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Testimony

Before the Committee on Energy and
Natural Resources, U.S. Senate

For Release on Delivery
Expected at 9:30 a.m. EDT
Thursday, June 9, 2011

DEPARTMENT OF ENERGY

Advanced Technology Vehicle Loan Program Needs Enhanced Oversight and Performance Measures

Statement of Frank Rusco, Director
Natural Resources and Environment





Highlights of [GAO-11-745T](#), a testimony before Committee on Energy and Natural Resources, U.S. Senate

Why GAO Did This Study

In the Energy Independence and Security Act of 2007, Congress mandated higher vehicle fuel economy by model year 2020 and established the Advanced Technology Vehicles Manufacturing (ATVM) loan program in the Department of Energy (DOE). ATVM is to provide up to \$25 billion in loans for more fuel-efficient vehicles and components. Congress also provided \$7.5 billion to pay the required credit subsidy costs—the government's estimated net long-term cost, in present value terms, of the loans.

This testimony is based on GAO's February 2011 report on the ATVM loan program ([GAO-11-145](#)). It discusses (1) steps DOE has taken to implement the program, (2) progress in awarding loans, (3) how the program is overseeing the loans, and (4) the extent to which DOE can assess progress toward its goals.

What GAO Recommends

GAO is making no new recommendations at this time. In the February report, GAO recommended that DOE (1) accelerate efforts to engage engineering expertise and (2) develop sufficient, quantifiable performance measures. DOE disagreed with the recommendations, stating that such expertise had not yet been needed and that performance measures would expand the scope of the program. GAO continues to believe that these recommendations are needed to help ensure that DOE is achieving its goals and is accountable to Congress.

View [GAO-11-745T](#) or key components. For more information, contact Frank Rusco at (202) 512-3841 or ruscof@gao.gov.

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DEPARTMENT OF ENERGY

Advanced Technology Vehicle Loan Program Needs Enhanced Oversight and Performance Measures

What GAO Found

DOE has taken several steps to implement the ATVM program. First, it set three program goals: increase the fuel economy of U.S. passenger vehicles as a whole, advance U.S. automotive technology, and protect taxpayers' financial interests. DOE also set technical, financial, and environmental eligibility requirements for applicants. In addition, DOE established criteria for judging the technical and financial merits of applicants and projects deemed eligible, and policy factors to consider, such as a project's potential for supporting jobs. DOE established procedures for ATVM staff, aided by experts from within and outside DOE, to score applicants and projects. Finally, the Credit Review Board, composed of senior DOE officials, uses the scores and other information to recommend loan decisions to the Secretary of Energy.

The ATVM program, as of May 2011, had made \$8.4 billion in loans that DOE expects to yield fuel economy improvements in the near term along with greater advances, through newer technologies, in years to come. Although the loans represent about a third of the \$25 billion authorized by law, the program has used 44 percent of the \$7.5 billion allocated to pay credit subsidy costs, which is more than was initially anticipated. These higher credit subsidy costs were, in part, a reflection of the risky financial situation of the automotive industry at the time the loans were made. As a result of the higher credit subsidy costs, the program may be unable to loan the full \$25 billion allowed by statute.

The ATVM program has set procedures for overseeing the financial and technical performance of borrowers and has begun oversight, but at the time of our February report it had not yet engaged engineering expertise needed for technical oversight as called for by its procedures. To oversee financial performance, staff review data submitted by borrowers on their financial health to identify challenges to repaying the loans. Staff also rely on outside auditors to confirm whether funds have been used for allowable expenses. To oversee technical performance, ATVM staff are to analyze information borrowers report on their technical progress and are to use outside engineering expertise to supplement their analysis, as needed. According to our review, projects needing additional technical oversight are under way, and the ATVM staff lack the engineering expertise called for by the program's procedures for adequately overseeing technical aspects of the projects. However, the program had not yet engaged such expertise. As a result, DOE cannot be adequately assured that the projects will be delivered as agreed.

DOE has not developed sufficient performance measures that would enable it to fully assess progress toward achieving its three program goals. For example, DOE has a measure for assessing the fuel economy gains for the vehicles produced under the program, but the measure falls short because it does not account for, among other things, the fuel economy improvements that would have occurred if consumers purchased more fuel-efficient vehicles not covered by the program. Principles of good governance call for performance measures tied to goals as a means of assessing the extent to which goals have been achieved.

