-reported industry data. EPA's Office of Transportation and Air Quality performs some checks of data provided by industry. However, there is no independent direct verification by EPA of data submitted by SmartWay participants. The risk of false claims was highlighted in 2011 when EPA became aware of a case where a company was alleged to have improperly used the SmartWay logo.

There is an incentive for carriers to obtain and maintain high scores. Carrier performance scores are listed on EPA's SmartWay website. The carriers that receive the highest scores are more likely to be selected by more shippers. As more and more shippers join SmartWay, the economic incentives for carriers to achieve higher scores on EPA's website may increase, which could also increase the potential that a carrier would submit data that overstates its scores.

In our view, the SmartWay Transport Partnership program may lose its value if EPA does not protect the integrity of its program by implementing some form of direct verification or other measures to deter companies from submitting data that result in overstated scores.

### Recommendations and Planned Agency Corrective Actions

We recommend that the Assistant Administrator for Air and Radiation develop and implement direct verification or other measures to verify the accuracy of a sample of the self-reported, industry data for the SmartWay Transport Partnership. EPA agreed with the OIG on the importance of ensuring the integrity of program results and proposed a five step process to better ensure the accuracy of partner data. EPA's planned actions are a step in the right direction. EPA should describe any additional planned corrective actions in its 90-day response to the final report.

### Noteworthy Achievements

Representatives from environmental, retail, and trucking associations consider EPA's SmartWay program an effective program for reducing fuel costs and the environmental impact of freight movement. Further, the number of partners in the SmartWay Transport Partnership has grown considerably since 2008.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

August 30, 2012

**MEMORANDUM**

**SUBJECT:** EPA Could Improve the SmartWay Transport Partnership Program by  
Implementing a Direct Data Verification Process  
Report No. 12-P-0747

**FROM:** Arthur A. Elkins, Jr.

A handwritten signature in black ink, appearing to read "Arthur A. Elkins, Jr.", is written over the printed name.

**TO:** Gina McCarthy  
Assistant Administrator for Air and Radiation

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

**Action Required**

In accordance with EPA Manual 2750, you are required to provide a written response to this report within 90 calendar days. The recommendation is listed as open with corrective actions pending. Your response should include a corrective action plan for agreed-upon actions, including actual or estimated milestone completion dates. Your response will be posted on the OIG's public website, along with our comments to your response. Your response should be provided in an Adobe PDF file that complies with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended. Please e-mail your response to Carolyn Copper at [copper.carolyn@epa.gov](mailto:copper.carolyn@epa.gov). We have no objections to the further release of this report to the public. We will post this report to our website at <http://www.epa.gov/oig>.

If you or your staff have any questions regarding this report, please contact Carolyn Copper, Assistant Inspector General for Program Evaluation, at (202) 566-0829 or [copper.carolyn@epa.gov](mailto:copper.carolyn@epa.gov); or Rick Beusse, Director for Air and Research Evaluations, at (919) 541-5747 or [beusse.rick@epa.gov](mailto:beusse.rick@epa.gov); or John Bishop, Project Manager, at (919) 541-1028 or [bishop.john@epa.gov](mailto:bishop.john@epa.gov).

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## Purpose

The purpose of our review was to determine how the U.S. Environmental Protection Agency (EPA) ensures the validity of the SmartWay Transport Partnership results.

## Background

The SmartWay Transport Partnership is one of a number of voluntary programs that EPA manages (e.g., the ENERGY STAR program, clean energy partnerships, and multiple non-carbon dioxide (CO<sub>2</sub>) greenhouse gases programs) that work to remove barriers in the marketplace in order to deploy cost-effective technologies faster. They work by overcoming widely acknowledged barriers to energy efficiency and deployment of greenhouse gas (GHG) reduction measures such as lack of clear, reliable information on technology opportunities; lack of awareness of energy efficient products, services, and transportation choices; and the lack of additional incentives for manufacturers to invest in efficiency research and development. Recent studies corroborate EPA's claims that its SmartWay Transport Partnership program helps remove marketplace barriers in order to deploy fuel efficient technologies faster (see appendix A).

EPA's SmartWay Transport Partnership program, begun in 2004, is a voluntary public/private collaboration between EPA and the freight industry to improve fuel efficiency and reduce environmental impacts from freight transport by accelerating the deployment of fuel saving, low emission technologies and promoting GHG reductions across the global supply chain. The carriers, shippers, logistics companies, and others who voluntarily participate are known as SmartWay partners.

According to EPA, almost 2,900 SmartWay partners, employing about 650,000 trucks, have traveled nearly 43 billion miles on average each year. EPA also stated in its fiscal year (FY) 2012 Congressional Justification for the Proposed Budget that SmartWay helps reduce emissions from the existing 2.2 million heavy-duty trucks currently in operation not covered by the Greenhouse Gas regulation<sup>1</sup> for medium-duty and heavy-duty vehicles. Appendix A provides additional information about the program.

