Final Report

Contract #DE-AC01-88EH79042

Technical and Analytical Support Services to the
Office of Environmental Analysis,
Office of Environment, Safety and Health

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MASTER

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Final Technical Report Contract #DE-AC01-88EH79042

Overview

This document presents the final technical report of contract DE-AC01-88EH79042, *Technical and Analytical Support Services to the Office of Environmental Analysis, Office of Environment, Safety and Health*. The primary purpose of this contract was to provide technical analyses, studies, and reviews related to land use/water issues and energy resource development in support of the activities of the Office of Environmental Analysis, Office of Environment, Safety and Health. Tasks under this contract included:

- Issue Papers. Energetics provided issue papers on a number of specific energy and environmental issue areas. Each issue paper consisted of a systematic review and analysis of major factors (technical, legal, environmental, economic, energy, health and social) that could enter into DOE's environmental/energy policy decisions.
- Special Analyses. Energetics conducted special in-depth technical analyses as requested by the Contracting Officer's Technical Representative (COTR).
- Critical Review and Evaluation of Program Reports. Energetics performed critical reviews of a number of technical reports arising from DOE program activities. These documents included issue papers and reports resulting from special technical analyses of specific issues, technologies, or broad areas of concern. Reviews focused on both the technical and programmatic impact of the report. Energetics made recommendations and gave input to assist DOE in determining the environmental impacts of energy policies and projects.

In 1991, as a result of a DOE reorganization, this contract switched to the Office of Policy, Planning and Analysis. Dr. Robert C. Marlay (currently the director of the Office of Science Policy) assumed technical responsibility and became the COTR for the contract. The scope of work and the types of deliverables produced under this contract remained the same, but the focus of the work performed shifted to cover a broader range of energy and environmental issues. Sample activities performed by Energetics under this contract included:

- analysis of the energy, economic, and environmental benefit of the National Energy Strategy (NES) to each of the 50 states;
- special in-depth technical analyses to access, integrate, summarize and present timely assessments of selected data relative to the implementation of NES environmental policy goals;
- assistance in a critical review of the Fossil Energy Research and Development program;
- development of a process for assessing the contribution of energy technologies toward achieving NES objectives.

This report presents a full description of all activities completed by Energetics, Inc. for each task area under this contract.

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Task Title: Regulation of Above-Ground Storage Tanks: Effects on Energy-Related Industries

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-22)
Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042
Energetics Task No.: 001

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 500
Actual Hours: 489

Planned Dollars: \$22,989
Actual Dollars: \$23,012

Period of Performance

From: 05/27/88
To: 10/24/88

Task Description:

On January 2, 1988, an above-ground oil storage tank owned by Ashland Oil Company, Inc., ruptured and spilled fuel oil into the Monongahela River; thousands were affected by the massive spill, principally through restrictions imposed on many downstream water utilities. The accident raised a number of questions regarding the adequacy of current laws and regulatory programs to prevent such incidents.

Above ground tanks (AGTs) are covered by regulations under the Clean Water Act (CWA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or Department of Transportation rules. In addition, some states and industry groups have established standards for AGTs. However, EPA acknowledged that their review of the Ashland accident raised questions about revising tank regulations and inspection procedures. It was necessary that any further legislation or regulation be based on sound analysis of AGTs. The existing data base on the number, type, and purpose of existing AGTs was not well developed.

Energetics, Inc. developed base-line data on existing regulatory and control programs and on the universe of AGTs in the energy industry necessary for analysis of the impact of potential changes in legislation or regulation. In addition, existing Federal, State, and industry standards, control

programs and regulations for AGTs were identified. The number, type, location and uses of AGTs by energy industry were identified. Principal sources of information included EPA, the American Petroleum Institute (API), Congressional staff associated with the preparation for above-ground tank legislation, and applicable engineering literature.

Keywords: Above Ground Tanks (AGTs), Clean Water Act (CWA), CERCLA

Task Title: Effects of Non Point Source (NPS) Pollution Control Programs on U.S. Energy Industries

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-22)

Contracting Officer: Lynn Warner

Contract No.: DE-AC-88EH79042

Energetics Task No.: 002

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 800

Actual Hours: 1,039.5

Planned Dollars: \$35,101

Actual Dollars: \$35,203

Period of Performance

From: 05/27/88

To: 11/18/88

Task Description:

The Water Quality Act (WQA) of 1987 clearly focuses on the importance of controlling nonpoint source (NPS) pollution. The enactment of Section 319 of the WQA resulted in a new direction and considerable Federal financial assistance for the implementation of State NPS programs.

With passage of the WQA and Federal guidance, EPA expected States to implement comprehensive NPS controls. It was recognized that state NPS programs could affect the activities of U.S. energy industries. There was ample evidence that the incorporation of a land-use plan could successfully protect aquatic environments from NPS pollution. Thus, it was likely that many State and local government agencies would develop land-use plans that systematically employed several water quality control increases in NPS pollution loading. Such water quality control strategies could influence the operations of the U.S. energy industries.

Energetics, Inc. performed a detailed review of Section 319 of the WQA, focusing on Congressional intent; a review of current State NPS programs; an analysis of EPA's policy and guidance for implementing State NPS programs; an evaluation of the potential relationships between NPS programs and existing programs; an evaluation of the potential relationships between NPS programs and other programs called for under the WQA; a review of procedural

and technical considerations associated with individual State NPS programs; and an evaluation of the potential effects of State NPS programs on activities of U.S. energy industries.

Sources of information included EPA, selected State environmental agencies literature, and industry groups such as the American Petroleum Institute, the Electric Power Research Institute (EPRI), and the American Mining Congress.

