DEPARTMENT OF ENERGY
FY 2002 REVISED REQUEST
ENERGY CONSERVATION APPROPRIATION
(Dollars in Thousands)

Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Building Technology, State and Community Sector			
Building Research and Standards			
Equipment, Materials, and Tools	$ 19,718	$ +1,829[a]	$ 21,547
All Other Building Technology, State and Community Sector	$ 347,423	$ 0	$ 347,423
Total, Building Technology, State and Community Sector	$ 367,141	$ +1,829[a]	$ 368,970
Transportation Sector			
Vehicle Technology R&D			
Hybrid Systems R&D	$ 48,206	$ -11,800	$ 36,406
Advanced Combustion Engine R&D	$ 52,986	$ -15,394	$ 37,592
Cooperative Automotive Research for Advanced Technologies	$ 1,500	$ -500	$ 1,000
Fuels Utilization R&D			
Advanced Petroleum Based Fuels	$ 11,549	$ -2,621	$ 8,928

[a] Revision to Building Technologies (+$1,829,000) and Policy and Management (+$650,000) represent a reallocation within the Department's proposed FY 2002 Energy Conservation budget. The resulting net decrease of $39,176,000 is being treated as an amendment to DOE Renewable Energy Resource Activities budgeted under the Energy Supply Appropriation.

Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Materials Technologies			
Propulsion Materials Technology	$ 8,962	$ -1,000	$ 7,962
Lightweight Materials Technology	$ 27,731	$ -10,000	$ 17,731
Technology Deployment			
Advanced Vehicle Competitions	$ 840	$ -340	$ 500
All Other Transportation Sector	$ 87,596	$ 0	$ 87,596
Total Transportation Sector	$ 239,370	$ -41,655	$ 197,715
Policy and Management			
International Market Development Program	$ 0	$ +650[a]	$ 650
All Other Policy and Management	$ 40,100	$ 0	$ 40,100
Total, Policy and Management	$ 40,100	$ +650[a]	$ 40,750
All Other Conservation	$ 148,370	$ 0	$ 148,370
Total, Energy Conservation	$ 794,981	$ -39,176[a]	$ 755,805

[a] Revision to Building Technologies (+$1,829,000) and Policy and Management (+$650,000) represent a reallocation within the Department's proposed FY 2002 Energy Conservation budget. The resulting net decrease of $39,176,000 is being treated as an amendment to DOE Renewable Energy Resource Activities budgeted under the Energy Supply Appropriation.

DEPARTMENT OF ENERGY
FY 2002 CONGRESSIONAL BUDGET REQUEST
ENERGY EFFICIENCY AND RENEWABLE ENERGY
ENERGY CONSERVATION
(Tabular Dollars in Thousands, Narrative in Whole Dollars)

BUILDING TECHNOLOGY, STATE, AND COMMUNITY SECTOR

PROGRAM MISSION

The pending FY 2002 Congressional Budget for Building Research and Standards includes $19,718,000 for Equipment, Materials, and Tools. The request is $21,492,000 less than the FY 2001 Appropriation. This reallocation within the Department's Energy Conservation budget will restore $1,829,000 for some of the highest priority research and development activities in Lighting Research and Development, Space Conditioning and Refrigeration R&D, Appliances and Emerging Technologies, Building Envelope Research and Development, and Analysis Tools and Design Strategies.

DEPARTMENT OF ENERGY
FY 2002 CONGRESSIONAL BUDGET REQUEST
ENERGY CONSERVATION
(Dollars in Thousands)

BUILDING TECHNOLOGY, STATE, AND COMMUNITY SECTOR

PROGRAM FUNDING PROFILE

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
Building Research and Standards			
Equipment, Materials, and Tools	$ 19,718	$ 1,829	$ 21,547
All Other Building Technology, State and Community Sector	$ 347,423	$ 0	$ 347,423
Total, Building Technology, State and Community Sector	$ 367,141	$ 1,829	$ 368,970
Summary			
Operating Expenses	$ 367,141	$ 1,829	$ 368,970
Total Program	$ 367,141	$ 1,829	$ 368,970

BUILDING TECHNOLOGIES
BUILDING TECHNOLOGY, STATE AND COMMUNITY SECTOR
(dollars in thousands)

BUILDING RESEARCH AND STANDARDS

I. Mission Supporting Goals and Objectives

The FY 2002 proposed Energy Conservation budget reallocation includes $1,829,000 for Equipment, Materials and Tools. The Revised Request includes increased funding for high priority research and development activities in Lighting Research and Development (+$400,000); Space Conditioning and Refrigeration R&D (+$329,000); Appliances and Emerging Technologies (+$300,000); and Building Envelope Research and Development (+$600,000); and Analysis Tools and Design Strategies (+$200,000).

II. A. Funding Table: BUILDING RESEARCH AND STANDARDS

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
Equipment, Materials, and Tools			
Lighting Research and Development	$ 3,394	$ 400	$ 3,794
Space Conditioning and Refrigeration R&D	$ 2,425	$ 329	$ 2,754
Appliances and Emerging Technologies	$ 1,455	$ 300	$ 1,755
Building Envelope Research and Development	$ 4,392	$ 600	$ 4,992
Analysis Tools and Design Strategies	$ 2,426	$ 200	$ 2,626
Lighting and Appliance Standards.	$ 4,426	$ 0	$ 4,426
Tech/Program Management Support	$ 1,200	$ 0	$ 1,200

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
Subtotal, Equipment, Materials, and Tools.	$ 19,718	$ 1,829	$ 21,547

II. B. Laboratory and Facility Funding Table: BUILDING RESEARCH AND STANDARDS

	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
Lawrence Berkeley National Lab	$ 5,700	$ 150	$ 5,850
Oak Ridge National Lab	$ 3,650	$ 150	$ 3,800
All Others	$ 10,368	$ 1,529	$ 11,897
Total, Building Research and Standards	$ 19,718	$ 1,829	$ 21,547

III. Performance Summary: BUILDING RESEARCH AND STANDARDS

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
Equipment, Materials and Tools	**Lighting R&D** Conduct basic and applied research on advanced light sources with an increased focus on the science and enabling technology for solid state lighting. Develop new approaches to the effective distribution and control of lighting in buildings and determine the impact of lighting on performance and comfort of building occupants. Conduct this work through an integrated program consisting of cost-shared contracts with manufacturers, utilities, and small businesses R&D firms in addition to scientific support from National Laboratories and universities. In the light sources area, continue research on two paths: seek technology breakthroughs for conventional types of lamps to improve efficiency by 20 to 50 percent, and develop revolutionary	**Lighting R&D** Increase the best of competitively awarded lighting research projects. (+$400)	**Lighting R&D** Continue the best of competitively awarded lighting research projects selected from prior year solicitations. Conduct basic and applied research on advanced light sources with an increased focus on the science and enabling technology for solid state lighting. Develop new approaches to the effective distribution and control of lighting in buildings and determine the impact of lighting on performance and comfort of building occupants. Conduct this work through an integrated program consisting of cost-shared contracts with manufacturers, utilities, and small businesses R&D firms in addition to scientific support from National Laboratories and universities. In the light sources area, continue research on two paths: seek technology breakthroughs for conventional types of lamps to improve efficiency by 20 to 50 percent, and develop revolutionary

III. Performance Summary: BUILDING RESEARCH AND STANDARDS (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
	lighting technologies that can potentially double efficiency.		lighting technologies that can potentially double efficiency.
Equipment, Materials and Tools (Cont'd)	In the lighting impacts area, achieve two major milestones by completing two preliminary field tests of the most promising concepts for saving energy through improved vision, with a potential savings up to 30 percent in office and/or highway lighting systems. ($3,394) Participants will include: LBNL, Lighting Research Center, Others TBD.		In the lighting impacts area, achieve two major milestones by completing two preliminary field tests of the most promising concepts for saving energy through improved vision, with a potential savings up to 30 percent in office and/or highway lighting systems. ($3,794) Participants will include: LBNL, Lighting Research Center, Others TBD.
	Space Conditioning and Refrigeration R&D Collaborate with manufacturers to investigate alternatives for affordable efficiency advancements and development of design tools for the optimum selection of equipment components for air conditioners and heat pumps. Continue to develop refrigeration systems that reduce	**Space Conditioning and Refrigeration R&D** Explore and begin development of component technologies for applications in existing buildings. Continue the best of competitively awarded research projects. (+$329)	**Space Conditioning and Refrigeration R&D** Collaborate with manufacturers to investigate alternatives for affordable efficiency advancements and development of design tools for the optimum selection of equipment components for air conditioners and heat pumps. Also, the Revised Request supports research and initial

III. Performance Summary: BUILDING RESEARCH AND STANDARDS (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
Equipment, Materials and Tools (Cont'd)	defrost energy needed for heat pumps and commercial food storage equipment. Continue to develop field test diagnostic tools and test methods to maintain the installed system efficiency of air conditioners and heat pumps. ($2,425)		development of component technologies for applications in existing buildings. Continue to develop refrigeration systems that reduce defrost energy needed for heat pumps and commercial food storage equipment. Continue to develop field test diagnostic tools and test methods to maintain the installed system efficiency of air conditioners and heat pumps. The Revised Request also supports continuation of the best of competitively awarded research projects. ($2,754)
	Participants will include: BNL, LBNL, NIST, ORNL, Univ of Ill, Univ MD.		Participants will include: BNL, LBNL, NIST, ORNL, Univ of Ill, Univ MD.
	Appliances and Emerging Technologies R&D Recruit additional manufacturing partners to introduce heat pump water heaters (HPWH) to market and provide infrastructure support, such as field testing, case study	**Appliances and Emerging Technologies R&D** Identify and explore innovative technologies for commercial adaption. (+$300)	**Appliances and Emerging Technologies R&D** Recruit additional manufacturing partners to introduce heat pump water heaters (HPWH) to market and provide infrastructure support, such as field testing, case study