### ***SmartWay Technologies and Strategies***

Carriers, shippers, logistics companies, and others use SmartWay technologies and strategies to help improve fuel efficiency and reduce environmental impacts from freight transport.

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<sup>1</sup> *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles*, Final Rules, Federal Register/Vol. 76/No. 179/ Thursday, September 15, 2011, page 57106, Environmental Protection Agency and Department of Transportation, National Highway Traffic Safety Administration [EPA-HQ-OAR-2010-0162; NHTSA-2010-0079].

- *SmartWay technologies* include low rolling resistance tires, low viscosity lubricants, idle reduction, automatic tire inflation systems, improved aerodynamics, hybrid powertrain technology, and longer combination vehicles.
- *SmartWay strategies* include weight reduction (reductions in empty truck weight), reducing highway speed, driver training, idle reduction, improved freight logistics (load matching, improved routing and scheduling, etc.), intermodal shipping, and maintaining proper tire inflation pressure.

In September 2011, EPA and the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) adopted complementary standards for heavy-duty vehicles under their respective authorities covering model years 2014–2018. EPA's and NHTSA's standards address CO2 emissions and fuel consumption, respectively. The envisioned CO2 reductions depend heavily on EPA's SmartWay technologies and strategies. The agencies noted that SmartWay trucks are already available today which incorporate the technologies on whose performance the final standards are based.

### ***EPA Resources Devoted to SmartWay***

EPA's SmartWay program received \$2.42 million in FY 2011, had 11 full-time equivalents<sup>2</sup>, and contracted for 10 Partner Account Managers. The Partner Account Managers are staffed through contracts with Senior Service America, Inc. EPA's FY 2012 budget for the SmartWay program totaled \$2.7 million.

EPA's SmartWay program also received \$16.9 million in Diesel Emission Reduction Act (DERA) funds for FY 2008 through FY 2010. The SmartWay program also received \$30 million in American Reinvestment and Recovery Act of 2009 funds. EPA awarded 12 grants to 9 grantees for SmartWay projects with these funds. The grants were for loan guarantees, loans, subsidies, and leases to retrofit, repower, or replace equipment to reduce emissions. The SmartWay program did not receive any DERA funds for FY 2011 and FY 2012, according to the Office of Transportation and Air Quality (OTAQ).

### ***SmartWay Partner Tools and Recognition System***

EPA has developed a number of software tools that are used by SmartWay partners to assess the efficiency of their operations. Data from these applications are reported to EPA annually and used to generate performance scores for each SmartWay partner based on emissions rates developed by EPA in the various sectors of the shipping industry. Truck carriers and shippers with high performance scores, are eligible to use the SmartWay logo. Shippers' scores are based on the amount of freight that is moved by high performing truck carriers. A

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<sup>2</sup>Full-time equivalents are calculated based on the number of full-time and part-time employees in an organization. Full-time equivalents represent these workers as a comparable number of full-time employees.

more detailed discussion of the tools used to generate performance scores for truck carriers and shippers, as well as information for two other EPA-developed SmartWay tools, is provided in appendix B.

## Noteworthy Achievements

According to EPA's March 2011 *SmartWay Program Highlights*, SmartWay's clean air achievements include emission reductions of 16.5 million metric tons of CO<sub>2</sub>, 235,000 tons of nitrogen oxides (NO<sub>x</sub>), and 9,000 tons of particulate matter (PM). Between 2004 and 2011, SmartWay partners saved 50 million barrels of oil, according to EPA's March 2011 *SmartWay Program Highlights*. These savings are equivalent to taking over 3 million cars off the road for an entire year. SmartWay has also helped U.S. businesses slash their fuel costs, saving \$6.1 billion dollars to date, according to EPA.

Representatives in the shipping industry are complimentary of EPA's SmartWay program. Representatives from environmental, retail, and trucking associations consider EPA's SmartWay program an effective program for reducing fuel costs and reducing the environmental impact of freight movement. According to a survey conducted by American Shipper,<sup>3</sup> SmartWay ranked first among all the choices of supply chain sustainability programs<sup>4</sup>. Further, the number of partners in the SmartWay Transport Partnership has grown considerably since 2008. EPA's website lists almost 2,900 partners. According to the Center Director for the SmartWay and Supply Chain Programs, there were approximately 500 partners in 2008.

## Scope and Methodology

We conducted this evaluation in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the evaluation to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based upon our objectives. We conducted our field work from May 2011 through June 2012.