Keywords: Water Quality Act of 1987, Nonpoint Source (NPS) Pollution, Water Quality Control

Task Title: Special Analysis and Report: Incentive Programs for Clean Coal Technologies

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-22)

Contracting Officer: Craig C. Ashline

Contract No.: DE-AC-88EH79042

Energetics Task No.: 003

Energetics Project Mgr.: Dwight Emerson

Subcontractor: ICF Incorporated

Budget

Planned Hours: 180

Actual Hours: 201.5 (includes subcontractor hours)

Planned Dollars: \$15,000

Actual Dollars: \$15,000

Period of Performance

From: 10/03/88

To: 10/31/88

Task Description:

DOE had embarked on a multi-year funding program supported by specific legislative authorization in the U.S. Congress to select and demonstrate Clean Coal Technologies deserving of consideration. Moreover, there had been additional consideration given to the development of alternative cost-effective incentives for the demonstration and commercialization of clean coal technologies. As these proposals for alternative incentives were suggested, DOE needed assistance in evaluating the potential costs and benefits of each, and how the subsequent penetration of clean coal technologies would alter future projections of land use and water quality.

Energetics, Inc. was requested to conduct a Special Analysis of alternative incentives programs identified by the DOE technical representative for evaluation. These analyses helped provide technical support for the Innovative Control Technologies Advisory Panel (ICTAP).

Energetics, Inc. identified specific incentives or disincentives to the development of "Clean Coal Technologies"; presented a comparison of the identified incentive programs with others that had been suggested or pursued in other relevant Federal programs as well as those proposed

specifically for commercializing clean coal technologies; and assessed the potential implications for these programs on the ultimate commercialization of the different technologies and possible biases created by the incentives among the different technologies. In addition, the economic, cost and environmental impacts over time of the resulting commercialization on water quality and land use were approximated and a final report was prepared.

Keywords: Clean Coal Technologies, Innovative Control Technologies Advisory Panel (ICTAP), Commercialization, Incentives and Disincentives

Task Title: Special Analysis and Letter Report: Review of EPA Municipal Waste Regulation

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-22)

Contracting Officer: Craig C. Ashline

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 004

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 75

Actual Hours: 75.5

Planned Dollars: \$2,498

Actual Dollars: \$2,373

Period of Performance

From: 10/14/88

To: 10/31/88

Task Description:

EPA had proposed changes to 40 CFR Part 257, resulting from the 1984 Amendments to the Resource Conservation and Recovery Act (RCRA). The proposal separated Part 257 into two parts. Amended Part 257 would establish information requirements for industrial solid waste disposal facilities and construction/demolition waste landfills, excluding municipal solid waste landfills (MSWLFs). New Part 258 set forth revised minimum criteria for MSWLFs in the form of performance standards, operating criteria and closure and post-closure care requirements.

This task included review of the proposed rule to identify potential environmental, technical and economic impacts to the energy industry. Energetics, Inc. prepared a Letter Report analyzing these potential impacts.

Keywords: RCRA, 1984 Amendments, Industrial Solid Waste Disposal Facilities, Construction/Demolition Waste Landfills, Municipal Solid Waste Landfills

Task Title: Mid-Course Evaluation of EPA Class II Injection Well Program:
Potential Effects on the Energy Sector

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-22)
Contracting Officer: Craig C. Ashline

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 005

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 500
Actual Hours: 633

Planned Dollars: \$22,894
Actual Dollars: \$22,619

Period of Performance

From: 10/25/88
To: 02/06/89

Task Description:

EPA was in the process of conducting a mid-course evaluation of the Class II underground injection well program [Note: Class II wells are wells which inject fluids associated with the production of oil and gas.] A workgroup made up of DOE officials, affected States, and industries had been formed to assist EPA in this evaluation. This workgroup expected to make recommendations to amend current Class II underground injection control (UIC) regulations sometime during mid-fiscal year 1989.

The practice most likely to be affected was annular injection, which involves injecting brine into the annulus between the outermost casing and the long string casing. Unlike typical Class II wells, which dispose of brines through injection tubing and use the annulus for leak detection, annular injection wells cannot be monitored for leakage. Environmentalists and some Federal and State officials believed that annular injection was not a sound practice and threatened environmental quality, especially underground sources of drinking water, and would like to have seen the practice banned.

If this practice was phased-out or banned, the oil and gas (O&G) production industry would be greatly affected. The State of Ohio had 10,000 permitted annular injection wells which were owned or operated by the O&G industry. Other States also allowed the practice, although the practice was not so widespread as in Ohio.

The purpose of this task was to examine EPA's mid-course evaluation of the Class II injection well program and determine the magnitude of the potential effects on the energy sector.

Energetics, Inc. reviewed the legislative and regulatory background involved in Class II injection wells; reviewed issues under study in the mid-course evaluation; reviewed annular injection in its various forms; discussed the environmental concerns associated with this practice; examined the States which allow annular injection and their regulatory requirements; and examined the potential effects future regulatory changes could exert on the energy sector, including costs, where available.

Sources of information included EPA; affected industries and industry groups, such as the American Petroleum Institute; affected State agencies; and the appropriate literature.

Key Words: Underground Injection Wells, Class II Wells, Annular Injection, Oil and Gas Industry

Task Title: Special Analysis and Report: Review of EPA Oil and Gas Extraction Point Source Category, Offshore Subcategory, Effluent Limitations Guidelines and New Source Performance Standards (40 CFR 435)

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-22)
Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 006

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 75

Actual Hours: 69

Planned Dollars: \$2,498

Actual Dollars: \$2,488

Period of Performance

From: 11/10/88

To: 11/28/88

Task Description:

EPA had announced, for public comment, a notice of new technical, economic and environmental assessment information relating to the development of BAT and NSPS regulations under the Clean Water Act governing the discharge of drilling fluids and drill cuttings in the oil and gas extraction point-source category and offshore subcategory. This notice was part of a rulemaking process that began on August 26, 1985, with EPA's proposal of effluent limitation guidelines and new source performance standards for the offshore subcategory (50 FR 34592). Part 1 of the notice presented additional information, discussion and preliminary conclusions on data concerning BAT and NSPS controls on the drilling fluids and drill cuttings waste stream. It also presented information relating to EPA's proposal to prohibit the discharge of detectable amounts of diesel oil in drilling fluids and drill cuttings. Part 2 presented information on the performance, cost and applicability of certain thermal technologies and solvent extraction technologies for treating drilling fluids and drill cuttings to reduce their oil content.

Regulation of oil and gas extraction point sources could have a potential impact on the oil and gas industry by possible restriction of effluent types, amounts and disposal methods.

