



U.S. DEPARTMENT OF
ENERGY

Hydrogen and Fuel Cell Technical Advisory Committee and Title VIII of the National Energy Policy Act of 2005

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HTAC Designated Federal Officer

Energy Policy Act of 2005

Title VIII—Hydrogen

- Sec. 801. Hydrogen and fuel cell program:
- Sec. 802. Purposes.
- Sec. 803. Definitions.
- Sec. 804. Plan.
- Sec. 805. Programs.
- Sec. 806. Hydrogen and Fuel Cell Technical Task Force.
- Sec. 807. Technical Advisory Committee.*
- Sec. 808. Demonstration.
- Sec. 809. Codes and standards.
- Sec. 810. Disclosure.
- Sec. 811. Reports.
- Sec. 812. Solar and wind technologies.
- Sec. 813. Technology transfer.
- Sec. 814. Miscellaneous provisions.
- Sec. 815. Cost sharing.
- Sec. 816. Savings clause.

Sec. 807. HTAC

Hydrogen and Fuel Cell Technical Advisory Committee (HTAC) advises the Secretary on the programs and activities under Title VIII of EPACT 2005

Membership: 12-25 members representing

- Domestic industry
- Academia
- Professional societies
- Government agencies
- Federal laboratories
- Previous advisory panels
- Financial
- Environmental
- Other areas as the Department deems appropriate

Sec. 807. HTAC

Terms

1-3 years, expiring at spaced intervals to ensure continuity

A member whose term is expiring may be reappointed.

1 year

Bawden

Purtle

Chowdhry

Friedman

Reinsch

Wootten

Shaw

Bresland

Venter

2 years

Saillant

Van Dokkum

Chernoby

Hofmeister

Katsaros

Keuter

Mudd

Napoli

Walker

Richmond

Dresselhaus

3 years

McCormick

Taylor

Vesey

Ramage

Lloyd

Sec. 807. HTAC

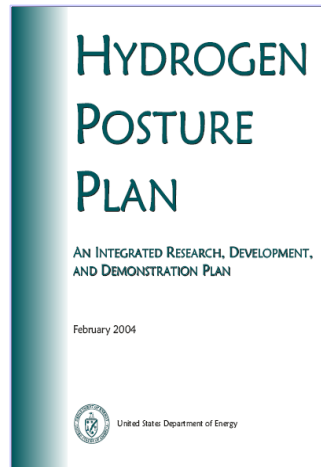
Chair

Elected by the members from among their number.

Committee Duties

REVIEW—HTAC shall review & make recommendations on

- 1) implementation of programs & activities under this title
- 2) safety, economical, and environmental consequences of technologies for the production, distribution, delivery, storage, or use of hydrogen energy and fuel cells
- 3) plan under section 804.



Sec. 807. HTAC

Response from the Secretary

(1) CONSIDERATION OF RECOMMENDATIONS.—

Secretary shall consider, but need not adopt, any recommendations of HTAC

(2) BIENNIAL REPORT.—Secretary shall transmit a biennial report to Congress describing recommendations made by HTAC. The report shall include a description of how the Secretary has implemented or plans to implement the recommendations, or an explanation of the reasons a recommendation will not be implemented. The report shall be transmitted along with the **President's budget proposal**.