III. Performance Summary: BUILDING RESEARCH AND STANDARDS (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
Equipment, Materials and Tools (Cont'd)	dissemination and fact sheets. Coordinate with utility and end-user partners to enhance marketability and demand for HPWH. Continue to establish rooftop A/C and emerging lighting products on the market with manufacturers and end-user-groups. Work with end-user groups, utilities, and the research establishment to commercialize the next-generation of smarter, more efficient appliances. Participants will include: ORNL, PNNL, SE HPWH Council, Others TBD. ($1,455)		dissemination and fact sheets. Coordinate with utility and end-user partners to enhance marketability and demand for HPWH. Continue to establish rooftop A/C and emerging lighting products on the market with manufacturers and end-user-groups. Work with end-user groups, utilities, and the research establishment to commercialize the next-generation of smarter, more efficient appliances. The Revised Request will permit the identification and exploration of innovative appliances and emerging technologies for commercial adaption. Participants will include: ORNL, PNNL, SE HPWH Council, Others TBD. ($1,755)
	Building Envelope R&D Thermal Insulation and Building Materials: Implementing the building envelope road map	**Building Envelope R&D** Thermal Insulation and Building Materials: Explore and develop technologies for existing retrofit	**Building Envelope R&D** Thermal Insulation and Building Materials: The Revised Request supports exploration and

III. Performance Summary: BUILDING RESEARCH AND STANDARDS (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
	completed in FY 2001, conduct research to improve the thermal performance of the building envelope through the evaluation of materials and construction practices. Florida Solar Energy Center, Minority Education Institutions, NREL, ORNL. ($1,464)	applications. (+$300)	development of thermal insulation and building materials technologies for existing retrofit applications. Conduct research to improve the thermal performance of the building envelope through the evaluation of materials and construction practices. Florida Solar Energy Center, Minority Education Institutions, NREL, ORNL. ($1,764)
Equipment, Materials and Tools (Cont'd)			
	Window Technologies: Continue the evaluation of high performance windows. Publish Commercial Glazing handbook; and initiate companion web-based engineering design and specification tools. Implement through NFRC new WINDOW 5 rating and design software suite based on International Standards Organization procedures. Continue training of builders, architects and manufacturers through Efficient Window Collaborative.	Window Technologies: Explore and develop advanced window technologies for existing building retrofit applications. Continue support for the best competitively selected windows research projects. (+$300)	Window Technologies: Explore and develop advanced window technologies for existing building retrofit applications. Continue the evaluation of high performance windows and continue support for the best competitively selected windows research projects. Publish Commercial Glazing handbook; and initiate companion web-based engineering design and specification tools. Implement through NFRC new WINDOW 5 rating and design software suite based on International Standards Organization procedures. Continue training of builders, architects and manufacturers through

III. Performance Summary: BUILDING RESEARCH AND STANDARDS (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
			Efficient Window Collaborative. Participants will include: Florida Solar Energy Center, LBNL, NREL, ORNL, UN. MA, UN. MN, CA Energy Commission, Alliance to Save Energy. ($3,228)
Equipment, Materials and Tools (Cont'd)	**Analysis Tools and Design Strategies** Continue working with building industry groups to support early design decision-making and associated software tools, for renewable energy and energy efficiency within residential and small commercial buildings. Focus efforts on EnergyPlus development; conclude support for SPARK and Energy 10. Develop and demonstrate successful energy-efficient design solutions.	**Analysis Tools and Design Strategies** Evaluate and improve tools for design and selection / prioritization of retrofit measures in existing buildings. (+$200)	**Analysis Tools and Design Strategies** Continue working with building industry groups to support early design decision-making and associated software tools, for renewable energy and energy efficiency within residential and small commercial buildings. Focus efforts on EnergyPlus development; conclude support for SPARK and Energy 10. Develop and demonstrate successful energy-efficient design solutions. Evaluate and improve tools for design and selection / prioritization of retrofit measures in existing buildings.

III. Performance Summary: BUILDING RESEARCH AND STANDARDS (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
	Participants include: ASHRAE, Athena Sustainable Materials Institute, California State University, GARD Analytics, LBNL, J. Neymark Associates, NREL, Oklahoma State University, Fullerton/Chapman University, Sustainable Building Industries Council, University of Illinois/U.S. Army Construction Engineering Research Laboratories, University of Wisconsin. ($2,426)		Participants include: ASHRAE, Athena Sustainable Materials Institute, California State University, GARD Analytics, LBNL, J. Neymark Associates, NREL, Oklahoma State University, Fullerton/Chapman University, Sustainable Building Industries Council, University of Illinois/U.S. Army Construction Engineering Research Laboratories, University of Wisconsin. ($2,626)
Other Equipment, Materials and Tools	**$5,626**	**$0**	**$5,626**
Total, Equipment, Materials, and Tools	**$19,718**	**$1,829**	**$21,547**

DEPARTMENT OF ENERGY
FY 2002 CONGRESSIONAL BUDGET REQUEST
ENERGY EFFICIENCY AND RENEWABLE ENERGY
ENERGY CONSERVATION
(Tabular Dollars in Thousands, Narrative in Whole Dollars)

TRANSPORTATION SECTOR

PROGRAM MISSION

The pending FY 2002 Congressional Request for the Transportation Sector is $239,370,000. The FY 2002 request is $16,028,000 less than the FY 2001 Appropriation of $255,398,000. This proposed FY 2002 budget revision will now reduce funding for the Transportation Sector programs by $41,655,000, with decreases being taken as follows: Vehicle Technologies R&D will be reduced by $27,694,000; Fuels Utilization R&D will be reduced by $2,621,000; Materials Technologies will be reduced by $11,000,000; and Technology Deployment will be reduced by $340,000. The revised request for the Transportation Sector is $197,715,000. Of the total amount proposed for withdrawal from the Transportation Sector budget, $2,479,000 has been reallocated within the Department's Energy Conservation Appropriation to Building Technology, State and Community Sector (+$1,829,000) as well as Policy and Management (+$650,000). In addition, the $39,176,000 balance amends DOE Renewable Energy Resources budgeted under the Energy Supply Appropriation.

DEPARTMENT OF ENERGY
FY 2002 CONGRESSIONAL BUDGET REQUEST
ENERGY CONSERVATION
(Dollars in Thousands)

TRANSPORTATION SECTOR

PROGRAM FUNDING PROFILE

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Vehicle Technologies R&D	$ 154,116	$ (27,694)	$ 126,422
Fuels Utilization R&D	$ 23,529	$ (2,621)	$ 20,908
Materials Technologies	$ 41,293	$(11,000)[a]	$ 30,293
Technology Deployment	$ 10,200	$ (340)	$ 9,860
Cooperative Programs with States	$ 0	$ 0	$ 0
Energy Efficiency Science Initiative	$ 0	$ 0	$ 0
Management and Planning	$ 10,232	$ 0	$ 10,232
TOTAL	$ 239,370	$(41,655)[b]	$ 197,715

[a/] Includes $1,829,000 reallocation to Building Research and Standards and $650,000 to Policy and Management within the Department's Energy Conservation budget request.

[b/] The overall proposed revision consists of $2,479,000 in Energy Conservation reallocations and a $39,176,000 amendment to the DOE Renewable Energy Resources budget request (Energy Supply Appropriation).

TRANSPORTATION TECHNOLOGIES
TRANSPORTATION SECTOR
(Dollars in Thousands)

VEHICLE TECHNOLOGIES R&D

The pending FY 2002 Congressional Budget for Vehicle Technologies R&D includes $154,116,000 for Hybrid Systems R&D, Fuel Cell R&D, Advanced Combustion Engine R&D, Cooperative Automotive Research for Advanced Technologies (CARAT), Electric Vehicles R&D, and Heavy Vehicle Systems R&D. This amendment shifts $27,694,000 from programs such as Light Vehicles Propulsion and Ancillary Subsystems, Advanced Combustion Engine R&D, and Hybrid Direct Injection Engines to other high priority programs within the Office of Energy Efficiency and Renewable Energy.

