S 2843

Advanced Vehicle Technology Act of 2010

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Chamber: Senate
Policy Area: Energy
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Sponsor

Name: Sen. Stabenow, Debbie [D-MI]
Party: Democratic • **State:** MI • **Chamber:** Senate

Cosponsors (5 total)

Cosponsor	Party / State	Role	Date Joined
Sen. Brown, Sherrod [D-OH]	D · OH		Dec 7, 2009
Sen. Nelson, Bill [D-FL]	D · FL		Dec 7, 2009
Sen. Wyden, Ron [D-OR]	D · OR		Dec 7, 2009
Sen. Levin, Carl [D-MI]	D · MI		Dec 9, 2009
Sen. Bayh, Evan [D-IN]	D · IN		Dec 11, 2009

Committee Activity

Committee	Chamber	Activity	Date
Energy and Natural Resources Committee	Senate	Reported By	Sep 28, 2010

Subjects & Policy Tags

Policy Area:

Energy

Related Bills

Bill	Relationship	Last Action
111 HR 3246	Related bill	**Dec 8, 2009:** Committee on Energy and Natural Resources Subcommittee on Energy. Hearings held.

Summary (as of Sep 28, 2010)

Advanced Vehicle Technology Act of 2010 - **Title I: Vehicle Research and Development -** (Sec. 101) Directs the Secretary of Energy (DOE) to conduct a program of basic and applied research, development, demonstration, and commercial application activities on materials, technologies, and processes with the potential to substantially reduce or eliminate petroleum use by, and emissions from, the nation's passenger and commercial vehicles, including activities in the areas of: (1) hybridization or full electrification of vehicle systems; (2) batteries, ultracapacitors, and other energy storage devices, (3) power electronics; (4) engine efficiency and combustion optimization; (5) waste heat recovery; (6) hydrogen vehicle technologies; (7) reduction of vehicle weight, friction, and wear; (8) innovative propulsion systems; (9) hydraulic hybrid technologies; (10) engine compatibility with and optimization for a variety of transportation fuels; (11) infrastructure for alternative fueled and electric or plug-in electric hybrid vehicles, including the unique challenges facing rural areas; (12) gaseous fuels storage system integration and optimization; (13) efficient use and recycling of rare earth materials and reduction of precious metals and other high-cost materials in vehicles; and (14) retrofitting advanced vehicle technologies to existing vehicles.

Directs the Secretary to ensure that DOE continues to support domestic research, development, engineering, demonstration, and commercial application activities and maintains competency in mid- to long-term transformational vehicle technologies with potential to achieve deep reductions in petroleum use and emissions, including activities in the areas of: (1) hydrogen vehicle technology; (2) multiple battery chemistries and novel energy storage devices; (3) communication and connectivity amount vehicles, infrastructure, and the electrical grid; and (4) lightweight vehicles and materials.

Requires activities under this Act to be carried out in collaboration with automotive manufacturers, heavy commercial and transit vehicle manufacturers, qualified plug-in electric vehicle manufacturers, vehicle and engine equipment and component manufacturers, manufacturing equipment manufacturers, advanced vehicle service providers, fuel producers and energy suppliers, electric utilities, institutions of higher education, national laboratories, and independent research laboratories.

Requires the Secretary to: (1) determine whether a wide range of companies that manufacture or assemble vehicles or components in the United States are represented in ongoing public private partnership activities; (2) formalize partnerships with industry-led stakeholder organizations, nonprofit organizations, industry consortia, and trade associations with expertise in advanced automotive and commercial vehicle technologies; (3) develop more efficient processes for transferring research findings and technologies to industry; (4) give consideration to conversion of existing or former vehicle technology manufacturing facilities for researching and developing advanced vehicle technologies and support public-private partnerships dedicated to overcoming barriers in commercial application of transformational vehicle technologies that use such industry-led facilities; (5) promote the domestic production of such technologies; (6) coordinate activities between relevant DOE programs and offices and other federal agencies; (7) establish public-private partnerships dedicated to overcoming barriers to the commercial application of transformational vehicle technologies, using existing industry-led domestic technology development facilities of entities with demonstrated expertise in successfully designing and engineering precommercial generations of such transformational technology; (8) inform other agencies of the potential for demonstrating technologies funded by this Act; and (9) support and utilize state and local government initiatives in advanced vehicle technology development.

