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**STAFF ROSTER FOR 1979 -
NATIONAL CENTER FOR ANALYSIS OF ENERGY SYTEMS**

December 1979

DEPARTMENT OF ENERGY AND ENVIRONMENT

**BROOKHAVEN NATIONAL LABORATORY
UPTON, NEW YORK 11973**

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**STAFF ROSTER FOR 1979 -
NATIONAL CENTER FOR ANALYSIS OF ENERGY SYSTEMS**

**B. MANOWITZ, Chairman
L.E. RUFF, Associate Chairman for NCAES**

January 1980

**NATIONAL CENTER FOR ANALYSIS OF ENERGY SYSTEMS
DEPARTMENT OF ENERGY AND ENVIRONMENT
BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.**

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ABSTRACT

This publication is a compilation of resumes from the current staff of the National Center for Analysis of Energy Systems. The Center, founded in January 1976, is one of four areas within the Department of Energy and Environment at Brookhaven National Laboratory. The emphasis of programs at the Center is on energy policy and planning studies at the regional, national, and international levels, involving quantitative, interdisciplinary studies of the technological, economic, social, and environmental aspects of energy systems. To perform these studies the Center has assembled a staff of experts in the areas of science, technology, economics, planning, health and safety, information systems, and quantitative analysis.

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NATIONAL CENTER FOR
ANALYSIS OF ENERGY SYSTEMS

LARRY E. RUFF

Economist

Education

Stanford University (Ph.D. in Economics, 1967), California Institute of Technology (B.S. in Physics (with Honor) 1963), Sacramento City College (A.A. in Physics and Math, 1961).

Research Interests

Energy and Environmental Policy and Economics.

Professional
Affiliations

American Economics Association
International Association of Energy Economists

Summary of
Experience

Participated in major energy policy studies sponsored by The Ford Foundation in 1976 and in 1978-79. Managed large research and analytic programs at BNL, The Ford Foundation, and the U.S. Environmental Protection Agency. Served as energy advisor to top management at diversified U.S. corporation (W.R. Grace & Co.).

Selected
Publications

L. E. Ruff et al., Energy: The Next Twenty Years (Ballinger Pub. Co., Cambridge, 1979). Report of Study Group sponsored by The Ford Foundation and administered by Resources for the Future; H. H. Landsberg, Chairman.

"Federal Environmental Regulation," in Study on Federal Regulation, U.S. Senate Committee on Governmental Affairs, 1978.

"The Uncertain Search for Environmental Quality," Book Review, Journal of Political Economy (February 1977).

ELLEN A. CHERNIAVSKY	Associate Scientist
Education	Stanford University (B.S. in Mathematics, 1968), Cornell University (M.S. in Operations Research, 1971; Ph.D. in Operations Research, 1973.
Research Interests	Models of Resource Exploration and Development, Multi- objective Analysis, Model Validation and Simplifi- cation.
Professional Affiliation	Operations Research Society of America, International Association of Energy Economists, American Association for the Advancement of Science.
Committees	Served as Chairman of the Energy Applications Special Interest Group, Operations Research Society of America.
Summary of Experience	Development and application of models to energy policy analysis. Performed technology assessments and multi- objective analyses in support of national energy plan formulation for the Energy Research and Development Administration, using mathematical programming models of the U.S. energy system. Responsible for a valida- tion and assessment of the structure and behavior of Bechtel Corporation's "Regional Energy System for the Planning and Optimization of National Scenarios," a linear programming model. Recent work has centered on developing simplified, calibrated representations of reference resource models for incorporation into the long-range Energy Analysis Program, a generalized equilibrium model.
Selected Publications	E. A. Cherniavsky, "Multi-objective Energy Analysis," BNL 26882, November 1979, <u>NATO Advanced Research Institute, on the Application of Systems Science to National Energy Policy Planning, Brookhaven National Laboratory, Upton, New York, November 12-16, 1979.</u> Andy S. Kydes and Ellen A. Cherniavsky, "Coal in Transition 1980-2000 Demand Considerations," BNL 50844, December 1977. E. A. Cherniavsky, A. S. Kydes, and J. W. Davidoff, "Multi-objective Analysis of ERDA Forecast-2, Year 2000 Scenario," BNL 50685, May 1977.

WILLIAM MARCUSE	Senior Economist
Education	University of Connecticut (B.A. in Economics, 1947; M.A. in Economics and Statistics, 1948); Columbia University (Ph.D. in Economics, 1956).
Research Interests	Policy Analysis and Planning
Professional Affiliations	American Economic Assoc., Inst. of Management Science, Operations Research Society of America (full member), International Assoc. of Energy Economists, Econometric Society, American Assoc. for the Advancement of Science (Science Fellow).
Summary of Experience	<p>In 1956 Dr. Marcuse left a tenured position in the Economics Department of the University of Connecticut to join MIT's Operations Evaluation Group. After apprenticing in Naval Operations Research he joined the MITRE Corporation, initially as a technical staff member, then as head of the operations analysis sub department and later as associate department head of the Systems Analysis Department. While at MITRE, he formulated, structured and directed a number of military command, control and information system design and engineering studies. In 1969, he came to Brookhaven to create a capability for systematically analyzing nuclear safeguards and to support the U.S. position in the Nuclear Non-proliferation Treaty discussions at the International Atomic Energy Agency. In 1952 he became a pioneer member of Brookhaven's energy analysis activity and headed the Economic Analysis Division. Under his direction the BNL Technology Assessment Energy Model was linked to the econometric Hudson Jorgenson Model. He has just returned from a six month professional leave in Israel where his proposed methodology for assessing current policy and formulating future policy is about to be implemented by the Ministry of Energy.</p>
Selected Publications	<p>W. Marcuse, L. Bodin et al., "A Dynamic Time Dependent Model for the Analysis of Alternative Energy Policies," in K. B. Haley, Ed., <u>Operational Research</u> (North Holland, 1976).</p> <p>W. Marcuse, "Why Should Energy Models Form Significant Policy Input in an Uncertain Political World," BNL 25599, to be published in the <u>Proceedings of the Canadian Energy Policy Modeling Conference, Vancouver, B.C., May 18-20, 1978.</u></p> <p>W. Marcuse and D. Behling et al., "The Long Term Economic and Environmental Consequences of Phasing Out Nuclear Energy," <u>Modeling Energy-economy Interactions: Five Approaches</u>, Resources for the Future, Washington, D.C., 1977.</p>

PETER M. MEIER	Engineer
Education	Swiss Federal Institute of Technology (Diploma in Natural Science, 1966); Vanderbilt University; University of Massachusetts (M.Sc. in Civil Engineering, 1968, Ph.D. in Environmental Systems Analysis, 1970); Postdoctoral Fellow, University of Karlsruhe, West Germany, 1970-1971.
Research Interests	Energy Facility Siting; Energy Policy Analysis, Application of Quantitative Methods to Environmental and Energy Planning.
Professional Affiliations	The Institute of Management Science; Northeast Regional Science Association; American Society of Civil Engineers, Regional Science Association.
Committees	Vice Chairman, Power Research Council of ASCE; Member, Environmental Effects Committee, ASCE; Power Division Solid Waste Management, Legislative Subcommittees.
Summary of Experience	Responsible for several major studies on power plant and energy facility siting, including a Handbook for Regional Planners (for the U.S. Dept. of Housing and Urban Development), several contributions to the U.S. Nuclear Regulatory Commission Nuclear Energy Site Survey; an ongoing assessment for the same agency to evaluate alternative siting methodologies for nuclear power plant site selection, and the Brookhaven Regional Energy Facility Siting Model, developed under the auspices of the U.S. Energy Research and Development Administration. Dr. Meier has served as a consultant and advisor to many international, Federal, State, and Regional agencies (including, most recently, to the International Institute for Applied Systems Analysis in Vienna, the Great Lakes Basin Commission, and the Executive Office of the President of the United States), as well as for private sector and public interest organizations (EPRI, The Environmental Policy Institute, and several Universities).
Selected Publications	<p>P. M. Meier, "A Long Range Regional Power Plant Siting Model," <u>Journal of the Energy Division ASCE</u> <u>105</u>, EY 1, 117-135 (Jan. 1979).</p> <p>P. M. Meier, D. Morrell, and P. F. Palmedo, "Political Implications of Clustered Nuclear Siting," <u>Energy Systems and Policy</u> <u>3</u>, 17-36 (April 1979).</p> <p>P. M. Meier and B. Hobbs, "Water Resource Constraints to Power Plant Siting in the Mid Atlantic States," <u>Water Resources Bulletin</u> <u>15</u>, No. 6, 1666 (Dec. 1979).</p>

JACK ALLENTUCK

Economist

Education

B.E.E., City College of New York, 1947; M.S., New York University, 1953; Ph.D., New School of Social Research, 1978.

Research Interests

Organization of the electric utility industry and related institutional issues, electric system capacity expansion, role of electric sector in the total energy-economics interactions.

Professional
Affiliations

Institute of Electrical and Electronic Engineers,
American Economic Association, Registered Professional Engineer, New York State

Summary of
Experience

Diverse background of over 30 years in consulting, industry, and government, in electric power systems, scientific experimental facilities and government operations. Involved in studies of the effect of the interaction of technological innovation and regulatory issues on the electric utility industry.

Experience with J.C. White Engineers until 1956 and then with the United States Atomic Energy Commission and Nuclear Regulatory Commission until 1975 in a series of engineering, managerial, and management support positions. Includes design and inspection of conventional and nuclear power stations, economic analysis of the electric utility industry, and special studies of utility operation problems.

As a member of the faculties of New York Polytechnic Institute and the State University of New York at Stony Brook, he has taught courses in the economics of the electric utility sector.

Selected
Publications

J. Allentuck, "Automated Poolwide Economic Dispatch of Electric Generating Units and the Concept of Natural Monopoly," BNL 26397, June 1979.

A. Reisman and J. Allentuck, "A Low Cost General Energy/Analytic Information System," BNL 26398, June 1979.

J. Allentuck, O. Carroll, L. Fiore, N. Katz, R. Malone, R. Nathans, M. Owen, D. Prelec, R. Raymond, A. Reisman, and H. Rostoker, "New York State Energy Analytic Information System: First Stage Implementation," BNL 51138, January 1980.

MORRIS BELLER

Associate Chemical Engineer

Education

Polytechnic Institute of Brooklyn (Bachelor of Chemical Engineering, 1955); State University of New York at Stony Brook (Masters of Marine Environmental Sciences, 1972).

Research Interests

Energy Systems Analysis, Marine Environmental Studies, Engineering Economics, Technology Assessment.