A. Funding Table: VEHICLE TECHNOLOGIES R&D

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Hybrid Systems R&D	$ 48,206	$ (11,800)	$ 36,406
Fuel Cell R&D	$ 41,925	$ 0	$ 41,925
Advanced Combustion Engine R&D	$ 52,986	$ (15,394)	$ 37,592
Cooperative Automotive Research for Advanced Technologies	$ 1,500	$ (500)	$ 1,000
Electric Vehicles R&D	$ 3,519	$ 0	$ 3,519
Heavy Vehicle Systems R&D	$ 5,980	$ 0	$ 5,980
Total, Vehicle Technologies R&D	$ 154,116	$ (27,694)	$ 126,422

II. B. Laboratory and Facility Funding Table: VEHICLE TECHNOLOGIES R&D

	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Request
Argonne National Lab (East)	$ 21,848	$ (7,365)	$ 14,483
Brookhaven National Lab	$ 280	$ 0	$ 280
Idaho National Engineering and Environmental Lab	$ 1,720	$ (300)	$ 1,420
Lawrence Berkeley National Lab	$ 3,008	$ (250)	$ 2,758
Lawrence Livermore National Lab	$ 826	$ (150)	$ 676
Los Alamos National Laboratory	$ 7,500	$ (3,200)	$ 4,300
National Renewable Energy Lab	$ 6,575	$ (2,000)	$ 4,575
Oak Ridge National Lab	$ 10,958	$ (4,000)	$ 6,958
Pacific Northwest National Lab	$ 3,000	$ (500)	$ 2,500
Sandia National Laboratories	$ 6,977	$ (2,000)	$ 4,977
All Other	$ 91,424	$ (7,929)	$ 83,495
Total, Vehicle Technologies R&D	$ 154,116	$ (27,694)	$ 126,422

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Hybrid Systems R&D	**Light Vehicles Propulsion & Ancillary Subsystems**	**Light Vehicles Propulsion & Ancillary Subsystems**	**Light Vehicles Propulsion & Ancillary Subsystems**
	Examine, through analysis and trade-off studies, the potential for fuel efficiency improvements of several propulsion system candidates that achieve the performance and target goals for SUVs and light trucks.		Shift focus of analysis work and trade-off studies to applying light-duty automotive technologies to improving the fuel efficiency of light trucks and SUVs. Determine shortfalls in technology development that are needed for light trucks and SUVs that are currently not addressed.
	Evaluate emission control models under steady state and transient conditions. Continue benchmarking commercial technologies worldwide, to compare state-of-the-art performance with DOE performance targets.	Reduce emission modeling activity to focus work only on developing neural network emission predictors. Eliminate benchmarking commercial technologies.	Develop neural network emission predictors for advanced internal combustion engines.
	Assemble a parallel hybrid vehicle system in the laboratory, and use government/industry-developed models to demonstrate advanced control techniques to improve fuel efficiency and reduce emissions.	Simulated data will replace hardware components in the laboratory parallel hybrid system.	Simulate a parallel hybrid propulsion system with a combination of components and data and use government/industry-developed models to demonstrate advanced control techniques to improve fuel economy and reduce emissions.
	Continue to develop models which		

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Hybrid Systems R&D (Cont'd)	will enable improved cost estimation of advanced vehicles and systems.		Continue to develop models which will enable improved cost estimation of advanced vehicles and systems.
	Demonstrate fuel efficiency benefits that can result from using the Digital Functional Vehicle process. With industry partners, show how this process can improve fuel efficiency through subsystem optimization.	Eliminate development of Digital Functional Vehicle.	
	Award contract for the next generation Automotive Climate Control System (ACCS) and begin evaluation of thermal manikin response to cold & hot temperatures. Complete an integrated systems model for automotive interior climate control.	Eliminate next generation ACCS effort. Terminate work on an integrated systems model for automotive interior control.	Evaluate response of thermal comfort manikin to changes in temperature and humidity.
	Validate vehicle system performance models using data from testing an advanced lithium-ion battery pack and an advanced electric drive subsystem in a vehicle systems environment.	Eliminate validation of system models using test data from an advanced lithium-ion battery pack and an advanced electric drive system in a vehicle environment.	
	Investigate new concepts such as efficient battery self heating and hybrid energy storage systems and begin testing thermal management system in a test vehicle.	Eliminate investigation of new concepts such as efficient battery self	Begin testing battery thermal management system in a test

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	Participants include: ANL, NREL, ORNL, USCAR, other contractors. (PNGV: $11,718) ($11,718)	heating and hybrid energy storage system.	vehicle.
Hybrid Systems R&D (Cont'd)			(PNGV: $6,118); ($6,118)
		(PNGV: -$5,600); (-$5,600)	
	High Power Energy Storage	**High Power Energy Storage**	**High Power Energy Storage**
	Support R&D on high power batteries with the U.S. Advanced Battery Consortium (USABC), with an industry cost share of 50 percent in FY 2002.		Support R&D on high power batteries with the U.S. Advanced Battery Consortium (USABC), with an industry cost share of 50 percent in FY 2002.
	Complete life verification testing of four 50-volt nickel-metal hydride modules at a DOE laboratory, to validate the performance against PNGV energy storage requirements. Transfer data base and nickel metal hydride technology to DaimlerChrysler, Ford, and General Motors for use in their hybrid-electric vehicle (HEV) development efforts. Validate nickel-metal hydride technologies to verify performance and life capabilities of production-feasible	Defer completion of life verification testing of nickel-metal hydride modules. No validation of nickel-metal hydride technologies would be conducted.	Continue testing of nickel-metal hydride cells at a DOE laboratory, to assess the performance against PNGV energy storage requirements.

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	designs.		
Hybrid Systems R&D (Cont'd)	Continue development of lithium-ion battery subsystems for use in PNGV vehicles. Incorporate second generation lithium-ion electrochemistry and packaging improvements from the Advanced Technology Development program in full-size cells.	Delay fabrication of battery subsystems for use in PNGV vehicles. Delay transfer of packaging improvements.	Continue only development of lithium-ion cells and modules. Incorporate second generation lithium-ion electrochemistry from the Advanced Technology Development program in full-size cells.
	Continue transfer of technology improvements to industrial suppliers for validation in small cells prior to incorporation into full size, prototype, lithium-based cells. Assess diagnostic tools and techniques and select those that have the potential to identify lithium-ion degradation/failure mechanisms that limit life and abuse-tolerance capabilities. Initiate an accelerated calendar life study to predict the life of lithium-ion batteries.		Continue transfer of technology improvements to industrial suppliers for validation in small cells prior to incorporation into full size, prototype, lithium-based cells. Assess diagnostic tools and techniques and select those that have the potential to identify lithium-ion degradation/failure mechanisms that limit life and abuse-tolerance capabilities. Initiate an accelerated calendar life study to predict the life of lithium-ion batteries.
	Participants include: USABC, ANL, BNL, LBNL, INEEL, SNL. (PNGV: $17,794) ($17,794)	(PNGV: -$2,700)	Participants include: USABC, ANL, BNL, LBNL, INEEL, SNL. (PNGV: $15,094) ($15,094)

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	Advanced Power Electronics	**Advanced Power Electronics**	**Advanced Power Electronics**
Hybrid Systems R&D (Cont'd)	Evaluate second generation Automotive Integrated Power Module (AIPM) and Automotive Electric Motor Drive (AEMD) production prototypes developed under 50 percent cost-shared agreements. At the national laboratories, validate performance of the second generation AIPM and AEMD production prototypes against PNGV performance targets. Validate AIPM and AEMD propulsion systems' performance in an integrated systems configuration.	Discontinue work with one AIPM contractor. Eliminate AIPM and AEMD validation efforts at the national laboratories.	Evaluate second generation Automotive Integrated Power Module (AIPM) and Automotive Electric Motor Drive (AEMD) production prototypes developed under 50 percent cost-shared agreements.
	Develop/explore improved materials and architectures for advanced automotive propulsion systems and flexible manufacturing. Evaluate prototype high temperature polymer capacitors and continue materials development to increase capacitor energy storage at high temperature.		Develop and explore improved materials and architectures for advanced automotive propulsion systems and flexible manufacturing. Evaluate prototype high temperature polymer capacitors and continue materials development to increase capacitor energy storage at high temperature.
	Participants include: SatCon, SPCO, Semikron, ORNL, SNL,		

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	LLNL. (PNGV: $14,403) ($14,403)	(PNGV: -$3,500); (-$3,500)	Participants include: SatCon, SPCO, Semikron, ORNL, SNL, LLNL, ANL, Ames, TBD. (PNGV: $10,903) ($10,903)
Hybrid Systems R&D (Cont'd)	**Heavy Vehicle Propulsion Systems**	**Heavy Vehicle Propulsion Systems** No Change	**Heavy Vehicle Propulsion Systems**
	Integrate the latest technologies for heavy hybrid vehicles. Finalize design and establish preliminary manufacturing techniques for cost-effective mass production of components/subassemblies. Perform analytical modeling to confirm industry predictions of fuel economy improvement and emission reduction.		Integrate the latest technologies for heavy hybrid vehicles. Finalize design and establish preliminary manufacturing techniques for cost-effective mass production of components/subassemblies. Perform analytical modeling to confirm industry predictions of fuel economy improvement and emission reduction.
	Participants include: DOT, DOD, ORNL, ANL. ($3,941)		Participants include: DOT, DoD, ORNL, ANL. ($3,941)
	Provide critical technical and program management support services. (Sentech, Antares). (PNGV: $300) ($350)	No Change	Provide critical technical and program management support services. (Sentech, Antares). (PNGV: $300) ($350)

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Total, Hybrid Systems R&D	**$48,206**	**$-11,800**	**$36,406**
Advanced Combustion Engine R&D	**Hybrid Direct Injection Engine** Conduct engine research directed at developing technology that can enable the introduction of competitive spark ignition, direct injection (SIDI) gasoline engines. Research is focused on combustion and exhaust treatment technology that can help to accelerate the introduction of SIDI engines that meet Tier 2 emission standards, while offering high efficiency in either conventional or hybrid power vehicles. Research will include exhaust sensor development, combustion modeling, fuel injection system development, and SIDI engine testing. Laboratory tests will combine an SIDI engine with a hybrid drivetrain to characterize the synergies of the two technologies. Explore the variable compression ratio (VCR) engine concept as an	**Hybrid Direct Injection Engine** Terminate SIDI and VCR efforts. Both of these efforts are focused on gasoline spark ignited engines and are considered the Department's effort that could have a near term impact (2-5 yrs) on gasoline consumption. Implementation of SIDI technology into a conventional vehicle has the potential of reducing fuel consumption by as much as 20% and a VCR engine could reduce fuel consumption by as much as 35%. Development and validation of these technologies will not be completed. (PNGV: -$5,410) (-$5,410)	**Hybrid Direct Injection Engine** No Activities (PNGV: $0) ($0)
Advanced Combustion Engine R&D (Cont'd)			

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Advanced Combustion Engine R&D (Cont'd)	alternative method for improving gasoline engine efficiency. An optimized cylinder head for the variable compression ratio engine will be designed, built and tested. Optimize the VCR mechanism and combustion critical components to determine the best engine configuration and components for the second generation VCR engine. Conduct tests on the engine to characterize its fuel saving and emission reduction potential. Participants include: SNL, ORNL, ANL, LANL, LLNL, Delphi, universities. (PNGV : $5,410) ($5,410)		
	Combustion and Emission Control R&D Conduct R&D which will enable passenger cars and light trucks to utilize fuel efficient compression-ignition, direct-injection (CIDI) engines while meeting Federal Tier 2 and State emissions requirements.	**Combustion and Emission Control R&D**	**Combustion and Emission Control R&D** Conduct R&D which will enable passenger cars and light trucks to utilize fuel efficient compression-ignition, direct-injection (CIDI) engines while meeting Federal Tier 2 and State emissions requirements.