We conducted a design evaluation of the SmartWay program to determine whether controls were in place to ensure the overall validity of claimed SmartWay Transport Partnership results. We examined OTAQ's SmartWay guidance, procedures, and the existing SmartWay Partner tools OTAQ developed to assess

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<sup>3</sup> Environmental Sustainability Benchmark Study: Leaders Prepare for the "Greening" Supply Chain, American Shipper, published February 2011.

<sup>4</sup> Nearly 200 shippers and third-party logistics providers answered some or all of the survey's 25 questions. According to the survey report, 36 percent of respondents to one particular question in the study identified SmartWay as a leading program, with "other" programs getting the second highest votes at 27 percent. Appendix A provides additional information related to studies that indicate SmartWay helps to overcome marketplace barriers.



the effectiveness of EPA's oversight and management of the SmartWay program. We reviewed peer review reports for the tools developed by OTAQ. We also reviewed the results of prior EPA Office of Inspector General (OIG) reports on other EPA voluntary programs and external reviews of the SmartWay program. We reviewed the contents of EPA's SmartWay Transport website for information related to claimed emissions reductions, policies, and procedures. We reviewed guidance and reports issued by government agencies (including the Office of Management and Budget (OMB) and the U.S. Government Accountability Office (GAO)) regarding the requirements and steps taken to ensure that accurate data is reported both to and by the government. We reviewed the 2010 Taxpayer Attitude Survey completed by the Internal Revenue Service (IRS) Oversight Board.

We interviewed EPA OTAQ SmartWay program managers and staff located in Washington, DC, and Ann Arbor, Michigan, for information regarding the goals of the program, policies and procedures for the program, and EPA's process for validation of self-reported industry data.

The SmartWay program tools and the logo recognition system for the SmartWay partners were being developed and revised during the time we conducted our evaluation. Thus, there was a lack of revised and newly developed data available for us to review.

### **Prior Audit Coverage**

In a 2010 EPA OIG summary report on another EPA voluntary program, the ENERGY STAR program,<sup>5</sup> the OIG concluded that the integrity of the ENERGY STAR label remains at risk because it does not necessarily identify and promote the most energy-efficient products. Further, the OIG found that:

- Products historically qualified for the ENERGY STAR label based on manufacturer self-certification, rather than EPA testing.
- EPA conducted only minimal verification testing and assumed that in a competitive market, manufacturers would test each other's products and report failures to EPA. However, the Agency could not provide any examples as evidence that self-policing occurred.
- EPA had not conducted any verification testing for the first 10 years of the program. When verification testing began, it accounted for only a small component of the program's activities and budget.
- EPA cannot be certain that its reported savings claims are valid or supportable, and that large amounts of GHG emissions are in fact being avoided.

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<sup>5</sup> EPA OIG Evaluation Report No. 11-P-0010, *ENERGY STAR Label Needs to Assure Superior Energy Conservation Performance, A Summary Report*, October 28, 2010.

The OIG has also issued eight other reports related to voluntary programs. These reports are listed in appendix C.

## Results of Review

In order to calculate SmartWay program emission reductions, EPA relies on self-reported industry data. OTAQ performs some checks of data provided by industry. EPA also has 10 Partner Account Managers under contract who review data provided by the partners, along with any explanations, and who can question data that appears incorrect. However, there is no direct verification by EPA of data submitted by SmartWay participants. We believe this lack of direct verification is a potential design weakness in the program, which affects the Agency's ability to ensure the overall validity of claimed SmartWay Transport Partnership results.

OMB Circular A-123 and the GAO Standards for Internal Control in the Federal Government were issued to implement the Federal Managers' Financial Integrity Act of 1982. OMB Circular A-123 (Attachment I: Introduction) calls for federal agencies to develop management controls that provide reasonable assurance that programs are achieving desired results. OMB Circular A-123 states that such controls are the tools to help program managers "achieve results and safeguard the integrity of their programs." For example, the IRS completed audits and examinations of a sample of tax returns to provide a deterrent, or disincentive, to taxpayers who otherwise might submit incorrect information to the IRS. In the 2010 Taxpayer Attitude Survey conducted by the IRS Oversight Board, 64 percent of the respondents reported that "fear of an audit" influenced whether they report and pay their taxes honestly. Further, 66 percent of the respondents reported that third-party reporting of data on income such as wages, dividends, and interest to the IRS influenced their decision on whether to honestly report and pay taxes.

According to OMB Circular A-11 (2011), Section 230:

Verification and validation of performance data support the general accuracy and reliability of performance information, reduce the risk of inaccurate performance data, and provide a sufficient level of confidence to Congress and the public that the information presented is credible.

GAO defines verification as a process of checking or testing performance information to assess other types of errors, such as errors in keying data. GAO defines validation as an effort to ensure that data are free of systematic error or bias and that what is intended to be measured is actually measured.