Professional
Affiliations

American Chemical Society

Summary of
Experience

Responsible for several major programs for the U.S. Department of Energy. Recently supervised the development of an Energy Emergency Management Information System data structuring activity to be used for analysis and monitoring of energy storage and flows. Supervised a support program which developed national energy plans and forecasts for the Energy Research and Development Administration for use in annual reports to the Congress. Participated in the development of a series of technology assessments in the areas of future electrical, coal, and decentralized energy potential. Supervised project teams engaged in producing useful products from solid wastes, and in synthesizing large volume industrial chemicals in reactors. Worked on design, installation, and evaluation of very large air separation plants for Union Carbide Corporation, and on the development of aerial reconnaissance systems with Cornell Aeronautical Laboratory.

Selected
Publications

M. Beller, "The Applications of Energy Systems Analysis to Policy and Technology Studies," Energy Systems Analysis International Conference, Dublin, Ireland, Oct. 9-11, 1979.

M. Beller, A. Doernberg, A. Hermelee, and K.C. Hoffman, "Impacts of New Energy Technologies as Measured against Reference Energy Systems," Conference on Energy Alternatives, United Nations University, Jan. 9-12, 1979.

M. Beller, "Methodology for Assessing the Full Costs of Technology," BNL 26988, Nov. 1979, to be published in International Journal of Energy Research.

ANDY S. KYDES

Associate Mathematician

Education Harvard University (A.B. 1968; Engineering and Applied Physics); State University of New York at Stony Brook (M.S. 1973, PhD. 1974, Department of Applied Mathematics and Statistics).

Research Interests Energy Systems Analysis; Market Penetration Analysis; Numerical Analysis.

Professional Affiliations The Institute of Management Sciences, The Operations Research Society of America.

Committees Advisor to the Economic Analysis Division of the Gas Research Institute.

Summary of Experience During his two years as visiting assistant professor in the College of Urban and Policy Sciences, Dr. Kydes analyzed and coordinated the software developed for UCOST, an innovative mass transit system cost model, for integration within the UTPS (Urban Transportation Planning System) suite of packages for UMTA (Urban Mass Transportation Authority) of DOT. In addition, he consulted with Brookhaven National Laboratory and directed the development of the computerized version of land use/energy utilization model as a policy tool for planning groups. Dr. Kydes has been with the Energy Data and Models Group since June 1976 and is currently the group leader. He developed the time-stepped energy system optimization model (TESOM) and is responsible for making continued needed refinements to the model. The TESOM model, in combination with the macro economic model, has been repeatedly used for technology assessment, cost/benefit analysis, and for developing and analyzing consistent energy-economy scenarios for the Gas Research Institute and the Solar and Conservation programs of the U.S. DOE. Dr. Kydes has participated in several modeling workshops and published in area of numerical analysis, transportation science and energy systems analysis.

Selected Publications A. S. Kydes and A. Gerasoulis, "A Probabilistic Interpretation of Market Shares," BNL 51064, December 1979.

A. S. Kydes and J. D. Pearson (editors), "A Comparative Assessment of Calibrated Long-Run Energy Projections," (in preparation), BNL 51085, December 1979.

R. Condap and A. S. Kydes, "Modeling Market Penetration with Emphasis on the DFI Energy-Economy System," BNL 50999, April 1979.

REGIONAL STUDIES DIVISION

P. M. MEIER

GARY GOLDSTEIN

Computer Science Analyst

Education

State University of New York at Cortland (B.S. in Mathematics, 1974); State University of New York at Stony Brook (M.S. in Computer Science, 1975).

Research Interests

Man/machine communication via computer graphics; large scale software design; information system interface and representation; modelling.

Professional
Affiliations

Association of Computer Machinery; SIGGRAPH

Summary of
Experience

While at Stony Brook, Mr. Goldstein was mainly involved with Calcomp graphic software development and implementation, along with data base and operating system design. A graduate teaching assistantship was awarded to him during his stay. Since coming to Brookhaven National Laboratory in 1975, he has helped design and implement several energy system models ranging from simple interactive simulators to large linear programs (L.P.). The L.P.'s were developed using the PDS/MaGen programming language. Other activities included a Fortran system to generate an L.P. based upon the PDS/MaGen class, table concept. He has also aided in the design of a data base that was implemented using the System 2000 data base management system. Most recently, Mr. Goldstein has designed an interactive graphic system to draw Reference Energy Systems on color display terminals. Presently, he is working on user-oriented energy and modelling information display systems to meet the graphic needs of the National Center for Analysis of Energy Systems. Mr. Goldstein has expertise in the following computer systems and languages: systems-CDC 7600 and 6600 (Scope 2.1, Scope 3.4), IBM 370 (OS, VOS), PDP 15; languages-FORTRAN, PDS/MaGen, Algol, Cobol, PL/1, APL, S2K, Compas, PDP 15 assembly languages.

Selected
Publications

G. Goldstein and W.E. Beardsworth, "Program PRESTO - Preparation of Reference Energy Systems Through Time," BNL 50723, August 1977.

J. Allentuck, J. Lee, and G. Goldstein, "The Impact of Load Management on Consolidated Edison Company's Generation," BNL 22633, March 1977.

EDWARD KAPLAN	Water Resource Analyst
Education	New York University, University Heights (A.B., 1964); New York University (M.S., 1966); University of Pennsylvania (Ph.D. in Water Resources Systems Analyses, 1974).
Research Interests	Relationships between water, energy and socioeconomic development; energy and environmental policy analyses; quantitative analyses of energy/environmental systems.
Professional Affiliations	American Geophysical Union; American Society of Civil Engineers; New York Academy of Sciences; American Association for the Advancement of Science; Federation of American Scientists.
Committees	Task Force on Health and Environmental Effects of the Air Resources and Environmental Effects Management Committee, Environmental Engineering Division, ASCE; Town of Brookhaven, Conservation Advisory Council (past chairman).
Summary of Experience	<p>Responsible for the development and implementation of several water-related programs focusing on assessments of impacts from energy production and use, including coastal zone impacts from offshore and onshore energy development and aquifer contamination from enhanced oil recovery activities; developed a county data base describing ambient water quality, effluents from industrial activities, as well as rock, soil, land use and other socioeconomic information; utilized path analysis to investigate causality between water quality, natural influences, and various other activities of man.</p> <p>Dr. Kaplan has served as an advisor and consultant to the Council on Environmental Quality, Environmental Protection Agency, and U.S. Army Corps of Engineers; serves on DOE and interlaboratory advisory committees, assists various interagency task forces, and acts as liaison with the New England Council of Water Center Directors on a program studying the role of water resources in New England's energy and economic future.</p>
Selected Publications	<p>E. Kaplan, "Offshore Oil Drilling and the 'No-Discharge' Philosophy," <u>Proc. 1976 Fall Annual Meeting of the American Geophysical Union</u>, December, 1976.</p> <p>E. Kaplan, R. Hardy, and J.S. Munson, "New England's Future: Water, Energy and Economic Development," BNL 24788-R, October 1977.</p> <p>E. Kaplan and H. Thode, "A New Technique for Analyzing Relationships Between Energy and Water Quality," BNL 51068, July 1979.</p>

JOHN C. LEE

Environmental Science Associate

Education

University of Kansas (B.S. in Physics, 1969); State University of New York at Stony Brook (M.S. in Applied Mathematics, 1972; M.S. in Urban and Policy Science, 1974).

Research Interests

Energy analysis for developing countries; urbanization and energy use; energy use in the food system; energy modelling.

Summary of Experience

Involved in the design and development of analytical framework for the assessment of energy resource and technology options for developing countries. Developed a technical model for evaluating the impact of load management options on Consolidated Edison Company of New York system's peak load demand, energy generation, generation mix, fuel inputs and costs. Participated in the Northeast Energy Perspectives Study. Developed the current Reference Energy Systems for New England, New York, and other Northeastern States, which provide a comprehensive and systematic data base for regional energy planning. Designed energy projection models for future residential and commercial energy use in the Northeastern States.

Selected Publications

V. Mubayi and J. Lee, "The Potential of Biomass Conversion in Meeting the Energy Needs of the Rural Populations of Developing Countries - An Overview," BNL 26721, September 1979.

J. Allentuck, J. Lee, and G. Goldstein, "The Impact of Load Management on Consolidated Edison Company's Generation," BNL 22633, March 1977.

J. Lee, "Energy Supply and Demand in the Northeast United States - 1972," BNL 20427, September 1975.

FRED W. LIPFERT	Engineer
Education	University of Cincinnati (Mechanical Engineer, 1955; M.S. in Aeronautical Engineering, 1962); von Karman Institute for Fluid Dynamics (Diploma, 1964); Union Graduate School (Ph.D. in Environmental Studies, 1978).
Research Interests	Energy/Environmental Interactions, with Emphasis on Air Quality Impacts; Atmospheric Diffusion Analysis; Air Pollution Health Effects and Population Studies.
Professional Affiliations	Air Pollution Control Association, American Society of Mechanical Engineers; Registered Professional Engineer in Ohio and New York.
Committees	APCA Utility Committee, ASME Gas Turbine Combustion and Fuels Committee, Electric Power Research Institute's Plume Model Validation Advisory Committee.
Summary of Experience	Manages large-scale environmental assessment activities for DOE national energy policy analysis. Extensive background in air quality analysis, including development of simplified dispersion analysis methods for new power plants and a widely-used characterization of NO _x emissions from gas turbines. Has written extensively on air pollution - mortality relationships, and served as consultant to several private and governmental organizations. Before joining BNL, served as manager of air quality control for a large electric utility, including operation of an intermittent control system for two oil-fired plants. Previous background was in aerospace combustion, and fluid mechanics research and development in private industry.
Selected Publications	<p>F. W. Lipfert, "Sulphur Oxides and Human Mortality - Synopses of Statistical Correlations," <u>The Society for Chemical Industry Sulphur Symposium</u>, London, May 1979.</p> <p>F. W. Lipfert, "Differential Mortality and the Environment: The Challenge of Multi-Collinearity in Cross-Sectional Studies," <u>Energy Systems and Policy</u> 3, Dec. 1979.</p> <p>J. Brainard and F. W. Lipfert, "Regional Issue Identification and Assessment Program (RIIA): Environmental Impacts and Issues of the EIA Mid-Mid Scenario: Federal Region III," BNL 51137, May 1979.</p>

ROBERT G. MALONE Computer Science Analyst

Education Long Island University at Southampton (B.S. in Mathematics, 1977); State University of New York at Stony Brook (M.S. in Applied Mathematics, 1979).

Research Interests Applications of linear programming to energy systems analysis; energy network flow algorithms; systems programming to facilitate inter-site data exchange.