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Advanced Combustion Engine R&D (Cont'd)	Combustion: Utilize Advanced Photon Source (APS) to optimize industry fuel injection system operation and improve combustion chamber design. Using laser diagnostics and high speed imaging techniques, visualize the formation and oxidation of in-cylinder soot and evaluate different fuel injection strategies to minimize emission formation. Use experimental results to validate computational models to simulate the fuel injection spray, combustion process, and emissions formation. Develop late cycle injection and other strategies to generate reductants for lean NO_X catalysts and adsorbers. Develop control strategies to demonstrate feasibility of homogeneous charge compression ignition technologies to reduce engine out emissions.	Combustion: Terminate Advanced Photon Source (APS) work at Argonne National Laboratory focused on improving the combustion chamber and optimizing the fuel injection system. Terminate CIDI combustion programs at universities. Reduce laser diagnostic and high speed imaging work at Sandia National Laboratory (SNL) used to visualize formation & oxidation of in-cylinder soot and to evaluate various fuel injection strategies to minimize emission formation. Also, reduce SNL combustion, fuel injection, and emissions formation simulation projects. Defer expansion of programs at Sandia National Laboratory and several universities to demonstrate feasibility of homogeneous charge compression ignition technologies to reduce engine out emissions.	Combustion: Continue CIDI Combustion CRADA work at Sandia National Laboratories focused on optical engine studies. This work is cost-shared (50-50) with industry. Continue low-level investigations of control systems for homogeneous charge compression ignition technologies to reduce engine out emissions at Sandia National Laboratories and several universities. The work at the universities is cost shared at 20%.
	Emission Controls: Demonstrate emission control systems that meet interim targets of 0.2g/mi NO_X and	Emission Controls: Terminate non-thermal plasma CRADA between PNNL and GM, Ford, and Daimler-	Emission Controls: Continue at a delayed pace the Lean NOx

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	0.02 g/mi PM for PNGV and light truck applications. Complete down-select of emission control system technologies to meet Tier 2 standards of 0.07g/mi NO_X and 0.01g/mi PM for light-duty vehicles.	Chrysler. Terminate programs at Oak Ridge National Laboratory to develop and test NOx adsorber and sulfur trap systems. Terminate programs at Oak Ridge and Sandia National Laboratories to determine how engine parameters, such as Exhaust Gas Recirculation (EGR) level, can be adjusted to reduce NOx and particulate emissions.	catalyst CRADA program focusing on developing urea-based catalysts with improved activity and durability at the low exhaust temperatures characteristic of light duty CIDI engines. Ford, GM, and Daimler Chrysler are cost sharing partners on this CRADA. Develop late cycle injection and other strategies to generate reductants for lean NO_X catalysts and adsorbers.
Advanced Combustion Engine R&D (Cont'd)	Develop urea-based Selective Catalytic Reduction (SCR) catalysts and NO_X adsorbers that give improved activity at the relatively low light duty diesel exhaust temperatures. Test durability of these catalysts. Complete	Terminate programs at Lawrence Berkeley and Oak Ridge National Laboratories to develop and test a state-of-the-art particulate measurement device. Terminate Engine Control System work at Oak Ridge National Laboratory necessary for complex manipulation of EGR, timing multiple fuel injection events, making temperature adjustments, and other control strategies necessary for proper emission control device	At a reduced pace, continue program using combinatorial chemistry to screen high volumes of NOx catalyst materials. Industry cost shares this program at 35%. At a reduced pace, continue program at Ford to develop and test urea-based SCR catalysts. On a lengthened schedule, continue programs at DDC and Cummins on emission control system technologies to achieve stretch targets of 0.07 g/mi NOx and 0.01 g/mi PM for PNGV and light truck applications by 2010. The contracts with Ford,

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	development and evaluate performance of prototype NO_X catalysts utilizing hydrocarbon reductants. Develop sulfur tolerant catalysts and sulfur traps.	operation and regeneration.	DDC and Cummins include a 35% cost share.
Advanced Combustion Engine R&D (Cont'd)	Conduct full-scale device testing to determine feasibility of non-thermal plasma. Using a systems approach, work with engine manufacturers to determine how engine parameters, such as EGR level, can be adjusted to meet NO_X and particulate goals with a plasma/catalyst aftertreatment device. Develop continuously regenerated PM traps using both catalyst and microwave energy sources. Conduct system level testing and begin engineering simulation and model validation of emission control systems for PNGV passenger vehicle and light truck applications to evaluate fuel economy, emissions, and cost trade-offs.	Curtail Lean NOx CRADA between USCAR partners and Los Alamos, Oak Ridge and Sandia National Laboratories to develop NOx catalysts for improved activity and durability at the low exhaust temperatures characteristic of light duty CIDI engines. Delay program at Ford's scientific laboratory to develop and test urea-based SCR catalysts. Delay industry cost-shared research program to develop NOx catalyst formulations. Delay programs at DDC and Cummins on emission control system technologies. All of these program cuts will delay the achievement of stretch targets of 0.07 g/mi NOx and 0.01 g/mi PM for PNGV and light truck applications by 3 years.	
	Engine/Emission Control Integration: Optimize control systems for combustion and	Engine/Emission Control Integration: Terminate programs to use NOx and oxygen sensors in	Engine/Emission Control

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	emission control efficiency, utilizing PM, NO_X and wide range O_2 sensors in feedback loops. Continue ongoing projects in partnership with DOE laboratories, universities, and diesel engine and catalyst manufacturers. Participants include: SNL, LANL, ORNL, PNNL, LBNL, LLNL, ANL, Ford, GM, Daimler-Chrysler, Detroit Diesel, Cummins, Engelhard, ExxonMobil, Diesel Engine and catalyst manufacturers, Tier 1 suppliers, and universities.	feedback loops to optimize control systems for combustion and emission control efficiency.	Integration: On a lengthened schedule, continue program to develop a PM sensor to give feedback to optimize control systems for combustion and emission control. This work is cost shared by industry at 20%. Participants include: SNL, LANL, ORNL, PNNL, LLNL, ANL, Ford, GM, Daimler-Chrysler, Detroit Diesel, Cummins, Engelhard, ExxonMobil, Diesel Engine and catalyst manufacturers, Tier 1 suppliers, and universities.
Advanced Combustion Engine R&D (Cont'd)	(PNGV: $18,075); ($21,751)	(PNGV: -$9,894); (-$9,894)	(PNGV: $8,181); ($11,857)
	Light Truck Engine	**Light Truck Engine**	**Light Truck Engine**
	Optimize production-ready prototype clean diesel engines for light trucks (pickups, vans, and sport utility vehicles). Incorporate emission reduction technology to achieve compliance with EPA emission standards. Initiate	No Change	Optimize production-ready prototype clean diesel engines for light trucks (pickups, vans, and sport utility vehicles). Incorporate emission reduction technology to achieve compliance with EPA emission standards. Initiate

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	reliability testing of engine and emissions reduction technology.		reliability testing of engine and emissions reduction technology.
	Continue development of promising NOx reducing homogeneous charge compression ignition (HCCI) combustion and fuel injection systems.		Continue development of promising NOx reducing homogeneous charge compression ignition (HCCI) combustion and fuel injection systems.
	Develop non-thermal plasma for 80 hp diesel engine. Scale-up non-thermal plasma devices for both light and heavy trucks, utilizing solid state power systems compatible with vehicle installation.		Develop non-thermal plasma for 80 hp diesel engine. Scale-up non-thermal plasma devices for both light and heavy trucks, utilizing solid state power systems compatible with vehicle installation.
Advanced Combustion Engine R&D (Cont'd)	Design, fabricate, and test the first quantum well thermoelectric device to convert waste exhaust energy directly to electricity, which will increase the fuel economy by up to 7 percent.		Design, fabricate, and test the first quantum well thermoelectric device to convert waste exhaust energy directly to electricity, which will increase the fuel economy by up to 7 percent.
	Participants include: Caterpillar Inc., Cummins Engine Co., Detroit Diesel Corp., Hi-Z, NoxTech). ($16,768)		Participants include: Caterpillar Inc., Cummins Engine Co., Detroit Diesel Corp., Hi-Z, NoxTech). ($16,768)
	Heavy Truck Engine	**Heavy Truck Engine**	**Heavy Truck Engine**