Energetics, Inc. reviewed the notice, and supporting data, to identify potential environmental, technical and economic impacts to the oil and gas industry.

Key words: BAT Regulations, NSPS Regulations, Clean Water Act, Drilling Fluids, Oil and Gas Extraction, Diesel Oil

Task Title: Special Analysis: Pollutant Emissions and Transport Data Analysis

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-22)

Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 007

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 300

Actual Hours: 398.5

Planned Dollars: \$13,704

Actual Dollars: \$13,690

Period of Performance

From: 11/29/88

To: 12/31/89

Task Description:

Energetics, Inc. performed a special analysis involving database analysis and maintenance tasks to assist OEA in their effort to characterize and assess pollutant emissions and transport issues affecting water, air and land resources. This data was organized by several different criteria, was available in a number of differing formats, and spanned time periods of more than 100 years. Analysis of this data included statistical and trends analyses; high-quality graphical output preparation; and data manipulation.

Specific emissions and transport data for analysis within the period of performance and level of effort was provided by the Technical Project Officer. Energetics, Inc. provided computer files and hard-copy printouts.

Keywords: Database Analysis, Pollutant Emissions, Statistical Analysis

Task Title: Proposed Revisions to the National Contingency Plan: Potential Effects on U.S. Energy Industry

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-22)

Contracting Officer: Jack Peel

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 008

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 500

Actual Hours: 734

Planned Dollars: \$22,989

Actual Dollars: \$22,793

Period of Performance

From: 02/21/89

To: 06/30/89

Task Description:

Proposed changes to the National Contingency Plan (NCP) mandated by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and Executive Order 12580, included changes inspired by program experience since the last revisions to the NCP. It was proposed to restructure reporting of releases of hazardous substances and/or oil. Additionally, the proposed revisions would clarify existing language on roles, responsibilities, and activities of affected parties. The NCP affects a broad scope of industries, including petroleum refineries, oil and chemical storage facilities, and assorted manufacturing facilities. The proposed revisions to the NCP would continue to burden these industries with reporting responsibilities.

Energetics, Inc. reviewed and analyzed the proposed revisions to the NCP; prepared a letter report which summarized these proposed revisions and included a section outlining the potential impacts of the revisions on energy industries; and prepare a detailed report which analyzed the requirements of the proposed NCP. This report included a review of comments delivered to EPA by interested groups as well as an assessment of potential changes to the NCP resulting from comments received by EPA.

Keywords: National Contingency Plan (NCP), Superfund Amendments and Reauthorization Act of 1986 (SARA), Reporting Requirements, Hazardous Substances

Task Title: Proposed Research Activities to Assist Lawrence Berkeley Laboratory (LBL) Pollutant Modelling Effort

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-3)
Contracting Officer: Jack Peel

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 009

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 750

Actual Hours: 895

Planned Dollars: \$34,984

Actual Dollars: \$34,187

Period of Performance

From: 04/04/89

To: 01/15/90

Task Description:

Energetics, Inc. assisted the Lawrence Berkeley Laboratory (LBL) in conducting work on an indoor combustion pollutant model by providing in-depth technical analyses. This effort involved the expansion of the information base of concern in this issue, and the creation of a new information base concerning organic indoor pollutants from sources other than combustion products.

Final Report Preparation. Energetics, Inc. reviewed the final draft of the report entitled "Macromodel for Assessing Indoor Exposure to Combustion-Generated Pollutants" and edited the previous draft and created new graphics as required.

Expansion of Existing Model. Energetics, Inc. expanded the existing model to include additional combustion pollutants such as sulfur dioxide, polycyclic aromatic hydrocarbons (PAH), and some carcinogens and collected data on these pollutants for areas of the country already modeled. Data primarily included appliance emissions.

Data collection was achieved by initial phone contact with previous and new information sources such as utilities, state energy and environmental agencies, as well as trade associations.

Data Collection for Organic Pollutant Model. Energetics, Inc. performed a preliminary background literature search for information on organic pollutants. Information collected included pollutant sources and pollutant concentrations in the indoor environment.

Keywords: Indoor Combustion Pollutants, Appliance Emissions, Organic Pollutants

Task Title: Airborne Emissions from Oil and Gas Operations: An Overview of Potential Regulations

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-3)
Contracting Officer: Jack B. Peel

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 010

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 600
Actual Hours: 801.5

Planned Dollars: \$27,472
Actual Dollars: \$27,619

Period of Performance

From: 05/01/89
To: 01/31/90

Task Description:

In developing regulations governing the release of volatile organic compounds (VOCs) from wastewater treated by new, modified, or reconstructed wastewater treatment systems, the U.S. Environmental Protection Agency was likely to consider emissions from onshore and offshore oil and gas (O&G) facilities. These rules, issued under the Clean Air Act, would set new source performance standards (NSPS) through requirements affecting equipment, design, workplace, and operating standards.

Work performed by Energetics, Inc. involved the examination of potential regulatory approaches EPA could adopt to regulate airborne emissions from O&G facilities. The major role of the report was to examine the technical procedures at O&G operations. In doing so, airborne emissions associated with O&G activities was investigated. The following areas were examined: data and operating procedures from onshore and offshore O&G facilities; emissions associated with O&G operations; emissions from wastetreatment facilities that may be required by onshore and offshore oil and gas facilities; technologies to control emissions; and, where possible, estimation of the costs of emission control.

Energetics, Inc. produced a final report. Principal sources of information included EPA, American Petroleum Institute, facility owners and operators, and appropriate literature.

Keywords: Volatile Organic Compounds, Oil and Gas Facilities, Clean Air Act, Airborne Emissions

Task Title: Changes Expected for PCB Regulations: How Will Energy Industries be Affected?

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (EH-3)

Contracting Officer: Jack B. Peel

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 011

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 450

Actual Hours: 513.5

Planned Dollars: \$20,604

Actual Dollars: \$20,407

Period of Performance

From: 05/01/89

To: 07/25/90

Task Description:

Legislative efforts had addressed the concerns of legislators to more tightly regulate polychlorinated biphenyls (PCBs). Originally, PCBs fell under the regulatory framework of the Toxic Substances Control Act (TSCA). However, at least two bills were introduced in the 100th Congress that would, at a minimum, transfer some of the regulatory authority to the Resource Conservation and Recovery Act (RCRA).