Professional Affiliations American Association for the Advancement of Science

Summary of Experience Responsible for computer modelling and analysis within the National Center for Analysis of Energy Systems. Projects have included: analysis of options of closing the nuclear fuel cycle and associated health impacts; preparation and transfer of data contained within the Brookhaven Energy Model Data Base to the Committee on Nuclear and Alternative Energy Systems along with reviewing and upgrading of nuclear fuel cycle contained within that data; development of the LDC-ESNS computer model, an energy flow network analysis program (based on the BNL-ESNS program) designed especially for use in developing countries.

Selected Publications M.K. Goldstein, S.R. Bozzo, R. Malone, F. Galdos, W. Sevian, and D. Goellner, "Health Effects from the Nuclear Fuel Cycle and Other Sources in Perspective," Environmental Management 3, No. 5, 447-460 (1979).

 A. Reisman and R. Malone, "Less Developed Countries Energy System Network Simulator - LDC-ESNS," BNL 50836, April 1978.

 M.K. Goldstein, R.N. Anderson, G. Selvaduray, T. Gangwer, C. Braun, D. Goellner, R. Malone, W. Sevian, and R. Lester, "Waste Management and Proliferation: An Assessment of Technologies and Policies Relevant to Nuclear Power," BNL 50694, March 1977.

GORDON MC GRANAHAN Economics Associate

Education University of East Anglia, England (B.A. in Economics, 1975); Harriman College, State University of New York at Stony Brook (M.S. in Urban and Policy Sciences, 1978).

Research Interests Energy-economics in developing countries; urbanization and energy use; energy use in the food system.

Summary of Experience Co-researcher in Institute for Energy Research's study of urban household energy use patterns in Mexico City (1977); teaching assistant for graduate operations research course at Harriman College (1977-78); principal researcher in Institute for Energy Research/University of Nairobi's study of urban household energy use patterns in Nairobi, Kenya (for the Beijer Institute, Swedish Royal Academy of Sciences, 1978); Brookhaven National Laboratory staff researcher for Peru/United States Cooperative Energy Assessment of Peru (for the U.S. Department of Energy, 1979); BNL staff researcher for U.S.A.I.D. study of energy use in the food system of the Dominican Republic (ongoing).

Selected Publications G. McGranahan and M. Taylor, "Patterns of Urban Household Energy Use in Developing Countries: The Case of Mexico City," IER 111, Institute for Energy Research, State University of New York at Stony Brook, 1977.

M. McGranahan, S. Chubb, R. Nathans, and O. Mbeche, "Patterns of Urban Household Energy Use in Developing Countries: The Case of Nairobi," IER 116, Institute for Energy Research, State University of New York at Stony Brook, 1979.

W. Brooks, S.C. Carhart, G. McGranahan, and S. Mulherkan, "An Energy and Economic Evaluation of Policies for Accelerated Investment in Efficient Automobiles," BNL 50901, June 1978.

WILLIAM C. METZ Assistant Scientist

Education Bates College, Lewiston, ME (B.A., 1966); Makerere University College, Kampala, Uganda (Certificate in African Studies, 1967); University of Rhode Island (M.A. in Geography, 1971); University of Pittsburgh (Ph.D. in Geography, 1974).

Research Interests Socioeconomic impacts and mitigation during energy developments; energy facility siting; energy policy analysis; modelling of energy development impacts.

Professional Affiliations Socioeconomic Chairman, Institute of Environmental Sciences; Association of American Geographers; American Planning Association.

 Listed in American Men and Women of Science and an Association of American Colleges Energy Planning Committee member.

Summary of Experience As a Senior Scientist with Westington Environmental Systems, Dr. Metz was involved in socioeconomic, land use, and site selection investigations for numerous coal mines, coal-fired power plants, nuclear power plants, coal-gasification projects, hydroelectric projects and transmission lines, as well as a comprehensive state-of-the-practice study of socioeconomic impact assessment for the Electric Power Research Institute, Edison Electric Institute and Atomic Industrial Forum, and a policy analysis for the Federal Energy Administration. While at Brookhaven, he has carried out an assessment of refuse-to-energy potential in the State of Maryland, studied the socioeconomic implications of future energy scenarios in the East, and contributed to the Brookhaven Regional Energy Facility Siting Model. Involvement is also maintained in an ongoing U.S. Nuclear Regulatory Commission nuclear power plant siting methodology study. Dr. Metz has served as an advisor in several U.S. Nuclear Regulatory Commission sponsored socioeconomic impact studies, and to a Senate subcommittee on impact mitigation.

Selected Publications W. Metz, "Demographic Analysis and Power Plant Facilities," Aware 79, 5-9 (April, 1977).

 W. Metz, "Socioeconomic Impact Management in the Western Energy Industry," Proceedings, Institute of Environmental Sciences, Seattle, WA, January 1979.

 W. Metz, "Energy Industry Uses of Socioeconomic Impact Management," Proceedings of the Energy and the Ecosystem Conference, University of North Dakota, June 1978.

GLEN R. MITCHELL

Economics Associate

Education

Queens College (B.A. in Economics, 1973); Queens College Graduate School (M.A. in Economics, 1977); City University of New York Graduate Center (Ph.D. in Economics in progress).

Research Interests

Developing Countries potential energy system solutions, e.g., development of indigenous coal as a substitute for oil in electricity production, process heat, and trains; reforestation and biomass generation to increase energy supplies in rural areas; reduction of energy demand in the industrial sector by increasing end-use efficiencies; mini-hydro systems, and solar devices. Developing Country developmental solutions, e.g., energy strategies that will discourage urban migration, facilitate import substitution, improve the delivery of health care and education, increase food production/hectare, facilitate income redistribution.

Summary of
Experience

Responsible for several assessments in energy supply and demand situation in Developing Countries. Mr. Mitchell has had eight years experience with the New York Stock Exchange mostly as an Economics Research Assistant and Training/Examination Specialist. Mr. Mitchell has also developed the new and much more comprehensive NYSE stock-broker examination (Series 5), which met Equal Employment Opportunity Commission requirements and was accepted as the standard nationwide examination replacing all others; and as Research Assistant completed various internal (NYSE) research papers including, "Aspects of Banks; Intrusion into the Securities Industry," and "Impact of Foreign Investments on U.S. Stock Market Operations."

VINOD MUBAYI

Associate Physicist

Education

Delhi University, Delhi, India (B.S. in Physics, 1961, M.S. in Physics, 1963); Brandeis University (Ph.D. in Physics, 1968).

Research Interests

Energy systems analysis; energy and development; Solid State Physics; Statistical Mechanics.

Professional Affiliations

American Association for the Advancement of Science

Summary of Experience

Recent experience includes technology assessment studies of energy systems involving preparation of base-case reference energy pictures, energy demand projections, technology substitution analysis, and detailed assessments of particular technologies especially important in the rural areas of developing countries. Recent work has also involved significant input to the planning and formulation of U.S. Government interagency programs designed to assist developing countries with their energy problems.

Dr. Mubayi researched and taught solid state physics at Cornell University, Tata Institute of Fundamental Research, and Brandeis University. He has 12 scientific publications in the areas of statistical mechanics and solid state physics and a number of conference papers and lectures at scientific meetings. Dr. Mubayi worked as Science Editor for the Oxford University Press responsible for editing and production of scientific and technical books and materials for publication and as a consultant to Maxwell Laboratories, assisting in the development of a computer simulation model of an MHD power supply system.

Selected Publications

V. Mubayi, J. Allentuck, E. Beardsworth, and P. Palmedo, "Some Considerations on the Choice of Countries for U.S. Assistance Under Title V of the Nuclear Nonproliferation Act of 1978," BNL 24274, April 1979.

P. M. Meier and V. Mubayi, "On the Application of Resource Allocation Models to the Problems of Regional Energy Policy in Large Developing Countries," BNL 25537, International Seminar on Energy Administrative Staff College of India, Hyderabad, India, January 4-7, 1979.

V. Mubayi, J. Lee, and R. Chatterjee, "The Potential of Biomass Conversion in Meeting the Energy Needs of the Rural Populations of Developing Countries - An Overview," BNL 26721, Symp. on Thermal Conversion of Solid Wastes, Residues, and Energy Crops, American Chemical Society Meeting, Sept. 11-14, 1979.

JAMES S. MUNSON	Environmental Research Associate
Education	Boston University (B.A. in Independent Concentration, 1974); Columbia University, Masters Degree Program for Business Executives, in progress.
Research Interests	Environmental impacts of energy technologies; institutional constraints to energy policy and development.
Summary of Experience	Responsible for several major analyses of federal energy policy, including the potential environmental and socio-economic impacts of alternative policy and development patterns; consultant to the Organization for Economic Cooperation and Development on the environmental implications of segregated ballast in oil tankers; Associate Director for the Energy Management Training Program (1978) sponsored by USAID.
Selected Publications	<p>J. Brainard and J.S. Munson, "Regional Issue Identification and Assessment Program (RIIA): Environmental Impacts and Issues of the EIA Mid-Mid Scenario, Federal Region I," BNL 51135, April 1979.</p> <p>J.S. Munson and R. Stern, "Regional Energy-Environment Data Book: Northeast Region," BNL 24867, October 1978.</p>

BARBARA L. PIERCE	Environmental Research Associate
Education	Boston University (1966-1968); Southampton College of Long Island University (B.A. in Environmental Science, 1975).
Research Interests	Power plant siting methodologies; energy policy analysis, ecology and land use in energy planning; marine biology.
Professional Affiliations	American Association for the Advancement of Science.
Summary of Experience	Survey of siting methodologies used by utility companies to site nuclear power plants, evaluation of alternative methodologies and application programming on IBM 5100 and CDC 6600 systems for an ongoing assessment of alternative siting methodologies for the U.S. Nuclear Regulatory Commission; ecology and land use impacts for the Regional Issue Identification and Assessment Program for the U.S. Department of Energy; assessments of various conservation technologies, also for the U.S. Department of Energy. Ms. Pierce has also worked on a lobster population study at the New York Ocean Science Laboratory and sea urchin fertilization at Scripps Institute of Oceanography.
Selected Publication	P.D. Moskowitz, T.Q. Le, and B. Pierce, "Ranking Energy Conservation Measures to Establish Research Priorities: Synopsis of a Workshop," BNL 51046, May 1979.

ANN W. REISMAN Environmental Science Associate

Education Cornell University (B.A.); University of California at Los Angeles (M.A.); Southampton College, State University of New York at Stony Brook (continuing education in mathematics).

Research Interests Energy systems analysis; energy technology data; district heating; energy, technology, and environmental interactions in data development.

Committees Member, Integrated Energy Systems Task Force; Member, District Heating Task Force.

Summary of Experience Principal Investigator of a project to develop an analytic methodology to assess the potential of district heating from geothermal sources; principal investigator of the BNL Energy Technology Data Base Program; major contributor to the development of a generic state energy information system proposal and one of the developers of the New York State Energy/Analytic Information System; participate in several studies assessing the impact of energy use on the environment; extensive participation in outreach activities aimed at education informed professionals on specific tools developed at BNL.