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Advanced Combustion Engine R&D (Cont'd)	Develop and test laboratory diesel engines, through a competitively awarded 50 percent cost-shared R&D with industry, that will meet EPA emissions standards while improving the thermal efficiency to 50 percent from the current 45 percent. Investigate technologies to optimize fuel injection, emissions control, and waste heat recovery systems, and reduce friction and pumping losses. Evaluate technologies developed in the Combustion and Emission Control R&D and Light Truck Engine R&D programs to determine their applicability to the higher pressures and temperatures experienced in heavy duty engines. Develop a Multi-Year Program Plan for the Heavy Duty Diesel Engine Emissions Control Technology Program to address the recommendations from the National Research Council (NRC) peer review of the Office of Heavy	No Change	Develop and test laboratory diesel engines, through a competitively awarded 50 percent cost-shared R&D with industry, that will meet EPA emissions standards while improving the thermal efficiency to 50 percent from the current 45 percent. Investigate technologies to optimize fuel injection, emissions control, and waste heat recovery systems, and reduce friction and pumping losses. Evaluate technologies developed in the Combustion and Emission Control R&D and Light Truck Engine R&D programs to determine their applicability to the higher pressures and temperatures experienced in heavy duty engines. Develop a Multi-Year Program Plan for the Heavy Duty Diesel Engine Emissions Control Technology Program to address the recommendations from the National Research Council (NRC) peer review of the Office of

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	Vehicle Technologies (OHVT) Program. Participants include: Caterpillar Inc., Cummins Engine Co., Detroit Diesel Corp., suppliers, National Labs. ($5,896)		Heavy Vehicle Technologies (OHVT) Program. Participants include: Caterpillar Inc., Cummins Engine Co., Detroit Diesel Corp., suppliers, National Labs. ($5,896)
	Engine Boosting Technology	**Engine Boosting Technology**	**Engine Boosting Technology**
	Continue work under cooperative agreements to develop electric turbo-compounding to combined starter motor-alternator and damper technology to eliminate turbo-lag, reduce particulate emissions and improve thermal efficiency by up to 10 percent. Participants include: Honeywell, Caterpillar, suppliers. ($500)	No Change	Continue work under cooperative agreements to develop electric turbocompounding to combined starter motor-alternator and damper technology to eliminate turbo-lag, reduce particulate emissions and improve thermal efficiency by up to 10 percent. Participants include: Honeywell, Caterpillar, suppliers. ($500)
Advanced Combustion Engine R&D (Cont'd)	**Health Impacts**	**Health Impacts**	**Health Impacts**
	Continue comparison of toxicity of diesel and gasoline emissions by sub-chronic inhalation exposures. Complete exposures to diesel emissions and begin exposures to gasoline emissions.	No Change	Continue comparison of toxicity of diesel and gasoline emissions by sub-chronic inhalation exposures. Complete exposures to diesel emissions and begin exposures to gasoline emissions. Perform short-term biological

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	Perform short-term biological assays of new technology diesel emissions, including organic and solid nanoparticles without emissions passing through trap and catalyst aftertreatments. Participants include: Lovelace Respiratory Research Institute, NIOSH. ($1,500)		assays of new technology diesel emissions, including organic and solid nanoparticles without emissions passing through trap and catalyst aftertreatments. Participants include: Lovelace Respiratory Research Institute, NIOSH. ($1,500)
Advanced Combustion Engine R&D (Cont'd)	**Off-Highway Engine R&D** Off-highway (agriculture, construction, locomotive, mining and in-land marine) engines operate at higher temperatures due to limited air flow and harsher operating conditions (higher load, severe vibration and mechanical shock) than on-highway diesel engines. These engines consume approximately 10 percent of the total diesel fuel while emitting more than 30 percent of the total NOx and particulate matter. Award cost shared competitive cooperative agreements to develop technologies that will improve the	**Off-Highway Engine R&D** No Change	**Off-Highway Engine R&D** Off-highway (agriculture, construction, locomotive, mining and in-land marine) engines operate at higher temperatures due to limited air flow and harsher operating conditions (higher load, severe vibration and mechanical shock) than on-highway diesel engines. These engines consume approximately 10 percent of the total diesel fuel while emitting more than 30 percent of the total NOx and particulate matter. Award cost shared competitive cooperative agreements to develop technologies that will improve the

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
	efficiency of diesel engines used in these unique applications and reduce their emissions to meet more stringent EPA regulations. Evaluate technologies developed in the Heavy Truck Engine program and determine their applicability to off-highway engines. (TBD-Competitive solicitation) ($500) Provide critical technical and program management and support services (Sentech, Antares). (PNGV: $400) ($661)		efficiency of diesel engines used in these unique applications and reduce their emissions to meet more stringent EPA regulations. Evaluate technologies developed in the Heavy Truck Engine program and determine their applicability to off-highway engines. (TBD-Competitive solicitation) ($500) Provide critical technical and program management and support services (Sentech, Antares). (PNGV: $310) ($571)
Total, Advanced Combustion Engine R&D	**$52,986**	**$-15,394**	**$37,592**
Cooperative Automotive Research for Advanced	**CARAT** Initiate six new CARAT Phase 1 projects to tap the innovation and	**CARAT** Reduce the number of Phase 1 projects to three	**CARAT** Conduct three CARAT Phase 1 projects to tap innovation and

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Technologies (CARAT)	expertise that small businesses and universities offer for developing advanced automotive technologies. Participants include: ANL, small businesses and universities. (PNGV: $1000) ($1000)	(PNGV: -$500); (-$500)	expertise that small businesses and universities offer for developing advanced automotive technologies. Participants include: ANL, small businesses and universities. (PNGV: $500) ($500)
	GATE Provide third academic year fellowship funding. Conduct an evaluation of GATE to determine costs and benefits. Participants include: ANL, universities. (PNGV: $500) ($500)	**GATE** No Change	**GATE** Provide third academic year fellowship funding. Conduct an evaluation of GATE to determine costs and benefits. Participants include: ANL, universities. (PNGV: $500) ($500)
Total, Cooperative Automotive Research for Advanced Technologies	**$1,500**	**$-500**	**$1,000**
All Other Vehicle Technologies R&D	**$51,424**	**$0**	**$51,424**

III. Performance Summary: VEHICLE TECHNOLOGIES R&D (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
TOTAL, VEHICLE TECHNO-LOGIES R&D	**$154,116**	**$-27,694**	**$126,422**

TRANSPORTATION TECHNOLOGIES
TRANSPORTATION SECTOR
(Dollars in Thousands)

FUELS UTILIZATION R&D

The pending FY 2002 Congressional Budget for Fuels Utilization R&D includes $23,529,000 for Advanced Petroleum Based Fuels and Alternative Fuels. This amendment shifts $2,621,000 from Automotive Advanced Petroleum Based Fuels to other high priority programs within the Office of Energy Efficiency and Renewable Energy.

II. A. Funding Table: FUELS UTILIZATION R&D

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Advanced Petroleum Based Fuels	$ 11,549	$ (2,621)	$ 8,928
Alternative Fuels	$ 11,980	$ 0	$ 11,980
Total, Fuels Utilization R&D	$ 23,529	$ (2,621)	$ 20,908

II. B. Laboratory and Facility Funding Table: FUELS UTILIZATION R&D

	FY 2002 Pending Request	**FY 2002 Proposed Amendment**	**FY 2002 Revised Request**
Argonne National Lab (East)	$ 1,000	$ 0	$ 1,000
Brookhaven National Lab	$ 600	$ 0	$ 600
Idaho National Engineering & Environmental Lab	$ 500	$ 0	$ 500
Lawrence Livermore National Lab	$ 750	$ (250)	$ 500
Los Alamos National Lab	$ 400	$ (300)	$ 100
National Renewable Energy Lab	$ 6,500	$ (221)	$ 6,279
Oak Ridge National Lab	$ 3,200	$ (100)	$ 3,100
Sandia National Laboratories	$ 900	$ (250)	$ 650
All Other	$ 9,679	$ (1,500)	$ 8,179
Total, Fuels Utilization R&D	$ 23,529	$(-2,621)	$ 20,908

III. Performance Summary: FUELS UTILIZATION R&D

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Advanced Petroleum Based Fuels	**Automobile/Light Truck and Heavy Truck**	**Automobile/ Light Truck and Heavy Truck**	**Automobile/ Light Truck and Heavy Truck**
	Fleet test advanced petroleum based fuels and blending additives. Evaluate new fuel formulations in the context of a complete engine emission control and fuel system which is optimized for emissions and fuel economy. Evaluate new fuels and blend options for safety during refueling and on-board storage.	Terminate SUV site engine/fuel/emission control systems evaluation of advanced fuels.	Continue testing of advanced petroleum based fuels and blending additives. Evaluate new fuel formulations in the context of a complete engine emission control and fuel system which is optimized for emissions and fuel economy. Evaluate new fuels and blend options for safety during refueling and on-board storage.
	Develop and utilize models to identify the optimum concentration and type of blending component for diesel fuel to minimize emissions. Continue combustion studies of reformulated diesel fuels to help optimize the emissions reduction benefit of the fuel.	Terminate combustion modeling and environmental assessment efforts at Sandia National Laboratories focused on oxygenated diesel fuel. Terminate system emission reduction modeling activity at the National Renewable Energy Laboratory.	
	Evaluate impurities and additives and major fuel properties and formulations on fuel cell systems.	Terminate activities at Los Alamos National Laboratory to determine fuel additive effects on fuel cell fuel processor performance.	Continue national laboratory activities to determine fuel impurity (e.g., sulfur) effects on fuel cell system durability.
		Delay completion of engine lube oil	