Chairman Bingaman, Ranking Member Murkowski, and Members of the Committee:

In recent years, questions have arisen about fluctuations in gasoline prices and the environmental impact of petroleum use. In addition, gasoline-fueled passenger vehicles are a major source of greenhouse gas emissions. In 2007, Congress enacted the Energy Independence and Security Act (EISA) which, among other things, increased corporate average fuel economy (CAFE) standards, requiring that the nation's automobile manufacturers' new vehicle fleets attain at least an average of 35 miles per gallon by 2020. In May 2009 the Administration announced its National Fuel Efficiency Policy, which, to implement the increase in fuel economy required by EISA, called for higher CAFE standards for model years 2012 through 2016 for passenger cars and light-duty trucks—surpassing those standards EISA required by 2020. On April 1, 2010, the National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA) made final the rule putting the more stringent CAFE standards in place.¹

In addition to increasing CAFE standards, EISA also authorized, but did not provide funding for, the Advanced Technology Vehicles Manufacturing (ATVM) loan program to provide up to \$25 billion in loans to support projects to produce more fuel-efficient passenger vehicles and components. Loans made under the program are to, among other things, have an interest rate equal to the government's cost of funds² and be in force for no more than 25 years.

In addition to the negative effect that rising fuel prices had on domestic automobile sales, the economic recession that began in late 2007 particularly affected the three major domestic automakers—Chrysler Group LLC, Ford Motor Company, and General Motors Corporation, or the Detroit 3. Rising fuel prices had negatively affected the sales of domestic automakers as consumers shifted to smaller, more fuel-efficient vehicles and away from less fuel-efficient light trucks and sport utility vehicles. At

¹EPA is responsible for developing and executing CAFE testing and calculation procedures. NHTSA uses EPA data to determine if a manufacturer's fleet is in compliance for a given model year. The final rule was published in the *Federal Register* on May 7, 2010.

²The government's cost of funds is the interest cost that the federal government must pay for the use of the money it lends to ATVM borrowers—that is, the interest rate on Treasury notes at the time the funds are disbursed.

the end of 2008, several economic indicators, including economic growth and the unemployment rate, worsened while credit markets tightened and dampened consumers' demands for new passenger vehicles. Sales of new vehicles had been trending downward since 2006, but the decrease was markedly sharper in 2008 and 2009. For example, U.S. sales for the Detroit 3 dropped by 49 percent from February 2008 through February 2009, whereas U.S. sales for American Honda Motor Co., Inc.; Nissan North America, Inc.; and Toyota Motor North America, Inc., dropped 39 percent during this period. Additionally, the Detroit 3 had been losing U.S. market share to foreign automakers for several years. For instance, General Motor's U.S. market share for total light vehicle retail sales—including passenger cars and light-duty trucks—fell from 27.2 percent in 2004 to 22.1 percent in 2008, while the market share of Japanese auto manufacturers grew from 29.8 percent to 38.9 percent during the same period. Furthermore, since the 1980s, the Detroit 3 have relied heavily on sales of light-duty trucks and sport utility vehicles, which were more profitable than passenger cars but had relatively low fuel economy ratings. As a result of this reliance, the Detroit 3 faced more difficulty in achieving substantial improvements in fuel economy than most foreign-based manufacturers, which historically had produced and sold more fuel-efficient vehicles. When proposing the new, more stringent CAFE standards, NHTSA estimated that the Detroit 3 would face significantly higher costs to meet revised standards than the major Japanese automakers.

In September of 2008, the Consolidated Security, Disaster Assistance, and Continuing Appropriations Act provided \$7.5 billion to DOE to pay the credit subsidy costs of up to \$25 billion in ATVM loans.³ Credit subsidy costs are the estimated net long-term costs to the government, in present value terms, of loans over the entire period the loans are outstanding.⁴ Congress also provided \$10 million to DOE to administer the ATVM loan program and required that DOE issue an interim final rule to establish

³The Federal Credit Reform Act of 1990 requires that the credit subsidy costs of federal loan programs be paid; for the ATVM program, they are paid by congressional appropriations.

⁴Credit subsidy costs exclude administrative costs and any incidental effects on governmental receipts or outlays. Present value is the worth of the future stream of returns or costs in terms of money paid immediately. In calculating present value, prevailing interest rates provide the basis for converting future amounts into their "money now" equivalents.

regulations necessary to implement the program. DOE issued an interim final rule for implementing the program in November of 2008.