Selected Publications A.W. Reisman, and J. Allentuck, "A Low-Cost General Energy/Analytic Information System," BNL 22677, International Conference on Energy Use Management Proceedings, Los Angeles, CA, October 1979.

 J. Allentuck, O. Carroll, L. Fiore, N. Katz, R. Malone, R. Nathans, M. Owen, D. Prelec, R. Raymond, A. Reisman, and H. Rostoker, "New York State Energy Analytic Information System: First Stage Implementation," BNL 51138, September 1979.

 A. Reisman and R. Malone, "Less Developed Countries Energy System Network Simulator - LDC-ESNS," BNL 50836, April 1978.

ROBERT STERN

Mathematics Associate

Education

State University of New York at Stony Brook (B.S. in Mathematics and Economics, 1973); Adelphi University, (Masters of Business Administration, 1978).

Research Interests

Developing countries, energy policy analysis, environmental and economic analysis, land use, energy and transportation planning, utility forecasting.

Professional
Affiliations

Association of MBA Executives, National Honor Society in Business Administration.

Summary of
Experience

Assisted in and performed numerous projects in the examination of regional problems associated with coal transportation, land use and energy planning, transportation modelling, estimations of residential, commercial, industrial energy demands for state, local, regional, and national Reference Energy Systems, embodied energy analysis in residential buildings, state-by-state environmental analysis for the evaluation of the Energy Policy and Conservation Act, solid waste analysis for the evaluation of the National Energy Plan, utility forecasting contrasting the utilities' traditional methods into a total energy RES perspective, LDC energy supply and demand studies.

Selected
Publications

P.M. Meier, R. Rubin, T.Q. Le, and R. Stern, "An Assessment of the Solid Waste Impacts of the National Energy Plan," BNL 50708, February 1978.

J.S. Munson and R. Stern, "Regional Energy Environment Data Book: Northeast Region, BNL 24867, October 1978.

P.M. Meier, B.F. Hobbs, M. McCoy, and R. Stern, "The Brookhaven Regional Energy Facility Siting Model (REFS): Model Development and Application," BNL 51006, March 1979.

ECONOMIC ANALYSIS DIVISION

J. ALLENTUCK

STEPHEN P.A. BROWN Assistant Economist

Education California Polytechnic State College (B.S. in economics, March 1972); University of Maryland (M.A. in Economics, May 1977, Ph.D in Economics, December, 1979).

Research Interests Capital Theory and Intertemporal Efficiency; Social Choice Theory; Microeconomics of Energy Policy; Public Finance Microeconomics; Environmental and Natural Resource Microeconomics.

Professional Affiliations American Economic Association; Public Choice Society; Reviewer, National Science Foundation 1978-79.

Summary of Experience Responsible for coordinating a six laboratory effort to assess the impact of the 1978 Fuel Use Act and related environmental legislation on seven major energy consuming industries. Currently developing a methodology to assess barriers to consumer energy conservation, and to evaluate policies to promote consumer energy conservation. Dr. Brown previously taught economics at Arizona State University, and has done major research in the area of capital theory and evaluation of intergeneration income distribution with applications to energy and environmental policies.

Selected Publications S.P.A. Brown, "Public Choice, Intergenerational Equity and the Social Rate of Discount," Ph.D. dissertation, Department of Economics, University of Maryland December 1979, published by University Microfilms Ann Arbor, Michigan.

S.P.A. Brown, "Energy and Environmental Policy Expectations and Their Impact Upon Current Energy Use," Department of Economics working papers, EC 77-78, Arizona State University, 1978.

E. Abrams, S.P.A. Brown, R. Finn, D. Sargent, and J. Vaill, "Industrial Energy Study of the Drug Manufacturing Industries," Versar, Inc., Springfield, Virginia, for FEA/Commerce, Final Report, Contract 14-01-0001-1669 Bureau of Mines, U.S. Department of Interior.

PAUL J. GRONCKI

Associate Scientist

Education

State University of New York at Albany (B.S. in Economics, 1967); State University of New York at Stony Brook (M.A. in Economics, 1974, Ph.D. in Economics, 1980).

Research Interests

Energy Policy Analysis; Energy-Economy Interactions; Energy-Economic Modeling; Input-Output Modeling Applications; Public Sector Economics (Health and Regulation).

Professional Affiliations

The American Economic Association; The International Association of Energy Economists; The Eastern Economics Association.

Summary of Experience

Presently responsible for the development and application of integrated analytical methodologies which address the trade-offs between the economic, environmental and social factors associated with the formulation and implementation of alternative conservation and solar energy policies. In addition, the methodology developed in doctoral dissertation is being implemented to integrate the Brookhaven Input/Output Model and the Hudson-Jorgenson Longterm Interindustry Transactions Model.

Other experiences includes the compilation, organization and analysis of labor market activities in the New York Metropolitan Area for the New York State Department of Labor.

Selected Publications

H. Davitian, P.J. Groncki, P. Kleeman, J. Lukachinski, R.J. Goettle IV, and E.A. Hudson, "A Strategic Cost-Benefit Analysis of Energy Policies: Overview," BNL 51105, October 1979.

P.J. Groncki and W. Marcuse, "The Brookhaven Integrated Energy/Economy Modeling System and Its Use in Conservation Policy Analysis," BNL 51056, July 1979.

W. Marcuse and P.J. Groncki, "Macroeconomic Effects of Accelerated Implementation of Renewable Energy Technologies in the U.S.," BNL 51092, September 1979.

STEVEN GUTERMAN

Engineering Associate

Education

Long Island University (M.B.A. in Quantitative Analysis, 1979); State University of New York at Stony Brook (B.S. in Applied Mathematics, 1976).

Research Interests

Mathematical Modeling, Energy Policy Analysis, Energy Conservation in Buildings.

Summary of
Experience

Participating in the developing of New Building Energy Performance Standard, major contributions are in the economic, environmental and regulatory analysis (for U.S. Dept. of Energy). Other projects Mr. Guterma has been involved with relate to increasing and improving energy conservation in buildings. These include evaluation of projects and programs supported by U.S. government agencies, assembling a residential and commercial building data book and building conservation modeling. He has also developed a methodology for linking a building energy model with an energy-economic input-output model. This linkage considers both the changes in energy use and the changes in investment that take place in the building sector due to different conservation scenarios.

STEVEN O. HOWE	Research Associate
Education	Dartmouth College (B.A., Biology, 1970); University of Washington (Ph.D in Oceanography, 1979).
Research Interests	Application of Quantitative Methods to the Solution of Environmental and Energy-Related Problems; Energy Conservation and Policy Analysis.
Professional Affiliations	The Institute of Management Science; The American Society of Limnology and Oceanography.
Committees	Computer Users Organization and the Computer Graphics Committee at Brookhaven National Laboratory.
Summary of Experience	Currently involved in applications of large linear programming models of industrial systems designed to assess new technologies, evaluate policy impacts and project energy demands. Responsibilities include documentation, validation and sensitivity analysis of new and existing models. Dr. Howe has also done mathematical modelling work for marine ecosystems analysis studies, including a time dependent spatial model of the NW African coastal upwelling ecosystem and a model examining causes of the 1976 oxygen depletion in the N.Y. Bight.
Selected Publications	<p>J. J. Walsh, T. E. Whitley, F. W. Barvenic, C. D. Wirick, S. O. Howe, W. Esaias, and J. T. Scott, "Wind Events and Food Chain Dynamics within the New York Bight," <u>Limnol. Oceanogr.</u> 23,659-83 (1979).</p> <p>S. O. Howe, "A Simulation Study of Biological Responses to Environmental Changes Associated with Coastal Upwelling off NW-African," BNL 24204R, 1979, to be published in <u>Rapports et Proces-Verbaux</u> series of the International Council for the Exploration of the Sea.</p> <p>M. Dagg, T. Cowles, T. Whitley, S. Smith, S. Howe, and D. Judkins, "Grazing and Excretion by Zooplankton in the Peru Upwelling System during April 1977," BNL 26704, 1979, to be published in <u>Deep-Sea Res.</u></p>

PETER T. KLEEMAN

Assistant Scientist

Education

Massachusetts Institute of Technology (S.B. in Civil Engineering, 1969); Harvard University (S.M. in Engineering, 1973; Ph.D in Engineering, 1978).

Research Interests

Environmental Systems Analysis; Energy Policy Analysis; Operations Research.

Professional
Affiliations

American Society of Civil Engineers, Operations Research Society of America.

Summary of
Experience

Design and development of energy conservation policy models. Assessment of incentive and regulatory policies in promoting cost effective reduction in energy use in residential and commercial buildings. Investigated issues of model choice, model complexity and parameter uncertainty in water resource decision modeling. Developed a modeling approach for selection of waste management planning jurisdictions. Taught an undergraduate course in environmental policy modeling and a graduate course in simulation modeling. Worked as a sanitary engineer for U.S. Public Health Service in air quality data base design and data analysis.

Selected
Publications

P.T. Kleeman, "Planning Jurisdiction Selection for Waste Management Modelling," Ph.D. Dissertation, Harvard University, 1978.

P. Rogers and P. Kleeman, "Resilience in Environmental Management Institutions: The Problem of Optimal Jurisdiction," Harvard University, Environmental Systems Program, January 1978.

P. Rogers and P. Kleeman, "On the Choice of the 'Appropriate Model' in Water Resources Planning," Harvard University, Environmental Systems Program, January 1977.

CLAIRE E. KOCHENDORFER Development Engineer

Education Adelphi University (B.A. in Mathematics), Adelphi University (M.S. in Earth Sciences), Hofstra University (Mechanical Engineering)

Research Interests Analysis of new technologies for energy conservation. Modeling national energy usage and new policy effectiveness.

Professional Affiliations The Society of Women Engineers

Summary of Experience Three years experience in energy conservation for Grumman Aerospace Corporation. Contributed to energy studies for U.S. Energy Research and Development Administration, West Hartford School District and New York University, among others.

Responsible for Thermodynamic analysis of environmental control systems for several aerospace applications. Supported development of superconducting magnet prototype at Brookhaven National Laboratory.

Presently working at the National Center for Analysis of Energy Systems involving technology assessment and regional energy modeling.

JOAN LUKACHINSKI

Economic Associate

Education

S.U.N.Y. at Stony Brook (B.S. in Applied Mathematics and Statistics, and Economics, 1975; M.A. in Economics, 1978.)

Research Interests

Analysis of energy-economy interactions; Development of interface methodologies between energy, economic, and environmental models for energy policy analysis.

Professional
Affiliations

International Association of Energy Economists

Summary of
Experience

Recent work included the application of the BNL/DJA combined model system to assess the economic and environmental impacts of several energy policies including an accelerated synfuels program, a conservation strategy, and alternative solar energy programs. Participated in the BNL Support study for the 1979 Administrator's Report to Congress for EIA. Participated in the Energy Modeling Forum 1979 Demand Elasticity study.