### ***Direct Verification of Reported Data Needed***

While EPA performs some quality assurance checks of industry supplied data, in our opinion, some kind of direct verification of data is needed. Since shippers' scores are dependent on selecting carriers that receive high scores, shippers may choose carriers with the highest scores. This will become more likely as more shippers seek to demonstrate to customers, clients, and investors that they are (1) taking responsibility for the emissions associated with goods movement, (2) committed to corporate social responsibility and sustainable business practices, and (3) reducing their carbon footprint. This may give carriers an economic incentive to submit data that maximizes their scores in order to be included higher up in the SmartWay listing of carriers, and thus be more likely to be selected by more shippers.

Although EPA does not directly verify any of the partner-provided data, OTAQ and the Partner Account Managers perform some quality assurance checks of data provided by industry. The Truck Tool, an EPA-developed computer model, has the capability to highlight data that are outliers from average industry data. EPA has incorporated acceptable ranges into the Truck Tool model for data that deviate from the industry averages. If the data are outside of the ranges, the tool notifies the user to recheck their input data. Additionally, if the user continues to enter data outside of the range, the user must provide an explanation for EPA's tool to accept the data. In order to use the Truck Tool, the carrier is supposed to identify the source of the data for the number of miles driven and the amount of fuel used. For example, carriers can select International Fuel Tax Agreement (IFTA) Form 441<sup>6</sup>, IRS records, company electronic records, or other records as the source of their data.

Also, OTAQ has 10 Partner Account Managers that review the data reports on an exception basis that SmartWay partners input into the system and follow up with questions for data that appear incorrect. According to OTAQ, reports are not approved if there are questionable data. OTAQ developed a consolidated report that allows Partner Account Managers to identify data that are outside normal ranges. The tools also allow the Partner Account Managers to generate year-to-year comparison reports to help them review completed Truck Tool reports received from participants. Standardized and customized reports can be generated from the database. There is no independent direct verification by EPA or an independent third party to ensure that this data is accurate. Further, OTAQ became aware of a case where a company was alleged to have improperly used the SmartWay logo. The OTAQ SmartWay team forwarded the case to EPA's Office of General Counsel in 2011. According to OTAQ, the company removed the trademark from its website as a result of EPA's action. At the time we were completing our field work, OTAQ had addressed approximately 35 alleged

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<sup>6</sup> IFTA simplifies reporting of fuel use taxes by commercial motor carriers. The agreement allows a trucker/company to obtain one fuel tax license, issued by their base jurisdiction, authorizing them to travel in all IFTA member jurisdictions. Tax reports containing detailed operations are submitted only to the base jurisdiction.

violations involving the SmartWay program. Almost all of these alleged violations were resolved without having to refer the cases to the Office of General Counsel.

## Other Matters

OTAQ's Program Manager stated that OTAQ targeted the large carriers for participation when they established the SmartWay program, and in the future, OTAQ will focus on increasing the participation of mid-sized and smaller carriers as the program grows. Based on a recent study (or "working paper") completed by researchers from Colorado State University and Miami University (Ohio)<sup>7</sup>, EPA could take actions to improve their outreach to the smaller carriers. For example, the working paper identified some barriers that the SmartWay Transport Partnership could address that could increase the participation rate of mid-sized and smaller carriers through increased education. Specifically, the working paper stated that shippers and carriers that were not SmartWay partners had varying reasons for not being or planning to be a partner. These reasons included:

1. The lack of resources or a lack of understanding
2. The lack of time to spend collecting data and completing paperwork for the tools
3. The perceived costs to invest in new technologies being too high
4. Not being sure what the value would be from the partnership
5. Some misconceptions where certain types of equipment or technology may not have been cost-beneficial

The working paper stated that the SmartWay Partnership could better inform the industry about its organization. The working paper also suggested that the SmartWay Partnership provide case studies to companies to educate them on the costs and benefits of becoming a SmartWay partner. For example, the working paper noted that there were some misperceptions about certain types of equipment or technology that might be mandated by SmartWay and might not be cost-beneficial. The working paper stated that some education on SmartWay's role might also help clear up this misunderstanding. Also, companies could be educated about innovative practices and technologies that can be implemented with little to no investment which can achieve a quick return.

## Conclusions

OTAQ performs some checks of data provided by industry. However, there is no direct verification by EPA of data submitted by SmartWay participants. We believe the SmartWay Transport Partnership program may lose its value if EPA does not protect its data integrity. We also recognize that the SmartWay program has limited

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<sup>7</sup> *Environmentally Sustainable Transportation: An Executive Summary of Research Findings*, October 18, 2011. This study is considered a working paper that will be finalized after peer review.

resources and that there may be other measures available to address our data integrity concerns. We believe EPA should implement some form of direct verification or take other measures to prevent or reduce the likelihood of companies qualifying for logos by submitting data that overstate their scores.