In February 2011 we reported on DOE's implementation of the ATVM loan program. My testimony today is based on that report,⁵ updated with recent information from DOE on ATVM loans made, additional loan amounts requested by applicants, and the subsidy costs DOE expects to need in order to provide loans to those applicants. My testimony addresses (1) the steps DOE has taken to implement the ATVM loan program, (2) the ATVM loan program's progress in awarding loans, (3) how the program is overseeing the loans, and (4) the extent to which DOE can assess its progress toward meeting program goals. A detailed description of our scope and methodology can be found in the February report. We conducted this work in accordance with generally accepted government auditing standards.

DOE Established Program Goals and Set Criteria for Applicant and Project Eligibility and Merit

DOE has taken several steps to implement the ATVM program. First, it set three goals for the program: increase the fuel economy of U.S. passenger vehicles as a whole, advance U.S. automotive technology, and protect taxpayers' financial interests. In that regard, EISA calls for the program to make loans to provide funding to automobile manufacturers and component suppliers for projects that re-equip, expand, or establish U.S. facilities that are to build more fuel-efficient passenger cars and light-duty trucks. According to DOE, the program's goals also support the agency's goals of building a competitive, low-carbon economy by, among other things, funding vehicles that reduce the use of petroleum-derived fuels and accelerating growth in advanced automotive technology manufacturing, and protecting U.S. taxpayers' financial interests.

DOE, in its interim final rule, also set technical, financial, and environmental requirements that vehicle and components manufacturers must meet to qualify to receive a loan under the program. For example, an established vehicle manufacturer—one that was manufacturing vehicles in 2005—must demonstrate that the adjusted average fuel economy of the fleet of vehicles it produced in its most recent model year was at least equal to that of the fleet of vehicles it produced in model year 2005.

⁵GAO, *Department of Energy: Advanced Technology Vehicle Loan Program Implementation Is Under Way, but Enhanced Technical Oversight and Performance Measures Are Needed*, [GAO-11-145](#) (Washington, D.C., Feb. 28, 2011).

Similarly, a manufacturer that was not producing vehicles in 2005 must show that its proposed vehicles' adjusted average fuel economy will at least equal that of established manufacturers for a similar class of vehicles for model year 2005. For applicants deemed eligible, DOE also uses statutorily based technical criteria to determine which projects are eligible. For example, proposed vehicles must achieve at least 125 percent of the average fuel economy achieved by all manufacturers' vehicles with substantially similar attributes in 2005.

In addition, DOE established criteria for ATVM staff, aided by experts from within and outside DOE, to judge and score the technical and financial merits of applicants and projects deemed eligible, along with policy factors to consider, such as a project's potential for supporting jobs and whether a project is likely to advance automotive technology. Finally, the Credit Review Board, composed of senior DOE officials, uses the merit scores and other information, including Office of Management and Budget's approved subsidy cost estimates for projects, to recommend loan decisions to the Secretary of Energy.

The ATVM Program Has Awarded \$8.4 Billion in Loans that Largely Enhance Conventional Vehicle Technology, but the Program May Be Unable to Lend the Full Authorized Amount

To date the ATVM program has made about \$8.4 billion in loans: \$5.9 billion to the Ford Motor Company; \$1.4 billion to Nissan North America; \$529 million to Fisker Automotive, Inc.; \$465 million to Tesla Motors, Inc.; and \$50 million to The Vehicle Production Group LLC.⁶ About 62 percent of the funds loaned—\$5.2 billion—are for projects that largely enhance the technologies of conventional vehicles powered by gasoline-fueled internal combustion engines. These projects include such fuel-saving improvements as adding assisted direct start technology to conventional vehicles, which reduces fuel consumption by shutting off the engine when the vehicle is idling (e.g., while at traffic lights) and automatically re-starting it with direct fuel injection when the driver releases the brake. According to DOE's analysis, the projects will result in vehicles with improved fuel economy that will contribute in the near term to improving the fuel economy of the passenger vehicles in use in the United States as a whole because the conventional vehicles are to be produced on a large scale relatively quickly and offered at a price that is competitive with other vehicles being offered for sale.

⁶Loan amounts awarded to each company do not add up to the total loan amount the ATVM program has awarded to date because of rounding.

DOE used data from the borrowers to estimate the fuel economy in miles per gallon (mpg) of the enhanced conventional vehicles that were considered for ATVM loans. According to our calculations using DOE's estimates of fuel economy, these projects are expected to result in vehicles with improved fuel economy that exceed both the program's eligibility requirements and the CAFE targets that will be in place at the time the vehicles are produced ⁷—by, on average, 14 and 21 percent, respectively.