Selected
Publications

J. Lukachinski, P.J. Groncki, R.G. Tessmer Jr., R.J. Goettle IV, and E.A. Hudson, "An Integrated Methodology for Assessing Energy-Economy Interactions," BNL 26452, 1979.

J. Lukachinski, H. Davitian, P.J. Groncki, and P. Kleeman, "A Strategic Cost-Benefit Analysis of Energy Policies: Overview, Detailed Projections and Comparative Analysis," BNL 51105, 51127, and 51128, 1979.

J. Lukachinski, R.J. Goettle IV, P.J. Groncki, and E. A. Hudson, "A Comprehensive Long-Range Energy-Economy Projection," BNL 50989, 1979.

JOHN R. MARTORELLA Energy Systems Analyst

Education Marlboro College (B.S. in Physics, 1976), State University of New York at Stony Brook (M.A. in Physics, 1979); Nuclear Structure Lab, SUNY at Stony Brook (Research Assistant, 1978-1979).

Research Interests Building Energy Analysis, Passive Solar Energy, Cogeneration.

Summary of Experience Have done studies on large scale use of solar energy and its effects on public utility rate structures and expansion plans. Work for the N.Y.P.U.C. is being done regarding the feasibility of cogeneration systems in the Consolidated Edison service area. I am also involved with evaluating the performance of passively heated homes, conventional homes and commercial buildings.

DAVID A. PILATI

Associate Scientist

Education

University of Florida (B.S. in Engineering Science, High Honors, 1967), Stanford University (M.S. in Mechanical Engineering, 1969, Ph.D. in Mechanical Engineering, 1972).

Research Interests

Energy Conservation; Energy Policy; Decentralized Energy Supply Systems; Lifestyle Impacts of Energy Austerity.

Summary of Experience

Oriented single crystal growing (University of Florida), nuclear fuel rod design and development (General Electric Corp), research reactor operator (Stanford), bubble chamber design and operation (Stanford), thermal hydraulic environmental impact analysis (Oak Ridge National Laboratory), energy conservation options and policy of air transport (Oak Ridge National Laboratory), residential behavior-related energy conservation (Oak Ridge National Laboratory), net energy analyses of conservation and supply options (University of Illinois), labor impact of energy supply (University of Illinois), lifestyle and building energy use resource groups of National Academy of Science CONAES study, consultant to National Council of Churches Energy Study, industry process model development and application (BNL).

Selected Publications

C.W. Bullard, P.S. Penner and D.A. Pilati, "Handbook for Combining Process and Input-Output Analysis," Resources and Energy 1, 3, 1978.

D.A. Pilati and F.T. Sparrow, "The Brookhaven Process Optimization Models," Joint National Meeting of ORSA/TIMS, New Orleans, April 30 - May 2, 1979, to be published in Energy.

F.T. Sparrow, D. Pilati, T. Dougherty, E. McBreen and J. Juang, "The Iron and Steel Industry Process Model," BNL 51073, January 1980.

WM. SCOTT ROGERS Economics Associate

Education Swarthmore College (B.A. in Economics); State University of New York at Stony Brook (currently enrolled in the M.A. program in Economic Policy Analysis).

Research Interests Energy Policy Analysis; Application of Optimization, Input-Output, and Dynamic General Equilibrium Models to the Analysis of Energy/Economy Interactions; Energy Planning and Economic Development.

Summary of
Experiences Currently working on "A Study of the Impact of Recent Energy and Environmental Legislation on the Industrial Sector"; responsible for data input and computer runs for "A Strategic Cost-Benefit Analysis of Energy Policies" (BNL 51105, 51128, 51127); Research Assistant for Prof. Holland Hunter, Chairman, Economics Dept. Haverford College, responsible for parametric specifications and computer runs for Prof. Hunter's study, "KAPROST" (National Council for Soviet and East European Research, in progress), a linear program designed to explore the possibilities of capital development in the USSR from 1917-1948.

MARJORIE H. SCHNADER Assistant Scientist

Education	Cornell University (B.A. in English Literature, 1953); Columbia University (M.A. in Education, 1956); New York University (M.B.A. in Economics, 1972); State University of New York at Stony Brook (Ph.D. in Economics, 1976).
Research Interests	Energy Policy, Macroeconomic Forecasting and Fiscal Policy, Input-Output Modeling, Applied Microeconomic Theory.
Professional Affiliations	American Economic Association, American Statistical Association, International Association of Energy Economists, New York Association of Business Economists.
Summary of Experience	Major responsibility at Brookhaven has been a study of the socioeconomic costs of prolonged electricity shortages at the regional level; other current research includes implementation of a theoretical methodology for integrating a disaggregated input-output model with an aggregated macroeconomic growth model. Prior to coming to Brookhaven, Dr. Schnader taught finance and economics at Hofstra University. She was previously an economist in the Domestic Research Department of the Federal Reserve Bank of New York.
Selected Publications	<p>M. H. Schnader and H. O. Stekler, "The Existence and Evaluation of Economic 'Consensus' Forecasts", <u>1979 Proceedings of the Business and Economic Statistics Section of the American Statistical Association, Washington, D.C., August 13-16, 1979.</u></p> <p>M. H. Schnader, "Capital Spending - A Lack of Dynamism," <u>Federal Reserve Bank of New York Quarterly Review 2, 14-16 (Spring 1977).</u></p>

JOSEPH R. WAGNER Systems Engineer

Education Clarkson College of Technology (B.S. in Mechanical Engineering, 1972); Wayne State University (Master of Business Administration, 1974); SUNY at Stony Brook (Master of Economic Policy Analysis, 1979).

Research Interests Analysis of the economic and technical aspects of energy systems, especially in the transportation sector; application of consumer survey data to market analysis.

Professional Affiliations American Society of Mechanical Engineers; Society of Automotive Engineers; Transportation Research Board.

Committees ASME Suffolk Group Executive Committee; Associate Member, TRB Committee on Energy Conservation and Transportation Demand.

Summary of Experience Mr. Wagner began his career with a stint in the mechanical testing facilities of Rockwell International Corporation's Automotive Operations (AO), where he developed test procedures for automotive components and performed feasibility studies of new automotive technology. He then joined AO's Business Planning Department, where he developed computer simulation models used to construct the annual long range plan. He also authored financial and marketing reports designed to inform top management of the current competitive environment. Since joining BNL, his efforts have included studies dealing with energy materials movements, capital costs and energy intensities of freight transportation systems, and market penetration estimates of electric and hybrid vehicles in commercial highway fleets.

Selected Publications J.R. Wagner, "Evaluation of Technological Data in the DFI and PIES Models," BNL 50949, April 1979.

J.R. Wagner, "Brookhaven Energy Transportation Submodel (BETS) Documentation and Results," BNL 50902, October 20, 1977.

J.R. Wagner, "Fleet Operator Data Book (Summer 1977 Data) Volume 1: National Data," BNL 50904, September 1979.

PAULA M. WOLK

Computer Science Analyst

Education

State University of New York at Stony Brook (B.S. in Applied Mathematics, 1974); Cornell University (Part-time graduate study); State University of New York at Stony Brook (M.S. in Computer Science, 1979).

Research Interests

Applications Programming

Professional
Affiliations

Association for Computing Machinery

Summary of
Experience

Responsible for writing and testing various economic analytical application programs. Served as Assistant Coordinator for instructional interactive computing, Cornell University Computer Services. Computer programmer and consultant for Cornell Computer Services. Statistical programmer and Consultant for Cornell University Government and History Departments. Proficient user of three large computer systems: IBM, Univac, CDC. Versed in the following computer languages and packages: OS JCL, TSO, CMS, PLI, PASCAL, FORTRAN, IBM Assembler, Algol W, LISP, SPITBOL, XPL, SPSS, SAS, OSIRIS, BMDP, MINITAB, CSL.

BIOMEDICAL AND ENVIRONMENTAL

ASSESSMENT DIVISION

L. D. HAMILTON

CHARLES E. CALEF	Associate Geologist
Education	University of Chicago (B.A. Biology, 1968); Oxford University (Ph.D. in Geology, 1972); Virginia Polytechnic Inst. (Post-Doc., 1973).
Research Interests	Reconstruction of palaeo-environments. Food supply in ancient oceans. Rates of sedimentation. Biogeography of extinction-prone species.
Summary of Experience	Studies of Lower Palaeozoic marine communities and sedimentary environments in Great Britain and Appalachians. Responsible for several minor studies of environmental effects of U.S. energy system. Compiled Energy Atlas of U.S. energy system. Compiled Energy Atlas of U.S. Compiled machine readable data base of rare and endangered species.
Selected Publications	<p>J. Nagy and C. Calef, "ESUSA: U.S. Endangered Species Distribution File", BNL 51129, Oct. 1979.</p> <p>D. Shreeve, C. Calef and J. Nagy, "The Endangered Species Act and Energy Facility Planning," BNL 50841, May 1978.</p>

MARGARET CROWTHER	Community Health Associate
Education	Bristol University, England, BSC Honour degree Class 2(1) in Biochemistry, 1973.
Research Interests	Application of quantitative methods to environmental and energy planning.
Summary of Experience	Employed as an Executive Officer in British Civil Service, Department of Environment from 1973 to 1977. Worked initially in the finance branch monitoring monies given to British Rail, for operating and investment costs, then as an internal auditor. Employed by Brookhaven National Laboratory from October, 1978 to present. Work includes collection of data for environmental energy analysis and development of models to quantify the amount of solid wastes produced by energy technologies.

FERNANDO GALDOS

Computer Analyst

Education

Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Buenos Aires, Buenos Aires, Argentina (B.S. in Computer Science, 1973); New Mexico State University, University Park, Las Cruces, NM (M.S. in Computer Science, 1976).

Research Interests

Data Base Management, Systems Programming, Microcomputer Programming, Computer Graphics.

Professional
Affiliations

Association for Computing Machinery (ACM); Association of Users and Coordinators of SPSS, Inc., Software (ISSUE).

Summary of
Experience

Principal responsibilities are aimed at maintaining and updating MEDABA as new data and developments become available. Has had extensive experience using SPSS as well as computer graphic experience using the DISSPLA package. Is familiar with the microcomputer DTC microfile, a Tektronics and HP3000 machines. As a Computer Programmer at San Martin Hospital in Buenos Aires Argentina, major activities included file manipulation, data handling, and the development of a system for automatic formatting and printout for administrative uses.

Selected
Publications

S. R. Bozzo, K. M. Novak, F. Galdos, and L. D. Hamilton, "Mortality, Migration, Income and Air Pollution: A Comparative Study", Social Science and Medicine 13D, No. 2 (June 1979).