Another action, House bill H.R. 3070, would establish a tracking system for PCBs as well as take many regulations sections that are part of RCRA and apply them to PCBs. However, H.R. 3070 would continue to regulate PCBs under TSC rather than transfer their regulation to RCRA. This bill had been endorsed by State agencies, the GAO, environmental groups, and industry.

Separate from this activity, EPA, on September 26, 1988, proposed a rule that would require all PCB wastes to be manifested for disposal. The purpose of the regulation would be to 1) obtain information about handlers and storers of PCB wastes, and 2) track shipment of wastes containing PCBs. The rulemaking would also consider imposing new requirements on commercial storers of PCB wastes.

Energetics, Inc. followed the development of House and Senate actions to amend PCB regulations in the 101st Congress; examined the proposed legislation with emphasis on impacts to energy industries; examined EPA's proposed PCB manifest requirements and compared it to the recent legislative efforts; and where possible, estimated costs to industry of additional requirements. Energetics, Inc. prepared a Final Report. Principal sources of information included House and Senate Environmental Committees, EPA, Electric Power Research Institute, energy facilities, and appropriate literature.

Keywords: Polychlorinated Biphenyls (PCBs), Toxic Substances Control Act (TSCA), Resource Conservation and Recovery Act (RCRA)

Task Title: Effluent Limitations Guidelines and New Source Performance Standards: Coastal Oil and Gas Extraction Facilities

Client: U.S. DOE, Office of Environment, Safety, and Health

DOE Project Officer: David O. Moses (PE-60)
Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 012

Energetics Project Mgr.: Dwight Emerson

Budget

Planned Hours: 600
Actual Hours: 735.5

Planned Dollars: \$30,274
Actual Dollars: \$30,740

Period of Performance

From: 03/08/90
To: 06/01/90

Task Description:

Energetics, Inc. examined current and potential future regulations addressing effluent limitations guidelines and new source performance standards (NSPS) on the coastal subcategory of the oil and gas (O&G) extraction point source category. Also covered in this task were revisions and/or additions to effluent guidelines under section 304(m) of the Clean Water Act, which established a schedule for the annual review and revision of promulgated effluent guidelines, and specifically those categories of sources discharging toxic or nonconventional pollutants not governed by established guidelines.

Energetics, Inc. reviewed existing and proposed Federal and state legislation regulations, standards, and control programs under the CWA applicable to coastal O&G extraction facilities. In addition, ongoing EPA activities were identified and reviewed; industry standards and practices were reviewed; and potential effects of any new programs on the coastal subcategory and the overall O&G industry were reviewed. Energetics, Inc. prepared a Final Report.

Keywords: Effluent Limitations Guidelines, New Source Performance Standards (NSPS), Oil and Gas Extraction, Clean Water Act, Promulgated Effluent Guidelines

Task Title: National Energy Strategy (NES) Environmental Implementation

Client: U.S. DOE, Office of Program Review and Analysis

DOE Project Officer: Robert C. Marlay (PE-61)

Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 013

Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours: 675

Actual Hours: 602

Planned Dollars: \$49,774

Actual Dollars: \$49,039

Period of Performance

From: 03/20/91

To: 08/01/91

Task Description:

Effective implementation of National Energy Strategy (NES) environmental policy goals required the synthesis and clear presentation of a broad range of data describing energy production, supply technologies and consumption patterns. DOE needed to independently evaluate the significance and basis for supporting data differences. In addition, issue-related information on NES environmental policy goals such as the Advanced Research and Development Strategy was needed on a quick-turn around basis.

Energetics, Inc. conducted special in-depth technical analyses to access, integrate, summarize and present timely assessments of selected data relative to the implementation of NES environmental policy goals.

Energetics, Inc. also provided the technical assessments needed to fully support policy analysis of energy information in the identification, acquisition, review, evaluation, update, preparation, and organization of alternatives for responding to the responsibilities of OPPA in SEN-25-90. In addition, this task supported the preparation of selected data required in the monitoring of the implementation of NES relative to budget and Congressional requirements. Energetics, Inc. also provided in-depth special technical analysis and evaluation of comments received on the

Advanced Technology Research and Development Strategy. These comments were compiled, reviewed and evaluated as they relate to Federal and State policies as they apply to land and water issues in the development of energy resources. A technical analysis and evaluation of the NES Global/U.S. Energy Assessment was performed and an independent review of the Assessment and evaluation of comments which assisted in producing an update to the Assessment were provided. Finally, Energetics, Inc. assisted in the preparation of an Appendix to the next iteration of the NES on Modelling Energy Futures. This involved providing a quantitative technical assessment of the effect of policy options (including the deployment of a mix of energy supply and development technologies on NES goals); providing an evaluation of monitoring strategies and NES data needed for a thorough analysis; and developing and preparing graphic presentation of assessment results for inclusion in the Second NES.

Energetics, Inc. provided a final Summary Report, a Statistical Documentation of Methodologies, and computer files and hard-copy printouts.

Keywords: National Energy Strategy (NES), Advanced Technology Research and Development Strategy, NES Global/U.S. Energy Assessment

Task Title: EMF (Electro-Magnetic Fields) Reference Book

Client: U.S. DOE, Office of Environmental Analysis

DOE Project Officer: David O. Moses (PE-70)

Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 014

Energetics Project Mgr.: Roy Denham

Budget

Planned Hours: 906

Actual Hours: 809

Planned Dollars: \$42,070

Actual Dollars: \$42,043

Period of Performance

From: 03/18/91

To: 08/01/91

Task Description:

Since the mid-'70s, DOE and others had supported and managed basic research relative to several aspects of EMFs (Electro-Magnetic Fields). Commencing about 1980, there had been a rising groundswell of public concern about EMFs and a range of impacts possibly attributable to them. These concerns culminated in regulatory action relating to magnetic fields in two states and concerns over electric fields in six. There was also heightened Congressional interest concerning EMFs. A clear need existed for the development of an objective technical document which presented, in summary fashion, information on and a delineation of, the key policy issues of interest to DOE.