## **Recommendation**

We recommend that the Assistant Administrator for Air and Radiation:

1. Develop and implement direct verification or other measures to verify the accuracy of a sample of the self-reported, industry data for the SmartWay Transport Partnership.

## **Agency Comments and OIG Evaluation**

EPA's Office of Air and Radiation (OAR) agreed with the OIG on the importance of ensuring the integrity of program results. OAR also stated that it concurs with the OIG's assessment that as the SmartWay Transport Partnership grows and matures, its data systems must evolve as well.

In response to recommendation 1, OAR proposed a five step process to better ensure the accuracy of partner data. OAR noted that it had recently started a partner data quality project to address the OIG recommendation and enhance the quality of SmartWay partner self-reported data. Among other things, OAR's initiative includes site visits to observe how partners collect and quality assure the data reported in their SmartWay partner submissions. OAR's onsite direct observations will be accompanied by interviews with key staff involved in partner data collection and review to clarify how these data management and quality assurance measures ensure partner data validity. Using this information, OAR plans to develop and publish a data quality assurance guidance document based on best practices of a sample of SmartWay shipper, carrier, and logistics partners. OAR also responded that it will conduct a series of training, communication, and outreach activities to ensure that all SmartWay partners are aware of and have access to this information, and fully understand the program's expectations for partner data integrity. OAR estimated completion of these planned corrective actions by December 31, 2013.

OAR's planned actions are a step in the right direction that should enhance the quality of program data. As noted in Step 2 of OAR's response, the Agency is planning to validate data quality assurance measures for a sample of SmartWay partners. Additionally, OAR's planned data quality assurance guidance document and the new training, communication, and outreach should improve quality controls over the data and improve data accuracy. However, to better promote partner implementation and use of the new data quality guidance, OAR should make its use a condition of continued participation in the program. Further, OAR should also periodically reassess through direct observation that these newly

established controls are still enhancing the integrity and quality of the data. Therefore, we are keeping this recommendation open in our tracking system. OAR should describe any additional planned corrective actions in its 90-day response to the final report.

The Agency's written comments are in appendix D.

## **Status of Recommendations and Potential Monetary Benefits**

RECOMMENDATIONS						POTENTIAL MONETARY BENEFITS (in \$000s)	
Rec. No.	Page No.	Subject	Status <sup>1</sup>	Action Official	Planned Completion Date	Claimed Amount	Agreed-To Amount
1	8	Develop and implement direct verification or other measures to verify the accuracy of a sample of the self-reported, industry data for the SmartWay Transport Partnership.	O	Assistant Administrator for Air and Radiation	12/31/13		

<sup>1</sup> O = recommendation is open with agreed-to corrective actions pending  
 C = recommendation is closed with all agreed-to actions completed  
 U = recommendation is unresolved with resolution efforts in progress

## **General Criteria and Benefits of the SmartWay Program**

To meet SmartWay Transport Partnership goals, partners agree to:

- Assess freight operations
- Calculate fuel consumption and carbon footprint
- Track fuel-efficiency and emission reductions annually

In exchange, EPA ranks and publicizes each partner's performance in the SmartWay Partner List on EPA's website. EPA does this based on self-reported industry-supplied data. According to EPA, the partners that are most effective in reducing greenhouse gases and improving air quality are eligible to use the SmartWay Partner logo from EPA.

According to EPA, participation in SmartWay helps carriers:

- Identify opportunities to improve efficiency (such as improved fuel economy, resulting in reduced CO<sub>2</sub>, NO<sub>x</sub>, and PM emissions)
- Demonstrate efficiency to potential customers
- Reduce fuel costs

Further, according to EPA, participation in SmartWay helps shippers and logistics companies:

- Choose more efficient carriers
- Assess optimal mode choices
- Reduce their transport carbon footprint

### **Studies Indicate SmartWay Helps To Overcome Barriers**

A 2009 study by Massachusetts Institute of Technology (MIT) researchers,<sup>8</sup> an October 2011 working paper by researchers from Colorado State University and Miami University (Ohio)<sup>9</sup> (scheduled to be peer reviewed), and presentations at the November 2011 United States Freight Sustainability Summit<sup>10</sup> corroborate EPA's claims that its SmartWay Transport Partnership program helps remove marketplace barriers in order to deploy technologies faster. In general, the program does this by working to overcome barriers such as: (1) lack of clear, reliable information on technology opportunities; (2) lack of awareness of energy efficient products, services, and transportation choices; and (3) the need for additional incentives for manufacturers

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<sup>8</sup> *System Dynamics Modeling of the SmartWay Transport Partnership*, Second International Symposium on Engineering Systems, MIT, Cambridge, Massachusetts, June 15–17, 2009.