The remaining 38 percent of the funds loaned—about \$3.1 billion—support projects for vehicles and components with newer technologies. Fisker's loan is for two plug-in hybrid sedan projects—the Karma and the Nina. Tesla's loan is for an all-electric sedan, the Model S, and Nissan's loan is for the LEAF, an all-electric vehicle classified by DOE as a small wagon. The Vehicle Production Group's loan is for a wheelchair-accessible vehicle that will run on compressed natural gas. Finally, a portion of the Ford loan supports projects for manufacturing hybrid and all-electric vehicles. In addition, there are two advanced technology components projects: Nissan's, to build a manufacturing facility to produce batteries for the LEAF and potentially other vehicles; and Tesla's, to build a manufacturing facility to produce electric battery packs, electric motors, and electric components for the Tesla Roadster and vehicles from other manufacturers. In contrast to the projects supporting enhancements to conventional vehicles, DOE's and the borrowers' analyses indicate that the projects with newer technologies will result in vehicles with far greater fuel economy gains per vehicle but that these vehicles will be sold in smaller volumes, thereby having a less immediate impact on the fuel economy of total U.S. passenger vehicles.

According to our calculations using DOE's fuel economy estimates, the projects for vehicles with newer technologies, like the projects for enhanced conventional vehicles, are expected to result in improved fuel

⁷The CAFE standards for 2012-2016 will subject passenger cars and light trucks to target levels of fuel efficiency based on the vehicles' "footprints." A vehicle's footprint is a measure of its size calculated by multiplying its wheelbase (the distance from the center of the front wheels to the center of the rear wheels) by its average track width (the average of the width between the two front wheels and the width between the two rear wheels). The vehicle-level mpg targets generally become more stringent with each new model year.

economy that exceeds both the program's eligibility requirements and CAFE targets—by about 125 percent and about 161 percent respectively.⁸

The loans made to date represent about a third of the \$25 billion authorized by law, but the program has used 44 percent of the \$7.5 billion allocated to pay credit subsidy costs, which is more than was initially anticipated. The \$7.5 billion Congress appropriated was based on the Congressional Budget Office's September 2008 estimated average credit subsidy rate of 30 percent per loan (\$7.5 billion divided by \$25 billion equals 30 percent). However, the average credit subsidy rate for the \$8.4 billion in loans awarded to date is 39 percent—a total of roughly \$3.3 billion in credit subsidy costs. At this rate, the \$4.2 billion remaining to be used to pay credit subsidy costs will not be sufficient to enable DOE to loan the full \$25 billion in loan authority. These higher credit subsidy costs were, in part, a reflection of the risky financial situation of the automotive industry at the time the loans were made. For DOE to make loans that use all of the remaining \$16.6 billion in loan authority, the credit subsidy rate for the loans would have to average no more than 25 percent (\$4.2 billion divided by \$16.6 billion). As a result, the program may be unable to loan the full \$25 billion allowed by statute. As of May 9, 2011, DOE reported that 16 projects seeking a total of \$9.3 billion in loans—representing \$3.5 billion in credit subsidy costs—were under consideration.

⁸ This does not include DOE's fuel economy estimates for the vehicle to be produced under the loan to The Vehicle Production Group, which was finalized after our February report.

The ATVM Program Has Begun Overseeing Loans to Ensure Borrowers Comply with Financial and Technical Requirements but Has Not Engaged Engineering Expertise that Would Help Ensure that Projects Are Delivered as Agreed

The ATVM program has set procedures for overseeing the financial and technical performance of borrowers and has begun oversight, but at the time of our February report the agency had not yet engaged engineering expertise for technical oversight as called for by the procedures. To oversee financial performance, staff are to review data submitted by borrowers on their financial health to identify challenges to repaying the loans. Staff also rely on outside auditors to confirm whether funds have been used for allowable expenses. As of February 2011, the auditors had reported instances in which three of the four borrowers did not spend funds as required. According to ATVM officials, these instances were minor—the amounts were small relative to the total value of the loans—and the inappropriate use of funds and the borrowers' practices have been corrected.