Energetics, Inc. developed a Summary EMF Reference Book which presented and delineated the existing array of key EMF policy issues, and concentrated on the identification and discussion of the most important issues. The Summary EMF Reference Book focused on the four major subcategories of information: overview of the status of present research efforts; discussion of the public's key EMF concerns; discussion of existing state-level actions, which specifically considered both EMF-related legislative and regulatory actions, EMF impact mitigation programs, and EMF-related research programs at the State level; and status to date concerning Congressional actions related to EMF.

In addition to the above, Energetics, Inc. performed preliminary development activities focused on building a DOE EMF database. These activities included: conceptual development of the database format; investigations and evaluations of existing EMF databases to determine their suitability as a basis for the cost-effective development of a DOE EMF database; and development of a set of recommendations concerning the overall scope, function, structure, and format of a DOE EMF database system. A Draft Summary EMF Reference Book and a recommended database structure and format were provided.

Keywords: Electro-Magnetic Fields (EMFs), EMF Database

Task Title: Special Analysis of NES Impacts on the States
Client: U.S. DOE, Office of Policy, Planning, and Analysis
DOE Project Officer: Robert C. Marlay (PE-61)
Contracting Officer: Lynn Warner
Contract No.: DE-AC01-88EH79042
Energetics Task No.: 015
Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours: 1,195
Actual Hours: 739.5

Planned Dollars: \$49,950
Actual Dollars: \$38,548

Period of Performance

From: 06/07/91
To: 08/15/91

Task Description:

The Office of Policy, Planning and Analysis (PE) was responsible for developing a series of papers describing how the NES can benefit each of the 50 states. Particular attention was given to how NES actions would enhance regional environmental quality, benefit individual state energy programs, affect supply and demand within the state, and fortify research and education foundations in the state.

These analyses required the collection of extensive background material pertinent to the individual states, through sources both inside and outside of DOE. Once the data was collected, existing energy programs and trends within that state could then be evaluated with relation to the goals and actions set forth by the NES. A sample state analysis was prepared by DOE to serve as a model for state write-ups. In preparing impact summaries for the remaining states, PE required assistance in gathering information, performing the necessary evaluation, and determining particular relevance to NES goals and initiatives. Assistance was also required to support additional or complementary activities (beyond the preparation of impact summaries) which arose in connection with investigations for each State.

Energetics, Inc. assisted PE in preparing these "State Impact Summaries" for each of the remaining states. This assistance included gathering and coordination of information pertinent to each state; evaluation of the goals and initiatives of the NES in relation to each state; and preparation of draft and final impact summaries for each state. Sources within the national DOE network, as well as State Energy Offices, were utilized to obtain the information necessary to make a thorough evaluation. Information relating to DOE-supported user facilities, national laboratories, and energy or environmental consortia were included where applicable. Summaries were 5-10 pages in length, and organized according to a format approved by PE.

Energetics, Inc. also provided assistance to PE in developing background materials for additional documentation to support supplemental activities which arose in connection with the investigation of NES impacts on individual States.

Keywords: National Energy Strategy (NES), States, State Impact Summaries

Task Title: NES Milestone Tracking and Program Review

Client: U.S. DOE, Office of Policy, Planning, and Analysis

DOE Project Officer: Robert C. Marlay (PE-61)
Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 016

Energetics Project Mgr.: Jack Eisenhower
Subcontractor: SocioTechnical Research Applications

Budget

Planned Hours:	1,472
Actual Hours:	617 (includes subcontractor hours)
Planned Dollars:	\$49,994
Actual Dollars:	\$48,355

Period of Performance

From:	06/07/91
To:	03/30/92

Task Description:

The NES was implemented through both legislative and administrative actions. Approximately 86 separate administrative actions were identified and assigned to Secretarial Officers. Plans to implement them over the appropriate timeframe were developed. To ensure progress was made, each plan identified several specific activities and milestones that would be completed to accomplish the action. These activities and milestones also served as the basis for measuring progress for each action, and for measuring progress in the overall implementation of the NES.

The Office of Policy, Planning and Analysis (PE) is responsible for overall management and monitoring of progress for the administrative actions. This includes the application of management tools and techniques to track a large number of separate activities and provide senior management reports on their status. The Office of Program Review and Analysis required assistance in monitoring the progress of administrative actions and providing management reports appropriate for various needs.

Energetics, Inc. provided comprehensive management support in the monitoring, tracking and reporting of progress related to implementation of NES administrative actions as well as program

review of DOE activities. This required the use of computer-based management and tracking systems, the preparation of a variety of management reports, monitoring of progress for ongoing activity, and suggested revisions to implementation plans as required.

Implementation of Computer Based Tracking System. Energetics, Inc. developed and maintained a computer-based tracking system for NES administrative actions. This system employed state-of-the-art project management software with the ability to track up to 2,000 separate NES activities and milestones. Special information requests based on specific data sorts were met.

NES Status and Progress Reports. Energetics, Inc. prepared regular NES milestone progress reports to DOE. These reports included graphics, text and data that clearly communicated progress by Secretarial Officers on their assigned administrative actions. In addition to these regular reports, special reports tailored to specific inquiries by DOE were provided. These included summary or detail activity information presented by date, DOE organization, NES goal, or other criteria specified by DOE.

Monitoring of Accomplishments. Energetics, Inc. gathered information from the appropriate DOE organizations to update progress on NES administrative action plans. At any one time, as many as 500 separate activities were active and progress in accomplishing them needed to be reported. Information was gathered on a regular basis subject to DOE internal needs. This information was used to update the computer-based tracking system, and in preparing management reports.

Review of DOE Programs and NES Administrative Action Plans. Based on information gathered through milestone and activity tracking efforts, Energetics, Inc. reviewed NES Administrative Actions Plans and recommended appropriate changes to the timetable of planned milestones and accomplishments.

The complete GANTT chart of NES administrative action milestones and activities, the monthly NES Status and Progress Reports on milestone accomplishments, and a brief summary report outlining recommended changes to NES administrative action Plans were prepared by Energetics, Inc.