<sup>9</sup> See footnote 7.

<sup>10</sup> EPA, American Trucking Associations, Environmental Defense Fund, and the Retail Industry Leaders Association co-hosted the United States Freight Sustainability Summit in Washington, DC on November 17–18, 2011.



to invest in efficiency research and development. For example, according to a June 2009 SmartWay report by MIT researchers:

- The mileage of heavy-duty trucks has remained stagnant, between 5-6 miles per gallon over the past 25 years, despite readily available, cost effective technologies that are able to improve the efficiency of heavy-duty trucks by at least 12 percent.
- Several factors account for this apparent market failure including the lack of accurate and verifiable fuel economy information in the industry and the fragmented nature of industry where smaller owner operators make up a sizable proportion but often lack the resources and capital to test and implement technology opportunities.

An October 2011 working paper<sup>11</sup> by researchers from Colorado State University and Miami University (Ohio) also supports that EPA's SmartWay Transport Partnership program helps improve awareness and is a source of reliable information (the working paper is draft until peer reviewed). The researchers conducted 36 interviews with shippers and motor carriers associated with SmartWay as well as shippers and motor carriers not associated with this program. Their report noted that (1) SmartWay provides a way to standardize emissions measurements so that they are meaningful; (2) an increasing number of SmartWay shippers appear to be mandating that all of their carriers become SmartWay certified, or begin to pursue the certification process; and (3) a few interviewees specifically noted how SmartWay has caused them to critically examine their operations as they collect information for the tools submitted to EPA.

Presentations at the November 2011 United States Freight Sustainability Summit also support that the SmartWay Transport Partnership program helps remove marketplace barriers. For example, a senior manager from a large retailer indicated that his company only hires carriers that participate in the SmartWay partnership. Also, according to EPA, the Environmental Counsel to the American Trucking Association stated that the SmartWay Partnership can educate mid-sized and smaller trucking companies that lack knowledge about the benefits of the SmartWay Partnership. He said that SmartWay has allowed companies to increase their profitability since fuel costs are one of their largest operating expenses, and SmartWay's verification program helps prevent companies from investing in technologies that do not provide financial benefits.

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<sup>11</sup> See footnote 7.

## ***SmartWay Partner Recognition System and Its Relationship to EPA'S Partner Tools***

### **SmartWay Recognition System**

Under the current scoring system, EPA ranks carriers in one of five levels of performance, or bins, based on their emission rates for each pollutant.<sup>12</sup> The performance “bins” are further categorized by each of the various body types of truck carriers and for each pollutant addressed (CO<sub>2</sub>, NO<sub>x</sub>, and PM). For example, bin 1 is reserved for the highest performing carriers within a particular pollutant category (such as CO<sub>2</sub>), and truck body type. A high performing carrier could be placed in the highest performing bin for having a low CO<sub>2</sub> emissions rate for a particular type of truck, but could be placed in a lower bin for NO<sub>x</sub> emissions as a result of having a fleet of older, higher NO<sub>x</sub>-emitting trucks.

### **SmartWay Truck Tool**

Carriers use the SmartWay Truck Tool, an EPA-developed software tool, to report their input data to EPA. The carriers input the requested data and information directly into the Truck Tool, and then provide this to EPA so that the Agency can use it to assess their performance. Information provided includes type/characteristics of fleet, use of particulate matter reduction technologies, miles driven, gallons of fuel used by types of fuel, average payload, average truck capacity, and average annual idle hours, etc. The Truck Tool requires carriers to provide the source of the input data, such as IFTA Form 441, or IRS records, or company electronic, or other records.

OTAQ uses EPA's emission factors and data provided by the carriers to compute each carrier's CO<sub>2</sub>, NO<sub>x</sub>, and PM emissions. To determine CO<sub>2</sub> emissions, OTAQ uses emissions factors based on the grams of CO<sub>2</sub> produced by burning a gallon of the various types of fuels used by trucks and the number of gallons used by the fleet. To determine NO<sub>x</sub> and PM emissions, OTAQ uses emissions factors from EPA's mobile source model (MOVES2010) and carrier provided data such as the model engine years and vehicle classes in the fleet, speed and operation mode (running or idle) information, and the number of installed PM emissions control devices. Carriers also provide activity level data such as fuel consumption, miles traveled, payload, and capacity volume. This data is used to calculate emission rates for the vehicle classes in the fleet of trucks in terms of grams of pollutant per mile or grams of pollutant per average payload ton-mile. This tool was revised in early 2011.