The ATVM program's procedures also specify technical oversight duties, a primary purpose of which is to confirm that borrowers have made sufficient technical progress before the program disburses additional funds. To oversee technical performance, ATVM staff are to analyze information borrowers report on their technical progress and are to use outside engineering expertise to supplement their analysis once borrowers have begun constructing or retrofitting facilities or are performing engineering integration—that is, designing and building vehicle and component production lines. According to our review, several projects needing additional technical oversight are under way but the program, as of February of 2011, had not brought in additional technical oversight expertise to supplement program staffs' oversight. For example, ATVM officials identified one borrower with projects at a stage requiring heightened technical monitoring; however, ATVM program staff alone had monitored the technical progress of the project. ATVM officials told us that the manufacturer has experience with bringing vehicles from concept to production so additional technical oversight expertise has not been needed, despite the procedures' calling for it. Further, according to documents we reviewed, at the time of our report, four borrowers—rather than the single one identified by ATVM—had one or more projects that, according to the program's procedures, had already reached the stage requiring heightened technical monitoring. Because ATVM staff, whose expertise is largely financial rather than technical, had so far provided technical oversight of the loans without the assistance of independent engineering expertise, we found that the program may be at risk of not identifying critical deficiencies as they occur and DOE cannot be adequately assured that the projects will be delivered as agreed. At the time of our report, according to ATVM staff, they were in the process of evaluating one consultant's proposal to provide engineering expertise and

were working with DOE's Loan Guarantee Program to make that program's manufacturing consultants available to assist the ATVM program.

DOE Lacks the Performance Measures to Enable It to Fully Assess the ATVM Program's Progress Toward Achieving Its Goals

DOE has not developed sufficient performance measures that would enable it to fully assess whether the ATVM program is achieving its three goals. Principles of good governance indicate that agencies should establish quantifiable performance measures to demonstrate how they intend to achieve their program goals and measure the extent to which they have done so.⁹ These performance measures should allow agencies to compare their programs' actual results with desired results and should be linked to program goals.

Although the ATVM program has established performance measures for assessing the performance of ATVM-funded vehicles relative to the performance of similar vehicles in model year 2005, the measures stop short of enabling DOE to fully determine the extent to which it has accomplished its overall goal of improving the fuel economy of all passenger vehicles in use in the United States. The measures stop short because they do not isolate the impact of the program on improving U.S. fuel economy from fuel economy improvements that might have occurred in the absence of the program—by consumers investing in more fuel efficient vehicles not covered by the program in response to high gasoline prices, for example. In addition, the ATVM program lacks performance measures that will enable DOE to assess the extent to which it has achieved the other two goals of the program—advancing automotive technology and protecting taxpayers' financial interests.

In our February 2011 report, to help ensure the effectiveness and accountability of the ATVM program, we recommended that the Secretary of Energy direct the ATVM program to (1) accelerate efforts to engage sufficient engineering expertise to verify that borrowers are delivering projects as agreed and to (2) develop sufficient and quantifiable performance measures for its three goals. DOE's Loan Programs Executive Director disagreed with the first recommendation, saying that the projects

⁹GAO, *Agencies' Annual Performance Plans under the Results Act: An Assessment Guide to Facilitate Congressional Decisionmaking*, GAO/GGD/AIMD-10.1.18 (Washington, D.C.: February 1998, ver. 1.) and GAO, *The Results Act: An Evaluator's Guide to Assessing Agency Annual Performance Plans*, GAO/GGD-10.1.20 (Washington, D.C.: April 1998, ver. 1).

were in the very early stages of engineering integration and such expertise had not yet been needed for monitoring. However, at that time, three of the four loans had projects that had been in engineering integration for at least 10 months, and the fourth loan had at least one project that was under construction. We maintained that DOE needed technical expertise engaged in monitoring the loans so that it could become adequately informed about technical progress of the projects. DOE's Loan Programs Executive Director also disagreed with the second recommendation. He said that DOE would not create new performance measures for the agency's three goals, saying that performance measures would expand the program and did not appear to be the intent of Congress. We maintained that by not setting appropriate performance measures for its program goals, DOE was not able to assess its progress in achieving what it set out to do through the program; furthermore, it could not provide Congress with information on whether the program was achieving its goals and warranted continued support.

Chairman Bingaman, this concludes my prepared statement. I would be pleased to answer any questions that you, Ranking Member Murkowski, or other Members of the Committee may have at this time.

Contacts and Staff Acknowledgments

For further information about this testimony, please contact Frank Rusco at (202) 512-3841 or ruscof@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Karla Springer, Assistant Director; Nancy Crothers; Carol Kolarik; Rebecca Makar; Mick Ray; Kiki Theodoropoulos; Barbara Timmerman; and Jeremy Williams made key contributions to this statement.

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