Keywords: National Energy Strategy (NES), Administrative Actions, Computer Based Tracking System, Milestone and Activity Tracking

Task Title: Spring Program Review

Client: U.S. DOE, Office of Policy, Planning, and Analysis

DOE Project Officer: Robert C. Marlay (PE-61)
Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 017

Energetics Project Mgr.: Roy Denham
Subcontractor: SocioTechnical Research Applications

Budget

Planned Hours: 485
Actual Hours: 432 (includes subcontractor hours)

Planned Dollars: \$35,098
Actual Dollars: \$29,692

Period of Performance

From: 08/02/91
To: 09/21/91

Task Description:

Energetics, Inc. performed work in support of the Spring Program Review. This consisted of identifying PE information requirements in support of the Spring Program Reviews; developing the analytical framework, process, and tools necessary to support PE analysis and Secretarial decision-making; and defining the end product of the Spring Program Review.

This study used as the starting point the FY 1993 Spring Planning Process approach and the results of the Secretarial Briefings. Inputs were required from PE-60 and PE-61 staffs as well as all Program Secretarial Officer's planning staffs. In developing analytical frameworks and tools the approach considered unique characteristics in three broad Departmental mission areas: Energy, Foundations and Defense activities.

Key steps in the analysis consisted of the following:

An analysis of the FY 1993 Spring Planning Process. This analysis assessed the PSO inputs to the FY 93 process, the methodology identified by PE-61, the results of Secretarial Briefings, and the comments from the PSO Planning Council members.

Development of a horizontal framework for the Spring Program Review. Starting from the broad mission areas, Energy, Foundations, and Defense, Energetics, Inc. developed a draft competitive sub-structure, with definitions, that could be used for PE-61 analysis.

Develop Proposed Program Planning Units. The PPU is the principal building block for PSO Spring Planning Proposals. They should be directly related to the PSO Multi-Year Program Planning Unit and the PSO Budget Decision Unit. Once the PPU's were identified Energetics, Inc. integrated them into the horizontal framework.

Develop an analytical process including the criteria and weights for evaluating PPU's. The analytical approach for the Spring Program Review could be different for each of the three mission areas. Energetics, Inc. fully identified the approaches both quantitative and qualitative necessary for analysis. This included, where applicable, criterion and weights proposed for prioritization of PPU's.

Develop PSO information requirements for the FY 1994 Spring Program Review. PSO was required to submit certain data in support of the FY 1994 Spring Program Review. Energetics, Inc. identified those data requirements.

Keywords: Spring Program Review, Program Planning Units (PPUs)

Task Title: Linking NES Policies With the Department's Budget

Client: U.S. DOE, Office of Policy, Planning, and Analysis

DOE Project Officer: Robert C. Marlay (PE-61)
Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 018

Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours:	1,160
Actual Hours:	862.5
Planned Dollars:	\$49,930
Actual Dollars:	\$49,903

Period of Performance

From:	08/08/91
To:	12/31/91

Task Description:

Effective implementation of National Energy Strategy (NES) environmental goals required the synthesis and clear presentation of a broad range of data describing energy production, supply technologies and consumption patterns. The Department of Energy (DOE) needed to independently evaluate the significance and basis for supporting data differences. In addition, issue-related information on NES environmental policy goals such as the Advanced Research and Development Strategy was needed on a quick-turn around basis.

Energetics, Inc. conducted special in-depth technical analyses to access, integrate, summarize and present timely assessments of selected data relative to the implementation of NES environmental policy goals.

Development was continued of a methodology used in the spring planning process to compare and rank budgetary decision units (program planning units) in DOE. This helped to identify and evaluate the most effective portfolios of programs to address National Energy Strategy environmental policy, and related, goals and other DOE missions. Existing software and data was defined and new capabilities for sensitivity testing were developed. Panels of experts were convened to provide guidance and advice for analytic tools, data development, and scoring of

programs. Energetics, Inc. also prepared background analysis required to support policy decisions, planning activities, environmental issues assessments, and energy and economic forecasts.

Energetics, Inc. prepared presentations, briefings, and supporting issue analysis in support of quick-response assignments for the Office of Program Review and Analysis. In addition, materials in response to senior management hearings related to program evaluation and the Internal Review Budget (IRB) process were prepared.

A summary report of results of program evaluation methodology was prepared; interim results for revised methodology for IRB process were delivered; and a computer model to run program ranking and sensitivities and a complete summary notebook of quick-response products were delivered.

Keywords: National Energy Strategy (NES), Advanced Research and Development Strategy, Environmental Policy, Internal Review Budget, Program Evaluation

Task Title: Program Evaluation Methodology

Client: U.S. DOE, Office of Policy, Planning, and Analysis

DOE Project Officer: Robert C. Marlay (PE-61)
Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 019

Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours:	1,020
Actual Hours:	0
Planned Dollars:	\$49,947
Actual Dollars:	\$0

Period of Performance

From:	08/08/91
To:	01/04/92

Task Description:

This task was canceled.

Task Title: Technical Analysis for Implementation of NES Action #76

Client: U.S. DOE, Office of Program Review and Analysis

DOE Project Officer: Robert C. Marlay (PE-61)

Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 020

Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours: 890

Actual Hours: 736.5

Planned Dollars: \$49,978

Actual Dollars: \$49,977

Period of Performance

From: 10/10/91

To: 04/10/92

Task Description:

Energetics, Inc. supported OPRA in the effective implementation of NES Action #76. This support included analysis of energy-related technologies, development of candidate evaluation energy, economic and environmental criteria derived from the NES, collection and analysis of data needed to evaluate technologies or programs, coordination of meetings and/or panels related to interagency activities, and preparation of briefing and presentation materials in support of interagency activities.

Energetics, Inc. provided a comprehensive list of technologies related to NES goals, a candidate list of criteria for evaluation needs, a draft briefing on the interagency process for Action #76, and an outline for final interagency report.