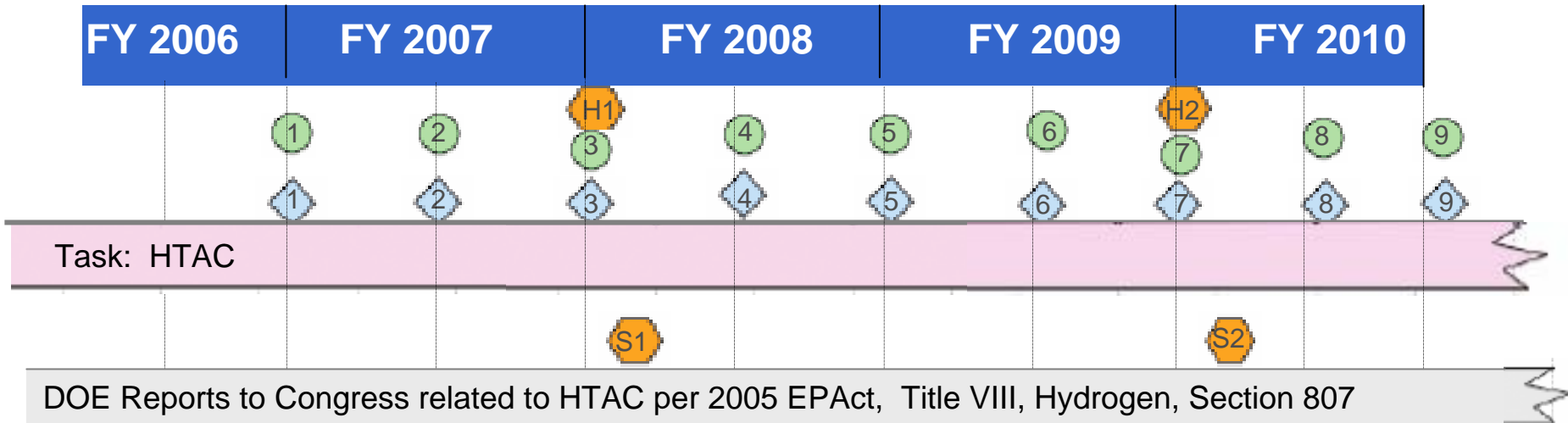
(e) SUPPORT.—Secretary shall provide resources necessary for HTAC

HTAC and the Act























Energy Policy Act of 2005 Reporting and Reviewing of Title VIII, Hydrogen

August 8, 2005 EPAct Enactment	2006	2007	2008	2009	2010	2011
	and Prior					
Sec. 804 Plan is the DOE Posture Plan	Draft FY2006	To be issued, 1st quarter FY2007				
Sec. 807 HTAC Reports; 1st 2 yr from Act		1st HTAC Biennial Report due Oct, 2007; Review of Sec 804 Plan and DOE NAS Response	Review Programs, Review Sec. 811 Triennial Report, TBD	2nd HTAC Biennial Report, on Programs, Sec. 811 Triennial Report, Other, Oct 2009	TBD	3rd HTAC Biennial Report
Sec. 807 DOE Response on HTAC with responses on previous HTAC recommendations			S-1 Report to Congress responding to 1st HTAC Biennial Report transmitted along with DOE Budget Submission		S-1 Report to Congress responding to 2nd HTAC Biennial Report transmitted along with DOE Budget Submission	
Sec. 811 DOE Reports (first in 2007 and others triennially)		Sec. 811 (a) 1st Report to Congress due (Triennial Report)			Sec. 811 (a) DOE Report to Congress	
Sec 811 NAS Report (every five years)	Complete reviews 2004-2006				Sec. 811 (b) NAS Report, Aug 2010	
DOE Response on NAS Report to Congress	DOE Response to prior NAS Reviews				DOE Response to Sec. 811 (b) NAS Report, 45 days after NAS report delivery	
Sec 812. DOE Report to Congress on Solar and Wind Hydrogen	Solar and Wind Technologies For Hydrogen Production (ESECS EE-3060), Issued Dec 05					
Sec. 1819 DOE Report to Congress on Goal Setting methodologies	Hydrogen Program Goal-Setting Methodologies (ESECS EE-4015), Issued Aug 06					
DOE Program Technical Peer Review	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly

HTAC Milestone Chart



Task A:

-  HTAC 1st mtg; Charter, Chair, Committee structure, deliverables
-  DOE Coordination Plan (Sect. 804): "The Posture Plan" input for HTAC Review
-  HTAC 2nd mtg; Biennial report preparation (review & make recommendations)
-  DOE Program input
-  HTAC 3rd mtg; Biennial Report completed
-  DOE Report to Congress (Sect. 811) input for HTAC review
-  First HTAC Biennial Report to S-1 on Sect. 804 report and program activities
-  S-1 responds to Congress on 1st HTAC Biennial Report and appends its Report to FY 2009 Budget Proposal
-  HTAC Meetings
-  HTAC Meetings
-  HTAC Meetings
-  DOE Program and other input
-  DOE Program and other input
-  DOE Program and other input
-  HTAC Meetings
-  HTAC Meetings
-  HTAC Meetings
-  DOE Program and other input
-  DOE Program and other input
-  DOE Program and other input
-  2nd HTAC Biennial Report to S-1 on Sect. 811 Report to Congress & program activities
-  S-1 responds to Congress on 2nd HTAC Biennial Report and appends the Report to FY 2011 Budget Proposal

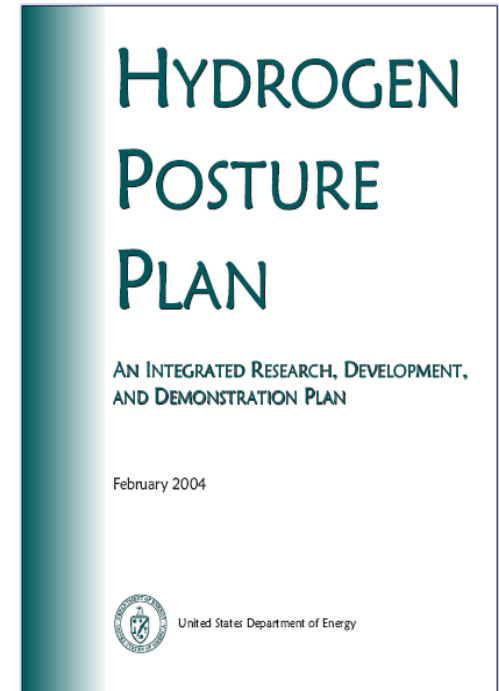
Sec. 802. Purpose (of Title VIII):

- (1) to enable and promote comprehensive development, demonstration, and commercialization of hydrogen and fuel cell technology in partnership with industry
- (2) to make critical public investments in building strong links to private industry, institutions of higher education, National Laboratories, and research institutions to expand innovation and industrial growth
- (3) to build a mature hydrogen economy that creates fuel diversity in the massive transportation sector of the U.S.
- (4) to sharply decrease the dependency of U.S. on imported oil, eliminate most emissions from the transportation sector, and greatly enhance our energy security
- (5) to create, strengthen, and protect a sustainable national energy economy.

Sec. 804. Plan

Includes:

- (1) Agenda for next 5 years for programs authorized under this title, including agenda for each activity in section 805(e)
- (2) Types of entities that will carry out activities under this title & what role each entity is expected to play
- (3) Milestones to evaluate programs for next five years
- (4) Most significant technical & nontechnical hurdles to achieving goals described in section 805, and how programs will address those hurdles
- (5) Policy assumptions implicit in the plan, including any assumptions affecting sources of hydrogen or marketability of hydrogen-related products.



Sec. 805. Programs

(a) GENERAL

R&D on production, purification, distribution, storage

(b) GOAL

Demonstrate & commercialize use of H₂ for transportation, utility, industrial, commercial & residential applications

(c) FOCUS

- (1) increase production, distribution, and end use efficiency & reduce life-cycle emissions
- (2) resolve critical problems regarding catalysts, membranes, storage, lightweight materials, electronic controls, manufacturability, and other problems emerging from program
- (3) enhance sources of renewable fuels and biofuels for hydrogen production
- (4) enable widespread use of distributed electricity generation and storage