(Sec. 102) Requires the Secretary to conduct research, development, and demonstration activities on connectivity of vehicle and transportation systems, including technologies for: (1) onboard vehicle, engine, and component sensing and

actuation; (2) vehicle-to-vehicle sensing and communication; (3) vehicle-to-infrastructure sensing and communication; and (4) vehicle integration with the electrical grid.

(Sec. 103) Requires the Secretary to carry out a research, development, engineering, demonstration, and commercial application program of advanced vehicle manufacturing technologies and practices, including innovative processes to: (1) increase the production rate and decrease the cost of advanced battery manufacturing; (2) vary the capability of individual manufacturing facilities to accommodate different battery chemistries and configurations; (3) reduce waste streams, emissions, and energy-intensity of vehicle, engine, advanced battery, and component manufacturing processes; (4) recycle and remanufacture used batteries and other vehicle components for reuse in vehicles or stationary applications; (5) produce cost-effective lightweight materials such as advanced metal alloys, polymeric composites, and carbon fiber; (6) produce lightweight high pressure storage systems for gaseous fuels; (7) design and manufacture purpose-built hydrogen and fuel cell vehicles and components; (8) improve the calendar life and cycle life of advanced batteries; and (9) produce permanent magnets for advanced vehicles.

(Sec. 104) Authorizes activities under this Act to include domestic construction, expansion, or modification of new and existing vehicle, engine, and component research and testing facilities for: (1) testing or simulating interoperability of a variety of vehicle components and systems, (2) subjecting vehicle platforms to fully representative duty cycles and operating conditions, and (3) developing and demonstrating a range of chemistries and configurations for advanced vehicle battery manufacturing and test cycles for new and alternative fuels and other advanced vehicle technologies.

(Sec. 105) Requires the Secretary to report to Congress: (1) annually through 2015 on the technologies developed as a result of this Act, with emphasis on technologies that were successfully adopted for commercial applications and whether those technologies are manufactured in the United States; and (2) annually on activities undertaken, active industry participants, efforts to recruit new participants, progress of the program in meeting goals and timelines, and a strategic plan for funding of activities across agencies.

(Sec. 106) Requires the Secretary to establish an Innovative Automotive Demonstration Program, within the existing Vehicle Technologies Program, to encourage the introduction of new domestic-made advanced technology vehicles into the marketplace that are designed in their entirety to achieve very high energy efficiency but still provide the capabilities required by U.S. consumers. Requires awards to be made under such Program on a competitive basis for demonstration of vehicles that: (1) are primarily for use on public streets, roads, and highways and are not manufactured primarily for off-road use; (2) meet safety requirements; (3) achieve at least 70 miles per gallon or the equivalent on the Environmental Protection Agency (EPA) drive cycle; (4) provide vehicle performance that is acceptable to consumers; (5) are affordable; (6) use materials and manufacturing processes that minimize environmental impacts; (7) meet all federal and state emission requirements; and (8) provide new high technology engineering and production employment opportunities.

Title II: Medium and Heavy Duty Commercial and Transit Vehicles - (Sec. 201) Requires the Secretary, in partnership with relevant research and development programs in other federal agencies and industry stakeholders, to conduct cooperative research, development, demonstration, and commercial application activities on advanced technologies for medium- to heavy-duty commercial, recreational, and transit vehicles, including activities in the areas of: (1) engine efficiency and combustion research; (2) onboard storage technologies for compressed and liquefied natural gas; (3) development and integration of engine technologies designed for natural gas operation of a variety of vehicle platforms; (4) waste heat recovery; (5) heavy hybrid, hybrid hydraulic, plug-in hybrid, and electric platforms and energy storage technologies; (6) reduction of friction, wear, and engine idle and parasitic energy loss; (7) advanced lightweight materials

and vehicle designs; (8) increasing load capacity per vehicle; (9) recharging infrastructure; (10) hydrogen vehicle technologies; and (11) retrofitting advanced technologies onto existing truck fleets and integration of advanced systems onto a single truck and trailer platform.

Requires the Secretary to: (1) appoint a Director to coordinate such activities in such vehicles; and (2) report annually to Congress on activities, active industry participants, efforts to recruit new participants, progress of the program in meeting goals and timelines, and a strategic plan for funding of activities across agencies.