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Advanced Petroleum Based Fuels (Cont'd)	Continue iterative testing and development of lube oils for use in diesel engines that operate on advanced petroleum based fuels that do not pose any deleterious emissions effects.	testing to determine lube oil impact on emission control system effectiveness. This work is 50-50 cost-shared with American Petroleum Institute and Manufacturers of Emission Controls Association. (PNGV: $-2,621) ($-2,621)	Conduct limited testing and development of lube oils for use in diesel engines that operate on advanced petroleum based fuels that do not pose any deleterious emissions effects.
	Participants include: NREL, ORNL, SNL ANL, LLNL, LANL, Southwest Research Institute. (PNGV: $5,455) ($10,849)		Participants include: NREL, ORNL, ANL, Southwest Research Institute. (PNGV: $2,834) ($8,228)
	Provide critical technical and program management support services. (PNGV: $525) ($700)	No Change	Provide critical technical and program management support services. (PNGV: $525) ($700)
Total, Advanced Petroleum Based Fuels	**$11,549**	**$-2,621**	**$8,928**
All Other Fuels Utilization R&D	**$11,980**	**$0**	**$11,980**
TOTAL, FUELS UTILIZATION R&D	**$23,529**	**$-2,621**	**$20,908**

TRANSPORTATION TECHNOLOGIES
TRANSPORTATION SECTOR
(Dollars in Thousands)

MATERIALS TECHNOLOGIES

The pending FY 2002 Congressional Budget for Materials Technologies includes $41,293,000 for Propulsion Materials Technology, Lightweight Materials Technology, and the High Temperature Materials Laboratory. This revision shifts $11,000,000 from Automotive Propulsion Materials and Automotive Lightweight Materials R&D to other high priority programs within the Office of Energy Efficiency and Renewable Energy. Transfers include reallocations within the Department's Energy Conservation budget to Building Technology, State and Community Sector (+$1,829,000) as well as Policy and Management (+$650,000). In addition, the remaining $8,521,000 balance will amend proposed FY 2002 funding for DOE Renewable Energy Resources budgeted under the Energy Supply Appropriation.

II. A. Funding Table: MATERIALS TECHNOLOGIES

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Propulsion Materials Technology	$ 8,962	$ (1,000)	$ 7,962
Lightweight Materials Technology	$ 27,731	$ (10,000)	$ 17,731
High Temperature Materials Laboratory	$ 4,600	$ 0	$ 4,600
Total, Materials Technologies	$ 41,293	$ -11,000[a]	$ 30,293

[a/] Consists of $2,479,000 reallocation within the Department's Energy Conservation budget (Building Technology, State and Community Sector +$1,829,000 and Policy and Management +$650,000) as well as a +$8,521,000 amendment for Renewable Energy Resources funded under the DOE Energy Supply Appropriation.

II. B. Laboratory and Facility Funding Table: MATERIALS TECHNOLOGIES

	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Ames Lab	$ 0	$ 0	$ 0
Argonne National Lab (East)	$ 1,375	$ 0	$ 1,375
Idaho National Engineering and Environmental Lab	$ 250	$ 0	$ 250
Lawrence Berkeley National Lab	$ 400	$ 0	$ 400
Lawrence Livermore National Lab	$ 385	$ 0	$ 385
Los Alamos National Laboratory	$ 100	$ 0	$ 100
National Renewable Energy Lab	$ 0	$ 0	$ 0
Oak Ridge National Lab	$ 23,069	$ (5,400)	$ 17,669
Pacific Northwest National Lab	$ 4,665	$ (1,100)	$ 3,565
Sandia National Laboratories	$ 670	$ 0	$ 670
All Other	$ 10,379	$ (4,500)	$ 5,879
Total, Materials Technologies	$ 41,293	$(11,000)[a]	$ 30,293

[a/] Consists of $2,479,000 reallocation within the Department's Energy Conservation budget (Building Technology, State and Community Sector +$1,829,000 and Policy and Management +$650,000) as well as a +$8,521,000 amendment for Renewable Energy Resources funded under the DOE Energy Supply Appropriation.

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
Propulsion Materials Technology	**Automotive Propulsion Materials**	**Automotive Propulsion Materials**	**Automotive Propulsion Materials**
	Develop in-cylinder application techniques for diesel engine aluminum block surface treatment technology to improve durability in a light weight engine block. Develop low friction surface coatings for advanced fuel cell compressors. Optimize ceramic particulate filter system for diesel engines to remove 90 percent of particulates with 95 percent filter regeneration efficiency.		Develop in-cylinder application techniques for diesel engine aluminum block surface treatment technology to improve durability in a light weight engine block. Develop low friction surface coatings for advanced fuel cell compressors. Optimize ceramic particulate filter system for diesel engines to remove 90 percent of particulates with 95 percent filter regeneration efficiency.
	Demonstrate full scale carbon foam heat sinks for power electronic modules. Develop improved fuel cell thermal management system integrating use of carbon foam technology.	Eliminate the development of an improved fuel cell thermal management system utilizing carbon foam.	Demonstrate full scale carbon foam heat sinks for power electronic modules.
	Transfer polymeric dc buss capacitor technology to industry supplier(s). Develop high dielectric ceramic bus capacitor fabrication techniques. Characterize failure mechanisms of fuel cell membrane using surface analysis facility. Develop ceramic backing layers for prototype PEM fuel cell high temperature	Eliminate characterization of failure mechanisms of fuel cell membranes. Eliminate the development of ceramic backing layers for prototype PEM fuel cell high temperature membranes.	Transfer polymeric dc buss capacitor technology to industry supplier(s). Develop high dielectric ceramic bus capacitor fabrication techniques.

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
	membranes.		
Propulsion Materials Technology (Cont'd)	Participants include: ORNL, LANL, SNL, ANL, Industrial Ceramic Solutions. (PNGV: $2,971) ($2,971)	(PNGV: -$1,000); (-$1,000)	Participants include: ORNL, LANL, SNL, ANL, Industrial Ceramic Solutions. (PNGV: $1,971) ($1,971)
	Heavy Vehicle Propulsion Materials	**Heavy Vehicle Propulsion Materials**	**Heavy Vehicle Propulsion Materials**
	Distribute peer/industry-reviewed Multi-Year Program Plan for the Propulsion Systems Materials Program; materials needs have been identified, assessed for design/ manufacture of components of high efficiency, low emission, high durability, high reliability heavy vehicle engines. Develop catalyst and catalyst support systems for exhaust aftertreatment to significantly reduce engine emissions.	No Change	Distribute peer/industry-reviewed Multi-Year Program Plan for the Propulsion Systems Materials Program; materials needs have been identified, assessed for design/ manufacture of components of high efficiency, low emission, high durability, high reliability heavy vehicle engines. Develop catalyst and catalyst support systems for exhaust aftertreatment to significantly reduce engine emissions.
	Study prototype thick thermal barrier coatings for pistons. Complete evaluation of test results.		Study prototype thick thermal barrier coatings for pistons. Complete evaluation of test results.
	Complete initial development, laboratory testing of "smart		Complete initial development, laboratory testing of "smart

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
	materials" in fuel injection applications. Plan proposed follow-on development project.		materials" in fuel injection applications. Plan proposed follow-on development project.
Propulsion Materials Technology (Cont'd)	Expand assessment of the Femto-second laser technology for processing of component materials.		Expand assessment of the Femto-second laser technology for processing of component materials.
	Develop cermet materials for fuel systems and low cost continuous sintering processes for cermets, ceramics, metallurgical and intermetallic compounds for engine components.		Develop cermet materials for fuel systems and low cost continuous sintering processes for cermets, ceramics, metallurgical and intermetallic compounds for engine components.
	Refine component durability evaluations and part-life prediction models. Validate code predictions of cost, performance parameters. Apply refined models to current R&D portfolio.		Refine component durability evaluations and part-life prediction models. Validate code predictions of cost, performance parameters. Apply refined models to current R&D portfolio.
	Continue development of high reliability non-destructive evaluation technology for diesel engine components, advanced testing/characterization of new engine materials.		Continue development of high reliability non-destructive evaluation technology for diesel engine components, advanced testing/characterization of new engine materials.
	Evaluate new formulations of NOx, plasma assisted catalysts, catalyst		Evaluate new formulations of NOx, plasma assisted catalysts, catalyst

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
	systems, in the presence of exhaust gas recirculation (EGR). Assess materials EGR degradation of engine components.		systems, in the presence of exhaust gas recirculation (EGR). Assess materials EGR degradation of engine components.
Propulsion Materials Technology (Cont'd)	Collaborate with ASTM, SAE to develop domestic, international testing standards for advanced materials for higher efficiency diesel engines. With NIST, continue similar cooperation with International Energy Agency.		Collaborate with ASTM, SAE to develop domestic, international testing standards for advanced materials for higher efficiency diesel engines. With NIST, continue similar cooperation with International Energy Agency.
	Incorporate new Aberration Corrected Electron Microscope (ACEM) at the HTML in examination/characterization of heavy vehicle-related materials and components.		Incorporate new Aberration Corrected Electron Microscope (ACEM) at the HTML in examination/characterization of heavy vehicle-related materials and components.
	Investigate breakthrough in titanium production for feasibility of cost-effective titanium alloy development for engine components.		Investigate breakthrough in titanium production for feasibility of cost-effective titanium alloy development for engine components.
	Participants include: Caterpillar, Cummins, Detroit Diesel Corp., ORNL, NIST, ANL, Ford, North Carolina A&T, Southern Illinois University, and a number of new		Participants include: Caterpillar, Cummins, Detroit Diesel Corp., ORNL, NIST, ANL, Ford, North Carolina A&T, Southern Illinois University, and a number of new

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
	stakeholders to-be-determined from competitive solicitation. ($5,896)		stakeholders to-be-determined from competitive solicitation. ($5,896)
Propulsion Materials Technology (Cont'd)	Provide critical technical and program management support services. (Sentech, Antares). (PNGV: $20) ($95)	No Change	Provide critical technical and program management support services. (Sentech, Antares). (PNGV: $20) ($95)
Total, Propulsion Materials Technology	**$8,962**	**$-1,000**	**$7,962**
Lightweight Materials Technology	**Automotive Lightweight Materials** Program planning and coordination will continue with the USAMP, ACC, PNGV/MTT, A/SP, NRCan, the Aluminum Association, AISI, APC, SRI, ISRI, and APRA. Coordination of composite materials research with the APC, Composite Fabricators Association (CFA), and the Society for the Advancement of Materials and Progress Engineering (SAMPE) will be increasing in order	**Automotive Lightweight Materials** Conclude all efforts on materials and processes that cannot meet the longer range goals of 60% reduction in the automotive body and chassis by 2010 at comparable cost, performance, safety and recyclability. This would eliminate efforts on aluminum, steel, and metal-matrix composites.	**Automotive Lightweight Materials** Terminate R&D on aluminum and steel for lighter weight automotive applications. Continue work to develop technologies for lowering the cost of titanium components, and efforts to develop creep resistant magnesium structural components with improved capabilities, at reduced levels.