(d) PUBLIC EDUCATION AND RESEARCH

Sec. 805. Programs

(e) ACTIVITIES

- (1) production of hydrogen from diverse energy sources
- (2) use of hydrogen for commercial, industrial & residential electric power generation
- (3) safe delivery of hydrogen or hydrogen-carrier fuels
- (4) advanced vehicle technologies
- (5) storage of hydrogen or hydrogen-carrier fuels, incl. development of materials for safe & economic storage in gas, liquid, or solid form at refueling facilities & onboard vehicles
- (6) development of safe, durable, affordable, efficient fuel cells, incl. fuel-flexible fuel cell power systems, improved manufacturing processes, high-temp. membranes, cost-effective fuel processing, fuel cell stack & system reliability, low temp. operation and cold start
- (7) ability of domestic automobile manufacturers to manufacture commercially available, competitive hybrid vehicle technologies in the United States

Sec. 805. Programs

(f) PROGRAM GOALS

- (1) VEHICLES.—For vehicles, to enable
 - (A) automakers to offer safe, affordable, technically viable H₂ fuel cell vehicles by 2015
 - (B) production, delivery, and consumer acceptance of model year 2020 hydrogen fuel cell & other hydrogen-powered vehicles that will have (compared to 2005 light duty vehicles)
- (2) HYDROGEN ENERGY AND ENERGY INFRASTRUCTURE.—to enable a commitment by 2015 that will lead to infrastructure by 2020 to provide
 - (A) safe and convenient refueling
 - (B) improved overall efficiency
 - (C) widespread availability of hydrogen from domestic energy sources through
 - (D) hydrogen for fuel cells, internal combustion engines, & other energy conversion devices for portable, stationary, micro, critical needs facilities & transportation apps.
 - (E) other technologies consistent with the Department's plan
- (3) FUEL CELLS.—for portable, stationary & transportation applications to enable
 - (A) safe, economical, and environmentally sound hydrogen fuel cells
 - (B) fuel cells for light duty and other vehicles
 - (C) other technologies consistent with the Department's plan

Sec. 811. Reports

The Secretary shall submit triennially a report to Congress:

- (1) activities on hydrogen and fuel cell technology
- (2) measures taken to support transition to fully commercialized hydrogen economy
- (3) changes made to strategy to reflect learning demo results
- (4) progress toward goal of producing & deploying vehicles
- (5) progress toward goal of supplying hydrogen at sufficient number of fueling stations in U.S. by 2010
- (6) problems related to design, execution or funding of program
- (7) progress in carrying out title & updates to roadmap, including results of reviews conducted by National Academy of Sciences (NAS)
- (8) updates to strategic plans necessary to meet deployment goals of paragraph (4)

Back-up

EPACT 2005 - EERE Matrix of Activities

Section	Action	Description	Date Due
806(a)	Misc. Mandatory	Establishment of (President to do this) an interagency task force on hydrogen and fuel cells.	12/7/2005 Completed
812(e)	Reports	Develop solar hydrogen and wind hydrogen roadmaps and transmit scenarios in report to Congress.	12/7/2005 Completed
783(b)	Misc. Mandatory	Acquisition by Federal agencies and payment of costs for leasing or purchasing certain micro fuel cell devices that produce electric power.	1/1/2006
804	Reports	Present Congress with a coordinated 5-year plan for fuel cells and hydrogen development.	2/9/2006
1819	Reports	Report on an evaluation of methodologies to ensure the widest participation practicable in setting goals and milestones under the domestic and international hydrogen programs of DOE.	8/9/2006
1820(b)	Reports	Report on a study of the likely effects of a transition to hydrogen economy on overall employment of the U.S.	2/9/2007
811(a)	Reports	Report on hydrogen and fuel cell technology activities.	8/9/2007 and triennially thereafter

EPACT 2005 - EERE Matrix of Activities

Section	Action	Description	Date Due*
743(c)	Reports	Report evaluating the new program for development of fuel cell-powered school buses	8/9/2008
1825(a)	Misc. Mandatory	Contract with NAS and NRC to conduct a study of providing budget roadmap for development of fuel cell technologies and transition from petroleum to hydrogen in significant percentage of vehicles by 2020	3/31/2009
782(b)	Misc. Mandatory	Lease or purchase by Federal agencies of fuel-cell vehicles and hydrogen energy systems to meet certain energy savings goal.	1/1/2010
811(b)	Reports	Quadrennial NAS review of hydrogen and fuel cell programs.	8/9/2010 for NAS completion reqt. 45 days later, DOE submits report to Congress
934(d)	Reports	Report on the economic and technical potential for electricity or hydrogen production, with or without cogeneration, with concentrating solar power, including the economic and technical feasibility of potential construction of a pilot demonstration facility suitable for commercial production of electricity or hydrogen from concentrating solar power.	8/9/2010