SAMUEL C. MORRIS	Scientist
Education	Virginia Military Institute (B.S. in Civil Engineering, 1965); Rutgers University (M.S. in Sanitary Engineering, 1967; University of Pittsburgh Graduate School of Public Health (Sc.D. in Environmental Health, 1973).
Research Interests	Risk Assessment; Health and Environmental Effects of Energy Technology and Use; Methods of Quantifying Uncertainty.
Professional Affiliations	American Society of Civil Engineers; American Public Health Association; American Statistical Association; New York Academy of Sciences, Society of American Military Engineers.
Committees	Member, Air Resources and Environmental Effects Management Committee, American Society of Civil Engineers.
Summary of Experience	Responsible for projects to assess health and environmental impacts of energy production and use, including coal, oil, gas, nuclear and emerging technologies. Assist various international organizations (OECD, UNEP) and National Research Council committees (CONAES, PECH) on energy-environmental assessments. Taught at the graduate and undergraduate levels, supervised an area-wide service responsible for environmental health surveillance at over one hundred government installations, and served as a consultant or advisor to international, federal and state agencies (including the U.S. Army Corps of Engineers, the Nuclear Regulatory Commission, and the Power Authority of the State of New York).
Selected Publications	<p>S. C. Morris, P. D. Moskowitz, W. A. Sevia, S. Silberstein, and L. D. Hamilton, "Coal Conversion Technologies: Some Health and Environmental Effects," <u>Science</u> <u>206</u>, 654-622 (1979).</p> <p>P. D. Moskowitz, S. C. Morris and A. S. Albanese, "The global carbon dioxide problem: Impacts of U.S. Synthetic Fuel and Coal-fired Electricity Generating Plants," BNL-27368, August 1979, accepted for publication in <u>J. Air Pollution Control Association</u>.</p> <p>M. G. Morgan, W. R. Rish, S. C. Morris and A. K. Meier, "Sulfur Control in Coal Fired Power Plants: A Probabilistic Approach to Policy Analysis," <u>J. Air Pollution Control Assoc.</u> <u>28</u>, 993-997 (1978).</p>

PAUL D. MOSKOWITZ Assistant Scientist

Education State University of New York at Oswego (B.A. in Biology, 1971); State University of New York at Stony Brook (M.S. in Marine Sciences, 1973).

Research Interests Health and Environmental Impact Assessment of Energy-Related Activities; Environmental Policy Analysis; Health and Environmental Effects of Toxic Chemicals.

Professional Affiliations American Association for the Advancement of Science; American Society of Limnology and Oceanography; New York Academy of Sciences.

Committees Member of Advisory Group to the National Oceanic and Atmospheric Administration on Toxic Chemicals in the New York Bight.

Summary of Experience Assisted in assessment of oil and sewage movements in the New York Bight; responsible for a major review of the federal and state programs to control toxic chemical discharges into the Hudson River Drainage Basin; assisted in developing scientific strategy to examine environmental costs and benefits of federal and state ocean discharge programs; member of a research team formed to assess health and environmental consequences of coal conversion technologies; responsible for ongoing studies of the potential conflicts arising between energy conservation strategies and environmental quality; preparing model to assess impacts of air pollutants on plant productivity; investigating health and environmental risks of photovoltaic energy technologies.

Selected Publications S. C. Morris, P. D. Moskowitz, W. A. Sevia, S. Silberstein, and L. D. Hamilton, "Coal Conversion Technologies: Some Health and Environmental Effects", Science 206, 654-662, (Feb. 1979).

 P. D. Moskowitz, S. C. Morris, and A. S. Albanese, "The Global Carbon Dioxide Problem: Impacts of U.S. Synthetic Fuel- and Coal-Fired Electricity Generating Plants," BNL-27368, August 1979, accepted for publication in the Journal of the Air Pollution Control Association.

 P. D. Moskowitz, B. Pierce, and T. Q. Le, "Ranking Energy Conservation Measures to Establish Research Priorities: Synopsis of a Workshop", BNL-51046, 1979.

JOHN NAGY

Associate Scientist

Education

Massachusetts Institute of Technology (B.S., 1965), University of Pennsylvania (Ph.D., 1973), John Hopkins University (Postdoctoral Fellow).

Research Interests

Environmental effects of the nuclear fuel cycle. Environmental effects of radionuclides. Rare and endangered species, habitats, and ecosystems. Ecological effects of renewable energy sources.

Professional
Affiliations

American Physical Society

Summary of
Experience

Completed experimental studies of the hadronic decays of the lambda particle, the electron semileptonic decay of the long-lived neutral K particle, and the production of gamma rays and pi-zero particles in very high energy pN collisions. Have surveyed the environmental effects of the nuclear fuel cycles and radionuclides in other energy system. Have organized information on endangered species of federal or regional concern.

Selected
Publications

J. Nagy and C. Calef, "ESUSA: U.S. Endangered Species Distribution File," BNL 51129, Oct. 1979.

D. Shreeve, C. Calef and J. Nagy, "The Endangered Species Act and Energy Facility Planning," BNL 50841, May 1978.

KENNETH M. NOVAK Community Health Associate

Education The Pennsylvania State Univ. (B.S. Biology, 1972); The Pennsylvania State Univ. (M.S. Community Systems, Planning and Development, 1978).

Research Interests Demographic analysis, migration analysis, population projections and estimates, chronic disease epidemiology, international health planning, community organization, toxic substances and sociology of medicine.

Professional Affiliations American Public Health Assoc.; Population Assoc. of America; American Assoc. for the Advancement of Science; and New York Academy of Science.

Summary of Experience Principal responsibilities include a variety of basic research tasks focusing on the investigation of health effects identified with energy consumption and production. These include a nationwide epidemiological study of chronic disease mortality rates associated with socio-economic and environmental factors; a multi-disciplinary approach for examining interrelations between demographic components of change and energy related environmental variables; participation in the development of the Medical Data Base (MEDABA), in the development of a comprehensive risk assessment strategy for a series of energy activities ranging from extraction to final consumption (National Coal Utilization Assessment - NCUA, Regional Issues Identification Assessment - RIIA), and in the application on this methodology to different scenarios (Health Effects of the National Energy Plan); development of a series of county level population figures consistent with OBERS series E state level projections used in CONAES (Committee on Alternative Energy Strategies); and the assessment of possible health impacts from cadmium exposure in the development of a photovoltaic industry.

Selected Publications S. R. Bozzo, K.M. Novak, F. Galdos, R. Hakoopian, and L. D. Hamilton, "Mortality, Migration, Income and Air Pollution: A Comparative Study," Annual meeting of the American Public Health Association, Washington, D.C., October 30 - November 3, 1977; also published in Social Science and Medicine: Medical Geography 13D, No. 2, 95-109 (1979).

 S. C. Morris, K. M. Novak, and L. D. Hamilton, "Health Effects of Coal in the National Energy Plan", BNL-51043, April 1979.

 S. R. Bozzo, F. Galdos, K. M. Novak, and L. D. Hamilton, "Medical Data Base: A Tool for Studying the Relationship of Energy-Related Pollutants to Ill Health", BNL-50840, March 1978.

CHARLES V. ROBINSON Senior Research Associate

Education University of Missouri, A.B. 1937, M.A. 1938, Major in Mathematics minor in Physics, Ph.D 1940, in Mathematics.

Research Interests Correlation of mortality and morbidity with air pollution, mathematical demography, theoretical radiobiology, theory of competing risks.

Professional Affiliations American Statistical Association, Radiation Research Society.

Summary of Experience Development of special instrumentation and methodology connected with the use of radionuclides in biomedical research and in nuclear medicine. Mammalian radiobiology, both experimental and theoretical. Statistical analysis of animal mortality data using the theory of competing risks. Teaching of undergraduate mathematics and statistics.

Selected Publications C. V. Robinson and A. C. Upton, "Competing - Risk Analysis of Leukemia and Non-leukemia Mortality in X-irradiated, Male, RF Mice," Journal of the National Cancer Institute 60, 995-1007 (1978).

C. V. Robinson, "Relationship Between Animal and Stem Cell Dose-Survival Curves," Radiation Research 35, 318-344 (1968).

V. P. Bond and C. V. Robinson, "A Mortality Determinant in Non-uniform Exposures of the Mammal," Radiation Research, Supplement 7, 265-275 (1967).

MICHAEL D. ROWE	Associate Scientist
Education	University of Washington (B.S. in Biological Oceanography, 1965); University of Hawaii (M.S. in Biological Oceanography, 1971); University of Pittsburgh (Sc.D in Environmental Health Planning, 1976).
Research Interests	Long-range Planning; Environmental Policy Analysis; Environmental Impact Assessment; Application of Quantitative Decision Making Methodologies to Environmental Problems.
Professional Affiliations	The American Association For the Advancement of Science.
Summary of Experience	Conduct research for the Nuclear Regulatory Commission on characteristics of multi-objective decision making methodologies as they are applied to alternative site evaluations for nuclear power plants and high level waste disposal sites; develop for the Department of Energy a simplified method for estimating health and environmental impacts of future coal-burning industrial and utility power plants; develop for the Department of Energy a methodology for evaluating trade-offs among different health and environmental impacts of competing energy technologies; environmental policy analysis for the Department of Energy related to conflicts between national energy supply goals and national environmental quality goals.
Selected Publications	<p>M. D. Rowe, "Human Exposure to Atmospheric Sulfates from Coal-fired Power Plants", BNL-26140, April 1979.</p> <p>M. D. Rowe, S. C. Morris and L. D. Hamilton, "Potential Ambient Standards for Atmospheric Sulfates: An Account of a Workshop", <u>Air Pollution Control Association Journal</u>, 28, 772-775 (1978).</p> <p>P. D. Moskowitz, M. D. Rowe, S. C. Morris, and L. D. Hamilton, "Workshop Report on Quantifying Environmental Damage from Energy Activities", BNL-50867, September 1977.</p>