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
	to further involve more automotive materials suppliers in the program planning and coordination process.		
Lightweight Materials Technology (Cont'd)	Metals: Projects focused on decreasing costs and increasing manufacturability of aluminum components will continue. Efforts to decrease the cost of 6000 series aluminum sheet will be initiated with the goal of demonstrating 25 percent lower cost. A project on EMF of aluminum sheet into components is beginning. Projects aimed at developing optimized processing technologies for the production of hydroformed aluminum components and electromagnetically formed components will be concluded with validation testing. Efforts to develop creep resistant magnesium structural components with improved capabilities will continue, as will efforts to develop alloys with improved strength and fatigue resistance. Initial efforts to evaluate		Metals: No Activities

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
Lightweight Materials Technology (Cont'd)	cost effective manufacturing processes for ultralight sandwich materials will begin. Work on developing and optimizing innovative joining technologies will continue. Non-destructive evaluation (NDE) tools will be developed for the on-line evaluation of welded joints. Additional efforts to optimize processing and joining of advanced high strength steels (HSS) will begin in order to provide alternative, cost effective materials for automotive design. New projects aimed at developing durable, corrosion resistant coatings for lightweight alloy components will be initiated. Work to develop technologies for lowering the cost of titanium components will expand.		
	Composites: Efforts will increase on processing technologies critical for successfully conducting FP3, focusing on development of high-volume processes for manufacturing automotive body and chassis	Continue work on composites at reduced level.	Composites: Efforts will decrease on processing technologies critical for successfully conducting FP3, focusing on development of high-volume processes for manufacturing automotive body and chassis

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
Lightweight Materials Technology (Cont'd)	components. Detailed design of an entire hybrid material "body-in-white" along with cost, weight, and performance analyses will be completed. Processing technologies that are not based on liquid molding will begin. Advanced joining concepts for polymeric matrix composite structures, taking into account significant parts consolidation, lower cost tooling and use of multiple materials, will begin. Subsequent to the down-select, carbon fiber precursor projects will be ramped up to be inclusive of nontraditional processing technologies. All low-cost carbon fiber projects will be integrated into one complete research initiative. Supplemental to the efforts on warm forming of thermoplastic composites, a project will begin to complete commercialization of this processing technology. Efforts to use micro-sized particles as reinforcements, either in conjunction or in opposition to fibers, will be increased. High strain rate testing of composites will begin.		components. Detailed design of an entire hybrid material "body-in-white" along with cost, weight, and performance analyses will be completed. Processing technologies that are not based on liquid molding will begin. Advanced joining concepts for polymeric matrix composite structures, taking into account significant parts consolidation, lower cost tooling and use of multiple materials, will begin. Subsequent to the down-select, carbon fiber precursor projects will be ramped up to be inclusive of nontraditional processing technologies. All low-cost carbon fiber projects will be integrated into one complete research initiative. Supplemental to the efforts on warm forming of thermoplastic composites, a project will begin to complete commercialization of this processing technology. Efforts to use micro-sized particles as reinforcements, either in conjunction or in opposition to fibers, will be increased. High strain rate testing of composites will begin.

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
	Other: Process development work on carbon fiber recovery and recycling, including re-use testing and evaluation of recovered fibers, will continue. Technical evaluation and testing of aluminum sorting technologies and process options will be completed. Research on intelligent disassembly for materials and component recovery, recycle, and/or repair will be initiated. Organizational capabilities will be identified and working structure for a Virtual Recycle Center of Excellence will be established .	Continue work on recycling at reduced level.	Other: Process development work on carbon fiber recovery and recycling, including re-use testing and evaluation of recovered fibers, will continue at a reduced level. Technical evaluation and testing of aluminum sorting technologies and process options will be completed. Research on intelligent disassembly for materials and component recovery, recycle, and/or repair will be initiated. Organizational capabilities will be identified and working structure for a Virtual Recycle Center of Excellence will be established
Lightweight Materials Technology (Cont'd)	Participants include: Ames Lab, ANL, LBNL, LLNL, ORNL, PNNL, SNL, AISI, ALCOA, Aluminum Association, Aluminum Consultants Group, American Foundrymen's Society, Amoco Polymers, APC, ATI Systems, Automated Analysis Corporation, Bayer Corporation, Boston University, Case Western University, Clemson University, Cornerstone Technologies, Dephi, Delsen Testing Labs, EKK, Inc., Entelechy, Erie Press, Excel Pattern		Participants include: Ames Lab, ANL, LBNL, LLNL, ORNL,PNNL, SNL, AISI, ALCOA, Aluminum Association, Aluminum Consultants Group, American Foundrymen's Society, Amoco Polymers, APC, ATI Systems, Automated Analysis Corporation, Bayer Corporation, Boston University, Case Western University, Clemson University, Cornerstone Technologies, Dephi, Delsen Testing Labs, EKK, Inc., Entelechy, Erie Press, Excel Pattern

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
Lightweight Materials Technology (Cont'd)	Works, Garfield Alloys, Global Equipment Network, H.S. Die & Engineering, Hexcel, Johnson Industries, Knight & Packer, MascoTech, MC-21, Michigan State University, Michigan Technological University, Modern Engineering, MSX International, North American Die Casters Association, North Carolina State University, North Iowa Die Casting, Santa Fe Alloys, Technologies Research Corporation, Textron Automotive, Thixomat, Troy Design, Troy Tooling, University of California - Davis, University of Michigan - Ann Arbor, University of Michigan - Dearborn, University of Missouri, University of Tennessee, University of Texas - Austin, USAMP (DaimlerChrysler, General Motors, Ford), Valimet, Virginia Polytechnic Institute, Visteon, Wedco. (PNGV: $18,660) ($18,660) (Cost-share TBD*) *Cost-shares of projects will vary, but overall rate expected to remain the same as before, i.e, 45 percent to 50 percent.	(PNGV: -$10,000); (-$10,000)	Works, Garfield Alloys, Global Equipment Network, H.S. Die & Engineering, Hexcel, Johnson Industries, Knight & Packer, MascoTech, MC-21, Michigan State University, Michigan Technological University, Modern Engineering, MSX International, North American Die Casters Association, North Carolina State University, North Iowa Die Casting, Santa Fe Alloys, Technologies Research Corporation, Textron Automotive, Thixomat, Troy Design, Troy Tooling, University of California - Davis, University of Michigan - Ann Arbor, University of Michigan - Dearborn, University of Missouri, University of Tennessee, University of Texas - Austin, USAMP (DaimlerChrysler, General Motors, Ford), Valimet, (PNGV: $8,660) ($8,660) * Cost-shares of projects will vary, but overall rate expected to be between 40 to 50%.

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
	Heavy Vehicle High Strength Weight Reduction Materials	**Heavy Vehicle High Strength Weight Reduction Materials**	**Heavy Vehicle High Strength Weight Reduction Materials**
	Continue competitively selected multi-year cost-shared R&D on cost-effective materials improvement, substitution to lightweight overall truck system, increase reliability and durability of components, and lower life cycle costs.	No Change	Continue competitively selected multi-year cost-shared R&D on cost-effective materials improvement, substitution to lightweight overall truck system, increase reliability and durability of components, and lower life cycle costs.
	Assess materials substitution opportunities for lightweighting non-engine components to increase heavy vehicle energy efficiency.		Assess materials substitution opportunities for lightweighting non-engine components to increase heavy vehicle energy efficiency.
Lightweight Materials Technology (Cont'd)	Having exceeded the goal ratio of 150 volumes of natural gas storage per unit volume of a low pressure (500 psi) storage vessel, initiate planning for an engine/gas storage system demonstration to evaluate system characteristics and performance. Plan to achieve at least 180 ratio. Prepare samples of the carbon storage material for detailed characterization/analysis to study alternatives for optimizing storage capacity. Study applicability to other energetic gases, hydrogen in particular.		Having exceeded the goal ratio of 150 volumes of natural gas storage per unit volume of a low pressure (500 psi) storage vessel, initiate planning for an engine/gas storage system demonstration to evaluate system characteristics and performance. Plan to achieve at least 180 ratio. Prepare samples of the carbon storage material for detailed characterization/analysis to study alternatives for optimizing storage capacity. Study applicability to other energetic gases, hydrogen in particular.