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<sup>12</sup> OTAQ previously established a scoring system for carriers, logistics companies, and shippers that determined which companies were eligible to use a SmartWay logo. With changes to the tools in the past year, OTAQ plans to revise the scoring system for logo eligibility. The new recognition / logo requirements are currently under OTAQ management review. Existing carriers are recognized on EPA's SmartWay website based on the old scoring criteria. Until the new recognition system is developed, new carriers will not be awarded logos.

## SmartWay Shipper Tool

Shippers use the SmartWay Shipper Tool, an EPA developed software tool, to submit data to OTAQ on their activities in the past year. The shippers provide the names of carriers they used in the past year, the number of miles driven each year by each carrier, and payload data on the shipments.

A revised Shipper Tool has been finalized for use by SmartWay shippers in 2012. This tool had been on hold for about a year and half, while a new version of the Shipper Tool and the rating methodology was being finalized. During this time, OTAQ has not assessed the performance of shippers because the performance recognition system for shippers was being revised to be compatible with the Truck Tool that was revised in early 2011.

The new Shipper Tool is more sophisticated than the previous Shipper Tool. It allows shippers to estimate their CO<sub>2</sub>, particulate matter (including PM<sub>2.5</sub> and PM<sub>10</sub>), and NO<sub>x</sub> emissions associated with goods movement in the freight rail and trucking sectors. OTAQ revised the new Shipper Tool to also allow shippers to track their freight-related emissions performance on a yearly basis and assess different strategies for improving the emissions performance of their freight operations, including selecting low-emissions carriers and implementing operational strategies. The new tool allows the shipper to input specific information pertaining to strategies that impact emissions. The strategies are based on reducing miles or weight from the system. For example, the shipper can use the tool to calculate the impact of various strategies for reducing miles traveled, such as: (1) distribution center relocation, (2) retail sales relocation, (3) routing optimization, and (4) using larger vehicles and/or trailers. Other strategies related to removing weight from the system include: (1) product weight reduction, (2) package weight reduction, and (3) vehicle weight reduction.

As with the older editions of the Shipper Tool, trucker performance results calculated by the Truck Tool will be used as input for the Shipper Tool. The shippers' scores will be computed based on the performance bin scores of the trucks they use to ship their freight. The shippers that use more of the higher performing carriers will receive higher rankings and will be eligible to earn the SmartWay logo. An OTAQ official also said that shippers want to show the public that they are reducing their carbon footprint by reducing GHG emissions from their business operations.

## Other EPA Developed Tools in Process

In addition to the Truck Tool and Shipper Tool, OTAQ has worked to improve its existing tools used by its partners and to develop new tools. For example, OTAQ has released versions of tools for logistic companies and a multi-modal tool that addresses both truck and rail freight emissions for Class I railroads.<sup>13</sup> OTAQ also plans to develop a tool for the emissions for the smaller railroads. Also, OTAQ announced a new Port Drayage Truck program on June 28, 2011. Under the SmartWay dray truck initiative, carriers sign an agreement with EPA to track and reduce PM 2.5 emissions by 50 percent and NO<sub>x</sub> emissions by 25 percent below the industry average over a three year period.

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<sup>13</sup> Class I railroads are the largest freight rail companies based on operating revenue.

## ***Prior OIG Reports Related To EPA Voluntary Programs***

Prior OIG reports related to EPA voluntary programs included:

- Evaluation Report, Report No. 08-P-0206, *Voluntary Greenhouse Gas Reduction Programs Have Limited Potential*, July 23, 2008
- Evaluation Report, Report No. 2007-P-00013, *Performance Track Could Improve Program Design and Management to Ensure Value*, March 29, 2007
- Evaluation Report, Report No. 2007-P-00003, *Partnership Programs May Expand EPA's Influence*, November 14, 2006
- Evaluation Report, Report No. 2007-P-00041, *Voluntary Programs Could Benefit from Internal Policy Controls and a Systematic Management Approach*, September 25, 2007
- Evaluation Report, Report Number: 2005-P-00007, *Ongoing Management Improvements and Further Evaluation Vital to EPA Stewardship and Voluntary Programs*, February 17, 2005
- Evaluation Report, Report No. 10-P-0040, *ENERGY STAR Program Integrity Can Be Enhanced Through Expanded Product Testing*, November 30, 2009
- Evaluation Report, Report No. 09-P-0061, *Improvements Needed to Validate Reported ENERGY STAR Benefits*, December 17, 2008
- Evaluation Report, Report No. 2007-P-00028, *ENERGY STAR Program Can Strengthen Controls Protecting the Integrity of the Label*, August 1, 2007