WALTER A. SEVIAN	Systems Engineer
Education	State University of New York at Stony Brook, (B.S. in Engineering, 1962; M.S. in Applied Mathematics, 1964; Ph.D in Applied Mathematics, 1970).
Research Interests	Computerized Data and Modeling Systems, Environmental Assessment of New Energy Technologies, Mathematical Theory of Groundwater Motion (M.S., Ph.D. Thesis).
Professional Affiliations	American Geophysical Union, Listed in Who's Who in the East. Association for Computing Machinery.
Summary of Experience	Completed a technical assessment of resource, environmental, and economic impact of hydrogen utilization as a fuel in the U.S. energy system transportation sector. Contributed to the construction of an Energy Model Data Base (EMDB) for the Council on Environmental Quality. Developed, programmed and documented interfaces to enhance its utilization by outside agencies, including (1) the Energy System Network Simulator (ESNS - pronounced "essence"). ESNS has wide application to the study of energy/environmental policy questions. (2) the Interactive Remote Access to ESNS (IRATE) interactive program that permits users to access ESNS in a remote query mode. As a current full-time member of the Biomedical and Assessment Division, general responsibilities include energy- environmental data-modeling use and development. Developed MEERA (Models for Energy-Environmental Residuals Analysis), a series of environmental residuals generation models and a successor of ESNS. Used MEERA/ESNS in the CEQ-sponsored Global 2000 study which included an evaluation of the environmental consequences of several world energy growth projections and in an environmental evaluation of coal liquefaction technologies for OMB. Currently designing an environmental residuals data system based upon a new design approach involving software-type documentation and clearly defined functional relationships for the variables affecting the residual values.
Selected Publications	<p>S. C. Morris, P. D. Moskowitz, W. A. Sevian, S. Silberstein, and L. D. Hamilton, "Coal Conversion Technologies: Some Health and Environmental Effects," <u>Science</u> <u>206</u>, 654-662, (Nov. 1979).</p> <p>S. R. Bozzo, and W. A. Sevian, "A Data Book for the Geographical Allocation of Future U.S. Energy Supply Facilities by County," BNL 50754, May 1977.</p> <p>W. A. Sevian, S. Michaile, and H. Abilock, "IRATE: An Interactive Computer Program for Access to the Energy System Network Simulator (ESNS) Model," BNL 50753, April 1977.</p>

HENRY THODE

Mathematical Associate

Education

State University of N.Y. at Stony Brook (M.S. in Applied Mathematics and Statistics, 1978; B.S. in Mathematics, 1975).

Research Interests

Environmental and Health Data Analysis; Statistical Methods; Statistical Analysis via Computer.

Professional
Affiliations

American Association for the Advancement of Science; American Statistical Association.

Summary of
Experience

Responsible for review of existing air pollution/mortality studies and for computer modules to calculate fossil fuel solid waste residuals. Have been involved in analysis of water quality W/R/T energy, demography, and land characteristics. Have also worked on dispersion and deposition of particulates from a coal-fired power plant.

Selected
Publications

E. Kaplan and H. C. Thode, Jr., "Interrelationships between Man, Energy and Water Quality: A New Methodology for Integrative Analysis," BNL-26188, May 1979.

E. Kaplan and H. C. Thode, Jr., "New Techniques for Analyzing Relationships between Energy and Water Quality," BNL-51068, Sept. 1979.

TECHNOLOGY ASSESSMENT GROUP

M. BELLER

NARESH BHAGAT

Systems Engineer

Education

Indian Institute of Technology (B. Tech Honors in Mechanical Engineering, 1966); SUNY, Stony Brook (M.S. in Applied Mathematics with specialization in Operations Research, 1970).

Research Interests

Analysis of Energy Systems using various quantitative methods; technology assessment with particular emphasis on coal sector.

Professional
Affiliations

Operations Research Society of America

Summary of
Experience

Mr. Bhagat has been involved in various aspects of energy planning and analysis at the Brookhaven National Laboratory (1974 - present). Specifically, he has worked in the area of technology assessment and has concentrated on coal conversion technologies. He has also worked on regional energy analysis involving relationships between residential energy consumption and land-use planning variables. Another project of his major participation involved development of Reference Materials Framework methodology for materials systems analysis work. This particular methodology was adopted for an N.A.S. sponsored study, of which Mr. Bhagat was a participant, to assess the use of renewable resources as substitutes for energy intensive nonrenewables for industrial materials. Prior to joining BNL, Mr. Bhagat was a research associate-cum-lecturer for four years in the Department of Urban and Policy Sciences, SUNY, Stony Brook.

Selected
Publications

N. Bhagat, M. Beller, A. Hermelee, J. Wagner, and J. Lamontagne, "Evaluation of Technological Data in the DFI and PIES Models," BNL 50949, April, 1979.

D. Gunwaldsen, N. Bhagat, and M. Beller, "A Study of Potential Coal Utilization 1985-2000," BNL 50771, Dec. 1977.

J. D'Acerno, A. Hermelee, M. Beller, N. Bhagat, and J. Rabinowitz, "The U.S. Oil and Gas Systems Representation in the EEMIS Data Structure," BNL 51077, Nov. 1979.

ROBERT N. BRIGHT

Systems Engineer

Education

University of Michigan (B.S. in Mechanical Engineering, 1969); Duke University (M.S. in Mechanical Engineering, 1967); Northwestern University (Studies in Urban and Transportation Planning, 1971).

Research Interests

Alternative and Renewable Energy Sources; Utility Regulation, Planning and Economics; Energy Policy Analysis.

Summary of
Experience

Experienced in solar system simulation and analysis and in modeling the interface issues between alternative energy technologies and utility systems. Worked with utility planning tools to define new rate structures for the efficient and equitable introduction of dispersed generating facilities into power grids. Evaluated future trajectories of consumer economics with respect to solar heating systems. Experience in environmental control evaluation and general technology evaluation of both conventional and advanced energy technologies.

Selected
Publications

R. N. Bright and H. Davitian, "The Marginal Cost of Electricity Used as Backup for Solar Hot Water Systems: A case Study," Energy 4, No. 4, (Aug. 1979).

R. Bright, and H. Davitian, "Solar Heating and Hot Water Systems Using Electric Backup: A Case Study of the Utility and Homeowner Economics," Proceedings of the International Solar Energy Society Silver Jubilee Congress, Atlanta, Georgia, May 28-31, 1979, Vol. 3, 2162.

H. Davitian, R. Bright, and W. Marcuse, "Utility Load Management and Solar Energy," BNL 25038, June 1978.

JOHN P. D'ACIERNO	Systems Engineer
Education	Northeastern University (B.S. in Chemical Engineering, 1975); Massachusetts Institute of Technology (M.S. in Chemical Engineering, Participated in Practice School Program at Oak Ridge National Laboratory, 1976).
Research Interests	Energy Systems Analysis and Energy Technology
Professional Affiliations	American Institute of Chemical Engineers
Summary of Experience	Designed and developed the data base representing the United States petroleum industry used in the Energy Emergency Management Information System (EEMIS) of the U.S. Department of Energy (DOE). Design of the petroleum data structure involved researching all activities in the oil industry which pertain to EEMIS information requirements and representing all EEMIS-specific information in a uniform data structure. The development phase included researching all DOE energy data systems relevant to the data structure, selecting the optimum systems for application to EEMIS, and deriving general methodologies for converting data from these data systems into the EEMIS structure. Associate Research Engineer at Stauffer Chemical Co., performed research and development of chemical process applications for high temperature fluidized and static bed chemical reactors. Processes involved a wide variety of organic and inorganic systems producing specialty, agricultural and industrial chemical compounds. Co-op student at Kennecott Copper Corp., modeled pilot plant agitated furnace to develop design criteria for higher production efficiency and worked on computer applications to production scheduling in refineries. Co-op student at Ciba-Geigy Corp., worked on project improvement engineering in a diversified pilot plant and production facility. Responsibilities on many projects included cost evaluation, project planning and supervision of maintenance and engineering work on site in coordination with production.
Selected Publications	<p>J. D'Acierno and A. Hermelee, "Compatability of DOE Energy Data Bases with EEMIS Data Requirements," BNL 51109, Dec. 1979.</p> <p>J. D'Acierno and A. Hermelee, "Physical Aspects of the U.S. Oil and Gas Systems," BNL 51076, Nov. 1979.</p> <p>J. D'Acierno and A. Hermelee, "The Use of the Reference Energy System and EEMIS to Analyze Some Cause-Effect Relationships," BNL 51093, Nov. 1979.</p>

HARRY DAVITIAN

Associate Physicist

Education

Massachusetts Institute of Technology, (B.S. in Physics, 1966); Cornell University, (M.S. in Physics, 1969); Cornell University, (Ph.D. in Applied Physics, 1973).

Research Interests

Energy policy analysis; energy technology assessments; solar energy; wind energy; utility interface with solar and wind systems; resource assessments; synthetic fuels.

Professional Affiliations

International Association of Energy Economists; American Association for the Advancement of Science; International Solar Energy Society.

Committees

Member, Research and Development Subgroup, Committee on Nuclear and Alternative Energy Systems, National Research Council; Contributor, Committee on Advanced Energy Storage Systems, National Research Council.

Summary of Experience

Dr. Davitian has over seven years of experience in the areas of energy policy analysis, energy technology assessments, and energy resource assessments. His work has been related to federal government R&D planning activities and federal and regional energy policy development. He has contributed to numerous studies including assessments of the potential of synthetic fuels, of solar and wind energy technologies and synthetic fuels, analyses of regional energy strategies, and analyses of the economics of solar and cogenerating devices connected to electric utilities. His other activities have included assistance in the management of the Federal Wind Energy Program, and organizing a seminar program at the National Center for Analysis of Energy Systems. He has presented papers at a number of professional meetings and speaks to public audiences on various energy related subjects.

Selected Publications

R. Bright, and H. Davitian, "Solar Heating and Hot Water Systems Using Electric Backup: A Case Study of the Utility and Homeowner Economics," Proceedings of the International Solar Energy Society Silver Jubilee Congress, Atlanta, Georgia, May 28-31, 1979, Vol. 3, 2162.

H. Davitian and R. Bright, "The Marginal Cost of Electricity Used as Backup for Solar Hot Water Systems: A Case Study," Energy 4, No. 4. 645, (Aug. 1979).

H. Davitian, "Wind Power and Electric Utilities: A Review of the Problems and Prospects," Wind Engineering 2, No. 4, 234 (1978).

ALAN L. HERMELEE	Systems Engineer
Education	State University of New York at Buffalo (B.S. in Industrial Engineering and Operations Research, 1969); University of Massachusetts (M.S. in Operations Research, 1972).
Research Interests	Regional Energy Systems Analysis; Energy Demand Analysis; Energy Emergency Planning.
Professional Affiliations	Operations Research Society of America; American Institute of Industrial Engineers.
Summary of Experience	Has a broad background in energy systems analysis applications at the state, regional, and national levels, including studies designed to develop energy supply and demand projections for the nine census regions of the United States (for the Electric Power Research Institute), and analyze the overall energy system for two electric utility regions--The Tennessee Valley Authority and the New York Power Pool. More recently, Mr. Hermelee has participated in the design of an energy emergency information system, and has had prime responsibility for developing the natural gas segment by representing key industry activities in a uniform manner consistent with other energy forms (i.e., petroleum).
Selected Publications	<p>A. Hermelee, "Regional Reference Energy Systems", prepared by BNL for the Electric Power Research Institute (EPRI), EA-462, June 1977.</p> <p>A. Hermelee, "Reference Energy Systems as Applied to Regional Energy Policy," <u>14th IECEC Proceedings, Boston, Massachusetts, Aug. 5-10, 1979, Vol. 2, p. 1799.</u></p> <p>J. D'Acerno and A. Hermelee, "Physical Aspects of the U.S. Oil and Gas Systems", BNL 51076, Nov. 1979.</p>

JEROME LAMONTAGNE Systems Engineer

Education University of Massachusetts (B.S. in Chemical Engineering, 1968); New York Institute of Technology (MBA Candidate).