Keywords: OPRA, NES Action #76, Interagency Activities

Task Title: Fossil Energy R&D Program Review Statistical Review and Flowchart of Process

Client: U.S. DOE, Office of Program Review and Analysis

DOE Project Officer: Robert C. Marlay (PE-61)
Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 021

Energetics Project Mgr.: Jack Eisenhower
Subcontractor: SocioTechnical Research Applications

Budget

Planned Hours: 908
Actual Hours: 985 (includes subcontractor hours)

Planned Dollars: \$50,018
Actual Dollars: \$54,335

Period of Performance

From: 11/22/91
To: 01/30/92

Task Description:

Energetics, Inc. assisted in a program review of the Fossil Energy Research and Development (R&D) program. Work performed focused on mechanisms for selecting and setting priorities for R&D projects, measures of success, feedback channels and the identification of means to increase the effectiveness of the program.

Item 1 under this task was a statistical review and analysis. Energetics, Inc. assisted with preparing and reviewing statistical analyses of the Fossil Energy R&D program. This task included maintaining information related to program funding organized in ways helpful to the program review. Statistical and tabular analyses were performed on these data. Apparent inconsistencies and errors were investigated and resolved and new information was incorporated as needed.

Energetics, Inc. provided documentation of information, a report on extent to which "success" projects are included, and a revised database.

Item 2 consisted of a Flowchart of Current Process. Energetics, Inc. researched the process used for identifying, planning, evaluating, selecting, and ending R&D projects; and provided assistance in interviewing knowledgeable DOE staff and reviewing available materials.

A draft flowchart of current process and a final flow chart of current process were provided.

Keywords: Fossil Energy Research and Development, R&D, Measures of Success

Task Title: PE Independent Evaluation of the EM Progress Tracking System

Client: U.S. DOE, PE

DOE Project Officer: Robert C. Marlay (PE-61)

Contracting Officer: Lynn Warner

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 022

Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours: 1,010

Actual Hours: 841

Planned Dollars: \$44,992

Actual Dollars: \$44,890

Period of Performance

From: 11/22/91

To: 02/15/92

Task Description:

Energetics, Inc. supported PE in the coordination and implementation of the PE independent evaluation of the EM Progress Tracking System. This support included development of evaluation criteria, analysis of the PTS data collection system, assessment of PTS capabilities, coordination of meetings, and preparation of materials for briefings, presentations and reports in support of the Review Group.

Energetics, Inc. provided a list of evaluation criteria, a draft report on assessment, a final report of assessment, and presentation/briefing materials.

Keywords: EM Progress Tracking System, PTS

Task Title: Analysis of Energy Technology Review (Action #76)

Client: U.S. DOE, Office of Program Review and Analysis

DOE Project Officer: Robert C. Marlay (PE-61)

Contracting Officer: Tom Canning

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 023

Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours: 750

Actual Hours: 731

Planned Dollars: \$42,412

Actual Dollars: \$42,315

Period of Performance

From: 03/13/92

To: 04/27/92

Task Description:

The Office of Program Review and Analysis (OPRA) was responsible for implementing NES Administration Action Item #76, Establish Federal Priorities. This action encompassed a cooperative effort of federal agencies conducting R&D programs related to NES technical objectives. Guidance from the Office of Science and Technology Policy to DOE indicated the desire to proceed with a DOE-led review of energy technologies before involving other federal agencies.

OPRA required technical support to assemble, edit, analyze and present the results of the energy technology reviews from the working groups. The results of the energy technology review were used to satisfy the requirements of Action Item #76 and as an input to spring program review. As such, OPRA required assistance to assemble all data from the working groups and report them in a consistent format, analyze the results using various criteria-based and time-based weights, and summarize the results of the reviews in a timely manner.

Energetics, Inc., under the direction of OPRA staff, conducted an integrated analysis of the results of the energy technology review. This effort encompassed two related activities:

assembling data and analyzing the results, and summarizing the results of the working groups and the integrated analysis in a narrative form.

As part of this task, Energetics, Inc. provided a Lotus 1-2-3 spreadsheet-based personal computer model to enable sensitivity analysis by OPRA staff. A major briefing on the analysis for senior DOE management was prepared. This briefing encompassed the overall process used in the technology review and the summarized results. A draft report of working group results and process was also prepared.

Keywords: Office of Program Review and Analysis (OPRA), NES Administrative Action Item #76, Energy Technology Review, Energy Technologies, Spring Program Review

Task Title: Review of Energy Technologies Important to NES Implementation

Client: U.S. DOE, Office of Program Review and Analysis

DOE Project Officer: Robert C. Marlay (EP-61)
Contracting Officer: Richard D. Updegrove

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 025

Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours: 550
Actual Hours: 490.5

Planned Dollars: \$34,989
Actual Dollars: \$34,376

Period of Performance

From: 09/10/92
To: 12/04/92

Task Description:

The Office of Program Review and Analysis (EP-61) initiated a process for assessing the contribution of energy technologies toward achieving NES objectives of energy security, economic growth, and environmental quality. This process engaged the special knowledge of national experts in these three areas, organized through technology working groups chaired by senior DOE laboratory scientists. An additional group examined fundamental science needs. Each group produced a final report of their assessments.

A key issue discussed in a workshop on the DOE evaluation process was the ambiguity inherent in the technology groupings. Sixty technology areas were developed with accompanying sub-areas to describe the universe of energy technologies. During the working group evaluation process, questions were raised about certain overlaps and gaps in these definitions. Furthermore, more consistency in the scope of each category was needed.

DOE required contractor support to work with the laboratories in developing a revised technology grouping for further assessments. In addition, DOE needed to review lessons from the recently completed assessment process and provide recommendations for next steps.

Energetics, Inc. worked with the chairmen of the technology working groups to develop a revised list of technology groupings to facilitate assessment, and worked with DOE staff to link these new categories to the DOE budget structure. Energetics, Inc. also collaborated with the laboratories through a working meeting to provide a summary of lessons learned that could be used by DOE in developing next steps.

Energetics, Inc. provided a comprehensive list of technologies groupings with brief descriptions and a summary report of lessons learned.