## ***Agency Comments to Draft Report***

### **MEMORANDUM**

**SUBJECT:** Office of Air and Radiation's (OAR) Response to OIG Draft Report: EPA Could Improve the SmartWay Transport Partnership by Implementing a Direct Data Verification Process, Project No. OPE-FY11-0011

**FROM:** Gina McCarthy  
Assistant Administrator

**TO:** Carolyn Copper  
Acting Assistant Inspector General for Program Evaluation  
Office of Inspector General

Thank you for the opportunity to comment on the Office of Inspector General (OIG) draft report, *EPA Could Improve the SmartWay Transport Partnership by Implementing a Direct Data Verification Process*, Project No. OPE-FY11-0011, dated June 29, 2012, which focused on the Agency's SmartWay Transport Partnership with the freight industry and how OAR could continue to uphold the integrity of program results in the future. This review, which is one of several OIG evaluations that have focused on EPA voluntary programs, is aimed at assisting OAR in improving its oversight of information submitted to the SmartWay Transport Partnership.

OAR appreciates the effort by the OIG to thoroughly understand the complexity of the SmartWay partnership and its value to the shipping community, freight industry and the general public. As the OIG noted, SmartWay is recognized across the industry and by EPA regulatory programs for its leadership in identifying, enabling and encouraging cleaner and more efficient goods movement practices and technologies. The report also cites a number of measures that OAR has already implemented to strengthen the SmartWay program and the integrity of its data, data collection methods, and reporting. OAR took these steps for reasons identified by the OIG in its review – namely, to safeguard the integrity of the program; to protect the value of the SmartWay brand; and, to ensure that the robustness and accuracy of partner reported data will continue to keep pace with the program's growing impact on the shipping and freight communities. These steps the OIG cited as already implemented include: utilizing previously submitted data by businesses that already mandatorily submit to the government (e.g., IFTA reports, motor vehicle registrations) as the basis for SmartWay program information; development of rigorous internal data quality assurance controls including annual data comparison reports to ensure consistency and to eliminate input errors; comprehensive review and cross-checking of partner data before it is accepted by the program; and, diligence in resolving any issues that may arise regarding improper use of the SmartWay brand. The OIG

review recommends that OAR build upon these improvements by direct verification of SmartWay partner data or other measures.

OAR agrees with the OIG on the importance of the integrity of program results. OAR also concurs with the OIG's assessment that as the SmartWay Transport Partnership grows and matures, its data systems must evolve as well. OAR has already started a partner data quality project that will address the OIG recommendation. A summary of the recommendation, its associated actions and projected completion dates are provided below.

**Recommendation:**

Develop and implement direct verification or other measures to verify the accuracy of a sample of the self-reported, industry data for the SmartWay Transport Partnership.

EPA response: In addition to the steps that OAR has already implemented to ensure the integrity of the SmartWay program, OAR recently started an initiative designed to enhance the quality of SmartWay partner self-reported data. This process consists of five steps that OAR anticipates will be completed on or before December 31, 2013.

- Step 1: Identify a sample of SmartWay shipper, carrier, and logistics partners that have demonstrated program compliance with a credible quality process or certification program, such as ISO certification, Six-Sigma designation, or similar quality assurance system. Staff will interview each candidate to assess its readiness and suitability for participation before selecting the most appropriate candidates. This action has already been completed.
- Step 2: Conduct site visits of this sample of partners. These visits will include first-hand observation and recording of the processes and safeguards employed to collect, handle, check, manage, track and preserve the data reported in their SmartWay partner submissions. Partner site visits will be accompanied by discussions and interviews with key staff involved in data collection and review to clarify how these data management and quality assurance measures ensure partner data validity. This activity is occurring during July and August of 2012.
- Step 3: Assess and synthesize the results of these interviews and site visits into a comprehensive and consistent set of best practices available for all SmartWay partners to use in their data collection, management and quality assurance procedures. OAR anticipates that the first draft of this guidance document will be available by December, 2012.
- Step 4: Obtain internal and external review of the draft document. The completed document will clearly establish uniform and rigorous quality assurance measures and practices for partner data. The SmartWay partner tool guides and technical guidances will be updated to reflect the availability of the data quality assurance guidance. OAR anticipates that the guidance document and related materials will be finalized on or before March 31, 2013.
- Step 5: Publish the guidance document and conduct partner outreach and training. OAR will publish the guidance document on the SmartWay website by August 2013. From September through December of 2013, OAR will plan and conduct a series of training, communication and outreach activities to ensure that all SmartWay partners are aware of and have access to this information, and fully understand the program's expectations for partner data integrity.

We anticipate that implementing this partner data quality assurance measure is responsive to the OIG's recommendation. If you have any questions, please contact me or SmartWay Center Director, Cheryl L. Bynum (734-214-4844).

## ***Distribution***

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