Research Interests Investment and supply planning; market acceptance of new technologies; allocation of research and development funds; technology assessment.

Summary of Experience Responsible for continuing review and update of Department of Energy/Fossil Energy's (DOE/FE) analysis and modeling capabilities for the Office of Plans and Technology Assessment; performance of special analyses for DOE/FE, including assessment of the relevance of various RD&D programs in different policy, economic, and regulatory environments; refinement and application of an integrated systems assessment procedure for DOE/FE's Office of Coal Utilization; technical coordination of analytical support to the Energy Emergency Management Information System (EEMIS) Project Office in DOE's Energy Information Administration (EIA), and petroleum sector support to DOE/EIA's National Energy Information System (NEIS) Project Office. Current studies focus on analysis of synthetic fuels research, development, and deployment, and estimation of market potential for new direct coal utilization technologies.

Selected Publications J. D'Acerno, A. Hermelee, J. Lamontagne, and M. Beller, "Analysis of New England Winter Fuel Shortage," BNL 26545, Sept. 1979.

J. Lamontagne and L. Friend, "Incorporating the Mobil M-Gasoline Process into the Materials-Process-Product Model: Value and Feasibility," BNL 26985, Nov. 1979.

J. Lamontagne, "Synthetic Fuels Planning: Energy Supply Modeling and the MPPM," BNL 26986, Dec. 1979.

RICHARD W. LEIGH	Assistant Scientist
Education	Oberlin College (A.B. in Physics, 1965); Columbia University (Ph.D. in Physics, 1973).
Research Interests	Applications analysis of solar energy storage devices, including technical feasibility studies, economic analysis and estimation of the potential impact of solar energy on national fuel consumption.
Professional Affiliations	American Association for the Advancement of Science, International Solar Energy Society, American Section and the American Physical Society.
Summary of Experience	Recently, Dr. Leigh's research has focussed on evaluations of the role of energy storage devices in the implementation of solar energy. This work includes studies on energy storage in solar total energy systems, the oil and gas displacement potential of "passive" solar energy collection and storage devices in the space heating sector and development of a new method for economic optimization of energy storage systems which explicitly accounts for their capital-intensive nature. Prior to his energy storage work, he contributed to studies of the problems associated with the integration of wind energy systems into public utilities. Before coming to Brookhaven, Dr. Leigh was active in laser spectroscopy and coherent optics at Columbia University, the City College of New York and at l'Ecole Normale Supérieure (Paris).
Selected Publications	<p>R.W. Leigh, H. Davitian, "On the Economic Assessment and Optimization of Energy Storage Systems," <u>Energy The International Journal</u> 4, 1099-1105, (1979).</p> <p>R.W. Leigh, "Review of Recent Research on Energy Storage in Residential Solar Total Energy Systems," BNL 51012, May 1979.</p> <p>R.W. Leigh, R.W. Pouder, "Glazing and the Trombe Wall," <u>Proceedings of the Annual Meeting of the American Section of the International Solar Energy Society, Denver, Colorado, 2.2, 192 (1978).</u></p>

RICHARD W. POWDER	Systems Engineer
Education:	State University of New York at Stony Brook (B.S. in Biology, 1974; M.S. in Urban Science and Engineering, 1977).
Research Interest	Systems analysis of renewable energy resources, emphasizing passive and active solar energy and biomass; Quantitative economic engineering analysis of new energy technologies.
Professional Affiliations	International Solar Energy Society
Summary of Experience	Primary field of study is passive solar energy including an analysis of glazing configurations in passive solar collector systems. Current research focuses on an economic/technical evaluation of passive solar water wall systems in both new construction and retrofit applications. Past research includes analysis of finance strategies for coal gasification plants, evaluation of unconventional sources of national gas, and analysis of crop residues as a fuel source in rural areas. Some work was conducted in development of a national energy information system.
Selected	<p>R. W. Pouder and R. W. Leigh, "Glazing and the Trombe Wall," BNL 24637, June 1978.</p> <p>R. W. Pouder and L. Friend, "Finance Strategies for Coal Gasification Plants-Government Policy Options," BNL 26984, Nov. 1979.</p> <p>R.W. Pouder, et. al., "An Assessment of Energy Research Development and Demonstration Priorities for New York State," BNL 50735, Nov. 1977.</p>

ALBERT QUEIROLO

Systems Engineer

Education

Cooper Union (B.S. in Engineering, 1977); New York Institute of Technology (Part-time).

Research Interest

Advanced Energy Technology Systems Analysis; Energy Demand Analysis; Technology Assessment.

Summary of Experience

As a Mechanical Engineer for a consulting engineering firm he was involved in many projects in the fields of energy and environmental control. Responsibilities included designing, cost estimates, economic analysis, scheduling and selection of equipment for an Atmospheric Fluidized-Bed (AFB) District Heating Plant. Assisted in developing methods of improving limestone utilization in AFB boilers, for sulfur capture, such as agglomeration and precalcination of limestone particles. Currently investigating electric utilities planning methods and the estimation of utility market potential for advanced energy technologies.

GOVIND R. VINJAMURI Systems Engineer

Education Andara University, India (B. Tech. in Chemical Engineering, 1971; M. Tech. in Chemical Engineering, 1974); Rutgers University, N.J. (M.S. in Industrial Engineering & Operations Research, expect to graduate in 1980).

Research Interests Energy Systems Analysis; Applications of Quantitative Methods to Energy Planning.

Professional Affiliations American Institute of Chemical Engineers.

Summary of Experience Worked for E.R. Squibb & Sons, Inc. for three years. Worked part-time in Analytical R&D before assuming a full time position in Operations Planning. Responsibilities were mainly in the areas of Facilities Analysis and Capital Budgeting.

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ENERGY DATA & MODELS GROUP

A. S. KYDES

LING LING JUANG Assistant Mathematician

Education National Taiwan University (B.S. in Mathematics, 1972);
State University of New York, (M.S. in Applied Mathematics, 1973); State University of New York (Ph.D. in Numerical Analysis, 1976).

Research Interests Energy resource modeling; application of quantitative methods to depletable resource supply and pricing modeling problems.

Professional
Affiliations Operations Research Society of America

Summary of
Experience Involved in designing and developing various energy models such as Brookhaven Energy Optimization Model, Dynamic Energy Optimization Model, and primarily responsible for designing the Iron and Steel Process Model.

Evaluated the generic resource supply process of Long-term Energy Analysis Program (LEAP) of Energy Information Administration, and upgraded the submodel to better represent the economics of oil, gas, and coal supply process. Also developed oil, gas, and coal models to generate regional supply curves with pricing methodology consistent with the LEAP logic.

Currently responsible for proposing a methodology for long-term oil and gas supply forecasting.

Selected
Publications E. A. Cherniavsky, L. L. Juang, and H. Abilock, "Dynamic Energy System Optimization Model," EPRI-EA1079, 1977.

JOSEPH RABINOWITZ Computer Analyst

Education The Pennsylvania State University, (B.A. in Sociology, 1975); State University of New York at Stony Brook (M.S. in Computer Science, 1976).

Research Interests Energy Systems Modeling; Software Design.

Professional Affiliations Association of Computing Machinery, Phi Beta Kappa, Phi Kappa Phi.

Summary of Experience Mr. Rabinowitz has worked on the development and implementation of the reformulated PDS/MaGen version of the Brookhaven Energy System Optimization Model (BESOM). His work in this area has continued with the development of the Time-Stepped Energy System Optimization Model (TESOM). Mr. Rabinowitz was involved on a project to design and implement a FORTRAN package which functionally duplicates a large subset of the PDS/MaGen language. This has made the translation of PDS/MaGen coded models into FORTRAN a straightforward procedure. Mr. Rabinowitz was responsible for this package's first application, the development of a FORTRAN version of BESOM. In addition, he has participated in the conceptual design of the Energy Emergency Management Information System (EEMIS) and is in charge of administering the International Model and Data Assistance Program.

Selected Publications A. S. Kydes and J. Rabinowitz, "The Time-stepped Energy System Optimization Model (TESOM), Overview and Special Features," BNL 26456, August 1979.

J. D'Acerno, A. Hermelee, M. Beller, N. Bhagat, and J. Rabinowitz, "The U.S. Oil and Gas System Representation in the EEMIS Data Structure," BNL 51077, November 1979.

A. S. Kydes and J. D. Pearson (editors), "Comparative Assessment of Calibrated Long-run Energy Models," BNL 51085, December 1979.

JOSEPH E. SMITH

Computer Science Analyst

Education

Brooklyn College (B.S. in physics, 1945); Brooklyn College (graduate courses in physics and math, 1946-1948); Brooklyn Polytech Institute (courses in electrical engineering, 1945-1948).

Research Interests

Computer programming in the environmental and biomedical areas.

Summary of Experience

Designed radiation detecting and measuring devices. Designed high power tilling stage microscopes for cosmic ray detection in nuclear emulsions. Computer programming in high energy physics for bubble chamber experiments, AGS on-line programs for electrode checking and orbit correction. At DAS and DEE, wrote programming routines incorporated in the Brookhaven Energy System Optimization Model; programs for biomedical and environmental emissions, including an environmental residuals data base. I've also written many varied and diversified programs required by the group for various projects.

TIMOTHY J. SILLS Computer Science Analyst

Education State University of New York at Stony Brook (B.S. in Applied Mathematics, 1977; in the process of completing M.S. program in Applied Mathematics (Operations Research Track)).

Research Interests Energy Systems Analysis; The Evaluation of the Possible Impacts of New Energy Technologies on National or Regional Systems.

Summary of
Experience Familiar with the operation of BNL's computer systems. Responsible for the running and modification of several reactor codes along with the installation of routines to give a graphic representation of all points of interest. Presently concerned with the running of a computer model developed for use in a multinational energy systems analysis study.

Selected
Publications P. Grand, H. J. Kouts, J. R. Powell, M. Steinberg, and H. Takahashi, (T. J. Sills - contributor), "Conceptual Design and Economic Analysis of a Light Water Reactor Fuel Enricher/Regenerator," BNL 50838, September 1978.

G. J. Fischer and R. J. Cerbone, (T. J. Sills - contributor), "The Fast-mixed Spectrum Reactor Interim Report Initial Feasibility Study," BNL 50976, January 1979.