Keywords: Office of Program Review and Analysis, NES Objectives, Energy Security, Economic Growth, Environmental Quality

Task Title: Energy Technology Assessment Data Analysis

Client: U.S. DOE, Office of Domestic and International Energy Policy

DOE Project Officer: Robert C. Marlay (EP-40)
Contracting Officer: Richard D. Updegrove

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 026

Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours: 1,780
Actual Hours: 1,368

Planned Dollars: \$99,971
Actual Dollars: \$98,447

Period of Performance

From: 02/01/93
To: 04/23/93

Task Description:

DOE's Office of Domestic and International Energy Policy required an independent technical assessment of the potential benefits and associated risks of conducting R&D in approximately 75 specific technology areas. The assessments, carried out by DOE laboratories and technology experts, were critically important to the development of sound DOE technology policy and program planning guidance for the budget cycle (FY 1995). The overall purpose of this effort was to develop a coherent, integrated framework for analyzing, evaluating and comparing alternative R&D strategies and portfolio options across different time periods.

DOE required technical and analytical support to implement the latest round of technology R&D assessments. Support was required to accomplish a broad range of activities including development of appropriate technology groups, modification of evaluation criteria, appropriate modifications to the overall assessment process, initiation of the revised process, coordination of the external expert working groups, and analysis of working group assessment results. This required senior staff with extensive experience in working with the DOE program offices and in conducting technology and policy analysis.

Energetics, Inc. provided technical and analytical support throughout the implementation of the technology R&D assessments for the FY 1995 planning cycle. The effort was divided into four sub-tasks:

Providing Guidance to Working Groups and Coordinating Group Proceedings. Energetics, Inc. prepared guidance, based on the DOE-specified revised technology assessment process. Guidance included an overview of technology assessment, description of the desired process, evaluation criteria, technologies list, deliverable definition and schedule, format definitions, and background information. Working Group proceedings were coordinated as a part of the support effort to ensure that groups utilized appropriate processes, technologies lists, and evaluation criteria. Status of the Working Group proceedings was reported to DOE on a biweekly basis.

Conducting Preliminary Technology Assessments and Risk Analyses. Energetics, Inc. reviewed the Working Group results. Analysis of the relative merit and associated risks of conducting R&D in listed technology areas was conducted using a benefits and risk assessment methodology developed during the initial round and modified as appropriate. Based on these results, strategic technology slates that could help achieve national policy goals were identified. A summary of other results and analysis was prepared for discussion with DOE management and program sectors. The overall purpose of this subtask was to determine the technical basis to support alternative policy requirements.

Preparing Final Results of Technology Assessments. Energetics, Inc. assembled all outputs of the Working Groups, including final reports, quantitative data, and subsequent analysis of results into a final presentation and report.

Conducting Analysis of Technology Issues Important to Achieving National Policy Goals. Energetics, Inc. conducted a broad range of background analysis on technology policy issues in support of R&D policy reviews. This analysis complemented the assessments and provided the technical rationale for pursuing R&D policy and programs.

Three status reports on Working Group assessment progress, a preliminary report of Working Groups results, and a presentation on analytic methodology and results of the preliminary technology R&D merit and risk analyses were provided.

Keywords: Technology Evaluation, R&D Assessments, Risk Analysis

Task Title: Institutional R&D Incentives Study

Client: U.S. DOE, Office of Technology Policy

DOE Project Officer: Robert C. Marlay (EP-40)
Contracting Officer: Richard D. Updegrove

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 027

Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours:	207
Actual Hours:	8
Planned Dollars:	\$9,952
Actual Dollars:	\$740

Period of Performance

From:	02/01/93
To:	04/23/93

Task Description:

Task 27 was canceled.

Task Title: Technology Policy Analytical Support

Client: U.S. DOE, Office of Domestic and International Energy Policy,
Office of Technology Policy

DOE Project Officer: Robert C. Marlay (EP-40)
Contracting Officer: Richard D. Updegrove

Contract No.: DE-AC01-88EH79042

Energetics Task No.: 028

Energetics Project Mgr.: Jack Eisenhower

Budget

Planned Hours:	244
Actual Hours:	218
Planned Dollars:	\$14,933
Actual Dollars:	\$14,664

Period of Performance

From:	02/01/93
To:	04/23/93

Task Description:

The Office of Domestic and International Policy (EP) is responsible for formulating and recommending national energy strategies, linking such strategies and other authoritative Administration policies with Department of Energy's programs and activities, and conducting program reviews and related analyses. Energetics, Inc. provided technical assistance in conducting reviews and studies of selected DOE programs.

The Office of Technology Policy is responsible for the analysis and evaluation of DOE technology development and deployment programs and supporting R&D activities. Energetics, Inc. provided on-line analytical and technical capabilities to respond to an array of quick turn-around technology policy analysis. In addition to the technical knowledge of the EP-41 staff, contract support was required to maintain such capability to perform assessments of proposed technology policy options, current technology issues and ad hoc tasks. Energetics, Inc. provided support in a variety of ways, including: database development; assessments of emerging technologies, assessments of technology policy implications (e.g., strategic, economic, environmental, technical, and institutional implications); analysis of technology policy initiatives (e.g., emerging technologies, government and private sector technology cooperation, intellectual

property rights issues), the assessment of DOE's technology portfolio, and assistance in preparing quick turn-around briefing materials.

Energetics, Inc. conducted general background research and studies on domestic and national technology policy issues; collected and developed a database of general technical data and information relevant to interests of EP; reviewed and commented on specific documents; assisted EP with policy reviews and related analysis of major DOE technology policy initiatives to ensure consistency with approved policies; and assisted EP in the analysis of domestic policy developments, including economic, environmental, and institutional factors, affecting DOE's technology and related R&D activities.

In addition, Energetics, Inc. assisted EP in the analysis and evaluation of DOE's technology and related R&D activities for consistency with approved policies, considering a broad range of technical, economic, environmental, and societal factors; assisted EP in the conduct of policy analysis and domestic policy studies of energy technology and related R&D issues in support of the development of national energy policies, strategies, and plans; assisted EP in the development of an underlying analytical framework for the development of R&D priorities consistent with and supportive of national energy policies, strategies, and plans; prepared or reviewed and commented on briefing packages and materials for meetings that support program planning, testimony, press conferences, and public appearances; and assisted EP in organizational analyses, continuous improvement, and development of systems for information and actions tracking.

Monthly status reports of work accomplished were provided on the 15th of the month following the period reported on.

Keywords: National Energy Strategies, Technology Issues, Database, Technology Portfolio, Technology Assessments, Policy Analysis