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
	Continue industry cost-shared projects to achieve a 30-40 percent reduction in the weight of an SUV frame, while cost-effectively satisfying all component performance requirements. Assess manufacturability, durability, life cycle costs, corrosion and crash worthiness; compare to current frame technology.		Continue industry cost-shared projects to achieve a 30-40 percent reduction in the weight of an SUV frame, while cost-effectively satisfying all component performance requirements. Assess manufacturability, durability, life cycle costs, corrosion and crash worthiness; compare to current frame technology.
Lightweight Materials Technology (Cont'd)	Coordinate lightweighting activities with Northwest Alliance for Transportation Technologies, National Transportation Research Center. Continue development of advanced processing technologies for materials applications in heavy vehicles. Initiate construction of full size prototype stainless steel bus frame with bus manufacturer to validate 50 percent reduction in weight based on modeling efforts. Evaluate manufacturability, cost, and performance parameters.		Coordinate lightweighting activities with Northwest Alliance for Transportation Technologies, National Transportation Research Center. Continue development of advanced processing technologies for materials applications in heavy vehicles. Initiate construction of full size prototype stainless steel bus frame with bus manufacturer to validate 50 percent reduction in weight based on modeling efforts. Evaluate manufacturability, cost, and performance parameters.
	Determine feasibility of light weight, high cycle fatigue resistant titanium alloys for heavy vehicle components (e.g., leaf springs).		Determine feasibility of light weight, high cycle fatigue resistant titanium alloys for heavy vehicle components (e.g., leaf springs).
	Integrate heavy vehicle brake		Integrate heavy vehicle brake

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
	material and brake system energy loss activities in Vehicle Systems Optimization program. Participants include: American Trucking Association, PACCAR, Freightliner, ALCOA, Cummins, Caterpillar, Detroit Diesel Corp., Ford, Daimler Chrysler, Autokinetics, General Motors, ANL, LANL, INEEL, PNNL, MIT, Tenn. Tooling and Engineering, ORNL. ($8,720) Provide critical technical and program management support services. (Antares, Sentech). (PNGV: $200) ($351)		material and brake system energy loss activities in Vehicle Systems Optimization program. Participants include: American Trucking Association, PACCAR, Freightliner, ALCOA, Cummins, Caterpillar, Detroit Diesel Corp., Ford, Daimler Chrysler, Autokinetics, General Motors, ANL, LANL, INEEL, PNNL, MIT, Tenn. Tooling and Engineering, ORNL. ($8,720) Provide critical technical and program management support services. (Antares, Sentech). (PNGV: $200) ($351)
Total, Lightweight Materials Technology	**$27,731**	**$-10,000**	**$17,731**
Other Materials Technologies	**$4,600**	**$0**	**$4,600**

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment[a]	FY 2002 Revised Request
TOTAL, MATERIALS TECHN-OLOGIES	**$41,293**	**$-11,000**	**$30,293**

[a/] The Transportation Materials Technologies revision consists of a $2,479,000 reallocation within the Department's Energy Conservation budget (Building Technology, State and Community Sector +$1,829,000 and Policy and Management +$650,000) as well as a +$8,521,000 amendment for Renewable Energy Resources funded under the DOE Energy Supply Appropriation.

TRANSPORTATION TECHNOLOGIES
TRANSPORTATION SECTOR
(Dollars in Thousands)

TECHNOLOGY DEPLOYMENT

I. Mission Supporting Goals and Objectives

The pending FY 2002 Congressional Request for Technology Deployment includes $840,000 for Advanced Vehicle Competitions. This amendment will reduce that activity by $340,000, for a revised request of $500,000.

II. A. Funding Table: TECHNOLOGY DEPLOYMENT

	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Clean Cities	$ 6,560	$ 0	$ 6,560
Testing and Evaluation	$ 1,800	$ 0	$ 1,800
EPACT Replacement Fuels Program	$ 1,000	$ 0	$ 1,000
Advanced Vehicle Competitions	$ 840	$ (340)	$ 500
Total, Technology Deployment	$ 10,200	$ (340)	$ 9,860

II. B. Laboratory and Facility Funding Table: TECHNOLOGY DEPLOYMENT

	FY 2000 Pending Request	FY 2001 Proposed Amendment	FY 2002 Revised Request
Argonne National Lab	$ 900		$ 900
Idaho National Engineering & Environmental Lab	$ 500		$ 500
National Renewable Energy Lab	$ 2,800		$ 2,800
Oak Ridge National Lab	$ 750		$ 750
All Other	$ 5,250	$ (340)	$ 4,910

Total, Technology Deployment	$ 10,200	$ (340)	$ 9,860

III. Performance Summary: TECHNOLOGY DEPLOYMENT

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Amendment	FY 2002 Revised Request
Advanced Vehicle Competitions	**Alternative Fuels R&D** Conduct third year of Future Truck Challenge with a new automotive partner, increasing use of fuel cell propulsion systems in student-designed vehicles. Initiate new alternative fuel vehicle competition. (ASEE, ANL). (PNGV: $840)	**Advanced Vehicle Competitions** Continue FutureTruck, but reduce or eliminate fuel cell propulsion systems. Delay launch of new alternative fuel vehicle competition. (PNGV: -$340)	**Advanced Vehicle Competitions** Conduct third year of Future Truck Challenge with a new automotive partner. (ASEE, ANL). (PNGV: $500)
Total, Advanced Vehicle Competitions	**$840**	**$-340**	**$500**
All Other Technology Deployment	**$9,360**	**$0**	**$ 9,360**
TOTAL, TECHNOLOGY DEPLOYMENT	**$10,200**	**$-340**	**$9,860**

DEPARTMENT OF ENERGY
FY 2002 CONGRESSIONAL BUDGET REQUEST
ENERGY EFFICIENCY AND RENEWABLE ENERGY
ENERGY CONSERVATION
(Tabular dollars in thousands, Narrative in whole dollars)

POLICY AND MANAGEMENT

PROGRAM MISSION

The pending FY 2002 Congressional Budget for Policy and Management includes no funding for International Market Development. A proposed Energy Conservation budget reallocation now includes $650,000 to support some of the most critical, high-payoff activities to help encourage the acceptance and use of U.S. energy efficiency technologies by developed, transition (economies in transition) and developing countries in support of U.S. national interests and policies. These activities are carried out jointly with other countries and contribute directly to fulfilling critical Department of Energy missions, namely achieving efficiency in energy use, promoting a more productive and competitive economy and improving environmental quality.

DEPARTMENT OF ENERGY
FY 2002 CONGRESSIONAL BUDGET REQUEST
ENERGY CONSERVATION
(Dollars in Thousands)

POLICY AND MANAGEMENT

PROGRAM FUNDING PROFILE

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
Policy and Management Operating Expenses	$ 40,100	$ 650	$ 40,750
TOTAL	$ 40,100	$ 650	$ 40,750
Summary			
Operating Expenses	$ 40,100	$ 650	$ 40,750
Total Program	$ 40,100	$ 650	$ 40,750

I. Mission Supporting Goals and Objectives: POLICY AND MANAGEMENT

A proposed Energy Conservation budget reallocation provides $600,000 to continue the Asia Pacific Economic Cooperation (APEC) and $50,000 to continue the Greenhouse Gas Technology Information Exchange (GREENTIE). These important activities seek to obtain and share information on market opportunities and cutting edge technologies being demonstrated by other countries. Each of these programs: (a) holds workshops and seminars on U.S. technologies; (b) develops information systems and databases on efficient technologies; (c) develops region-specific product and service registers and vendor lists; (d) and forms and supports region-specific private sector liaison groups for U.S. energy efficiency technology cooperation.

II. A. Funding Table: POLICY AND MANAGEMENT

Program Activity	FY2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
International Market Development Program	$ 0	$ 650	$ 650
All Other Policy and Management	$ 40,100	$ 0	$ 40,100
Total, Policy and Management	$ 40,100	$ 650	$ 40,750

II. B. Laboratory and Facility Funding Table: POLICY AND MANAGEMENT

	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
Golden Field Office	$ 6,165	$ 0	$ 6,165
Regional Offices	$ 15,050	$ 0	$ 15,050
All Other	$ 18,885	$ 650	$ 19,535
Total, Policy and Management	$ 40,100	$ 650	$ 40,750

III. Performance Summary: POLICY AND MANAGEMENT

Program Activity	**FY 2002 Pending Request**	**FY 2002 Proposed Reallocation**	**FY 2002 Revised Request**
International Market Development	**Asia Pacific Economic Cooperation (APEC)**	**Asia Pacific Economic Cooperation (APEC)**	**Asia Pacific Economic Cooperation (APEC)**

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
	No funding is requested. ($0)	Continue the U.S. leadership role in this international cooperative effort. Continue dialogue and participation with member countries in energy efficiency activities. Showcase U.S. technologies in member countries. ($600)	Continue the U.S. leadership role in this international cooperative effort. Continue dialogue and participation with member countries in energy efficiency activities. Showcase U.S. technologies in member countries. ($600)
	Greenhouse Gas Technology Information Exchange (GREENTIE) No funding is requested. ($0)	**Greenhouse Gas Technology Information Exchange (GREENTIE)** Continue U.S. participation in this International Energy Agency Energy and Environmental Technology Information Centers (IEA/EETIC) Annex for the support and up keep of an information directory on technology applications which reduce greenhouse gas emissions and support for regional newtworks to disseminate this information. ($50)	**Greenhouse Gas Technology Information Exchange (GREENTIE)** Continue U.S. participation in this International Energy Agency Energy and Environmental Technology Information Centers (IEA/EETIC) Annex for the support and up keep of an information directory on technology applications which reduce greenhouse gas emissions and support for regional newtworks to disseminate this information. ($50)

III. Performance Summary: POLICY AND MANAGEMENT (Cont'd)

Program Activity	FY 2002 Pending Request	FY 2002 Proposed Reallocation	FY 2002 Revised Request
Total, International Market Development	**$0**	**$650**	**$650**
All Other Policy and Management	**$40,100**	**$0**	**$40,100**
TOTAL, POLICY AND MANAGE-MENT	**$40,100**	**$650**	**$40,750**