EPACT 2005 - EERE Matrix of Activities

Section	Action	Description	Date Due
731(a)	Misc. Mandatory	Establishment of a transit bus demonstration program for fuel cell buses	No date
743(a)	Misc. Mandatory	Establish a program for entering into cooperative agreements to develop fuel cell school buses	No date
805(a)	Misc. Mandatory	Conduct a hydrogen R&D program with specific characteristics activities and goals stated in this section.	No date
807(d)	Reports	Biennial Report on recommendations of the Hydrogen and Fuel Cell Technical Advisory Committee.	No date
808(a)	Misc. Mandatory	Fund a limited number of hydrogen demonstration projects as detailed within this section.	No date
809(a)	Misc. Mandatory	Provide grants to, or offer to enter into contracts with, organizations to develop safety codes and standards for hydrogen and fuel cell applications.	No date
933	Misc. Mandatory	Establish a light weight hydrogen vehicle RD&D program (with specific characteristics mentioned in this section).	No date

Sec. 805. Programs

(g) FUNDING

(1) **IN GENERAL.**—Secretary shall carry out programs using competitive, merit-based review process, consistent with applicable Federal laws and regulations governing awards of financial assistance, contracts, or other agreements.

(2) **RESEARCH CENTERS.**—Activities may be carried out by funding nationally recognized university based or Federal laboratory research centers.

(h) HYDROGEN SUPPLY—Appropriations authorized for projects & activities relating to hydrogen production, storage, distribution and dispensing, transport, education & coordination, and technology transfer :

(1) \$160,000,000 for fiscal year 2006

(2) \$200,000,000 for fiscal year 2007

(3) \$220,000,000 for fiscal year 2008

(4) \$230,000,000 for fiscal year 2009

(5) \$250,000,000 for fiscal year 2010

(6) such sums as are necessary for each of fiscal years 2011-2020

(i) FUEL CELL TECHNOLOGIES.—Appropriations authorized to carry out projects & activities relating to fuel cell technologies under this section

(1) \$150,000,000 for fiscal year 2006;

(2) \$160,000,000 for fiscal year 2007;

(3) \$170,000,000 for fiscal year 2008;

(4) \$180,000,000 for fiscal year 2009;

(5) \$200,000,000 for fiscal year 2010; and

(6) such sums as are necessary for each of fiscal years 2011 through 2020.

Sec. 806. Task Force

Interagency task force established by President & chaired by Secretary with Reps from:

- Office of Science & Technology Policy (Executive Office of the President)
- Departments of Transportation, Defense, Commerce (incl. NIST), and State
- EPA, NASA, and other Federal agencies as Secretary determines appropriate

DUTIES.—

- (A) a safe, economical, and environmentally sound fuel infrastructure
- fuel cells in government, including portable, stationary, and transportation
- (C) distributed power generation
- (D) uniform hydrogen codes, standards, and safety protocols
- (E) vehicle hydrogen fuel system integrity safety performance

ACTIVITIES –

- (A) foster exchange of generic, nonproprietary information and technology among industry, academia, and government
- (B) develop/maintain inventory & assessment of H₂, fuel cells, and other advanced technologies, including commercial capability of each technology for economic & environmentally safe production, distribution, delivery, storage, and use of H₂
- (C) integrate technical and other info made available as result of programs & activities
- (D) promote marketplace introduction of infrastructure for hydrogen fuel vehicles;
- (E) conduct education program to provide H₂ and fuel cell info to potential end-users.