(Sec. 202) Requires the Secretary to: (1) conduct a competitive grant program to demonstrate the integration of multiple advanced technologies on Class 8 truck and trailer platforms with a goal of improving overall freight efficiency by 50%; (2) develop standard testing procedures and technologies for evaluating the performance of advanced heavy vehicle technologies under a range of representative duty cycles and operating conditions; (3) evaluate heavy vehicle performance; and (4) carry out a pilot program of research, development, demonstration, and commercial applications of technologies to improve total machine or system efficiency for nonroad mobile equipment, including agriculture and construction equipment, and seek opportunities to transfer relevant research findings and technologies between the nonroad and on-highway equipment and vehicle sectors.

Authorizes the Secretary to construct heavy duty truck and bus testing facilities.

Title III: Advanced Technology Vehicles Manufacturing Incentive Program - (Sec. 301) Amends the Energy Independence and Security Act of 2007 to revise and reauthorize appropriations through FY2015 for the advanced technology vehicles manufacturing incentive program.

Includes within the definition of "advanced technology vehicle" a vehicle such as a medium-duty or heavy-duty work truck, bus, or rail transit vehicle: (1) that is used on a public street, road, highway, or transitway; (2) that meets applicable emissions standards; and (3) the deployment of which will reduce consumption of motor fuels by 25% or more compared to current surface transportation technologies that perform a similar function, unless the Secretary determines that the percentage is not achievable for a vehicle type or class and an alternative percentage for that vehicle type or class will result in substantial reductions in motor fuel consumption.

Includes within the definition of "engineering integration costs" costs of manufacturing process equipment.

Redefines "qualifying components" to mean components, systems, or groups of subsystems that the Secretary determines: (1) are designed for improving fuel economy of advanced technology vehicles, and (2) contribute measurably to the overall fuel economy of the advanced technology vehicles.

Removes the cap on the total amount that may be given in the direct loans under such program.

Title IV: Natural Gas Vehicles - (Sec. 401) Requires the Secretary to conduct a program of natural gas vehicle research, development, and demonstration, with a focus on: (1) the continued improvement and development of new, cleaner, more efficient light-duty, medium-duty, and heavy-duty natural gas and vehicle engines; (2) the integration of those engines into light-duty, medium-duty, and heavy-duty natural gas vehicles for onroad and offroad applications; (3) the expansion of product availability by assisting manufacturers with the certification of such engines or vehicles to comply with federal or California certification requirements and in-use emission standards; (4) the demonstration and proper operation and use of such vehicles under all operating conditions; (5) the development and improvement of nationally recognized codes and standards for the continued safe operation of such vehicles and the components of the vehicles; (6) the improvement in the reliability and efficiency of natural gas fueling station infrastructure; (7) the

certification of natural gas fueling station infrastructure to nationally recognized and industry safety standards; (8) the improvement in the reliability and efficiency of onboard natural gas fuel storage systems; (9) the development of new natural gas fuel storage materials; (10) the certification of onboard natural gas fuel storage systems to nationally recognized and industry safety standards; and (11) the use of natural gas engines in hybrid vehicles.

Requires the Secretary to report to Congress on such program within two years. Authorizes appropriations.

(Sec. 402) Requires the Administrator of General Services (GSA) to study and report to Congress on the means by which the federal fleet could increase the number of light-, medium-, and heavy-duty natural gas and liquefied petroleum gas vehicles in the fleet.

Title V: Authorization of Appropriations - (Sec. 501) Authorizes such sums as are necessary to carry out this Act.

(Sec. 502) Subjects the activities carried out under this Act to the cost-sharing requirements of the Energy Policy Act of 2005.

Actions Timeline

- **Sep 28, 2010:** Committee on Energy and Natural Resources. Reported by Senator Bingaman with an amendment in the nature of a substitute. With written report No. 111-335.
- **Sep 28, 2010:** Placed on Senate Legislative Calendar under General Orders. Calendar No. 622.
- **Jul 21, 2010:** Committee on Energy and Natural Resources. Ordered to be reported with an amendment in the nature of a substitute favorably.
- **Dec 7, 2009:** Introduced in Senate
- **Dec 7, 2009:** Read twice and referred to the Committee on Energy and Natural Resources.