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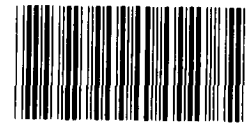
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Survey To Identify Models Used By Executive Agencies In The Policymaking Process

The Subcommittee on Oversight and Investigations of the House Committee on Energy and Commerce and the Subcommittee on Investigations and Oversight of the House Committee on Science and Technology requested that GAO assist them in conducting a survey to identify major computer models used by Federal executive agencies in the policymaking process. GAO highlights the results of the survey.



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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

PROGRAM ANALYSIS
DIVISION

B-208781

The Honorable John D. Dingell
Chairman, Subcommittee on Oversight
and Investigations
House Committee on Energy and
Commerce

The Honorable Albert Gore, Jr.
Chairman, Subcommittee on
Investigations and Oversight
House Committee on Science and
Technology

On March 1, 1982, you asked us to assist you in determining the nature and number of major computer models being used by Federal executive agencies in the policymaking process. In a subsequent meeting with your offices, we agreed to process and analyze the results of your questionnaire sent to 43 departments, agencies, and other Federal entities (see appendix I for a complete listing), but without attempting to verify the responses provided.

We conducted a telephone followup of agencies after the questionnaire was sent to verify its receipt. We also accumulated and accounted for the agency responses delivered to your Committees. We reviewed and coded the questionnaires, and produced tabulations using standard statistical methods. Based on responses from the agencies surveyed, 357 models were identified (see appendix II for a listing of these models). Over half these models were used for either forecasting or problem analysis. While the data collected here can be used as a basis for asking further questions, we would caution against using them in drawing conclusions unless the data are verified and additional inquiries are made.

DEFINITION OF A MODEL

The term "model" can be used in several ways. We define a model as being a representation of either a real or proposed process or system. It can be used to solve problems or test alternatives by representing real or proposed systems and processes with mathematical equations and data. When a model is

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computerized it allows analysts to quickly assimilate and manipulate data to systematically analyze a problem. The results of this analysis can be used by policymakers to aid decisionmaking.

While a model allows analysts and decisionmakers to deal with issues not readily susceptible to analysis with other tools, a model still remains a simplified representation of reality. Models are based on assumptions, approximations, and judgments, all of which affect the validity, reliability, and accuracy of a model's results.

SURVEY RESULTS

We highlight the results of our tabulation of the questionnaires below (see appendix III for additional details on models surveyed). Forty-two of the 43 agencies responded to your letter. The Department of Defense did not respond. Thirty-one agencies returned completed questionnaires for each model that they considered to be a major policy model. From these questionnaires, we compiled an inventory of 357 models. The remaining 11 agencies either stated that they did not use models or that they did not have models that they considered major.

Who uses these models?

The number of models reported in use range from a minimum of 1 at several agencies to a maximum of 51 at the Department of Transportation. The next three largest users were the Environmental Protection Agency with 45 models, the Department of Interior with 35 models, and the Tennessee Valley Authority with 31 models. Nearly three-quarters of the agencies which completed the questionnaire used 10 or fewer models.

What is the purpose of these models?

Respondents were asked to describe the model's use both in terms of original intended use and actual use to date. They reported the highest actual use in the areas of forecasting (33 percent of the 357 models identified) and problem analysis (23 percent). There was not much difference between the intended use and actual use of the models. Sixty-five percent of the models were reported to have been developed to solve an existing specific problem rather than an anticipated one. Respondents also cited the program level about twice as often as the policy level as the part of the sponsoring agency where the idea to develop the model was first considered.

How current are the models?

Agencies reported that most of the models (69 percent) had been first used less than 5 years ago. While nearly 69 percent of the models do not have a fixed schedule for revision, 64

percent of all models have undergone a major revision during the past 2 years. Additionally, 56 percent have been updated within the 3 months prior to the survey.

What are the costs of these models?

Information on developmental costs was provided for 37 percent of the models. These costs were under \$100,000 for nearly half the models. The Departments of Agriculture, Energy, and Health and Human Services, the Environmental Protection Agency, and the National Aeronautics and Space Administration each reported one model with developmental costs exceeding \$1 million. Developmental costs for some models were not directly incurred by several agencies as the models were developed by private firms such as Data Resources, Inc., Chase Econometrics, and Wharton Econometric Forecasting Associates, Inc. In these cases, charges are usually made on a subscription basis and/or based on the model's use.

About 49 percent of the models were developed within the responding agency with another 6 percent developed by other Federal agencies. Respondents indicated 30 percent of the models were developed under Government contract. The remaining 15 percent of the answers fell in the categories of "not under Government contract," "other," and "unknown."

Yearly operating costs were provided for 94 percent of the models. Sixty-eight percent cost under \$50,000 annually. Annual costs exceeded \$1 million for two models at the Department of Agriculture and one at the Federal Communications Commission.

Have the models been evaluated?

A review or evaluation of some type has been made on over 82 percent of the models. Sixty-eight percent of models had at least an internal review, and in over half of the cases where an internal review had been performed, an external review or an audit was also done. Respondents indicated that no evaluation was made for 10 percent of the models. For another 8 percent, it was not known if a review or evaluation had been made.

How good is the model's documentation?

Respondents were asked to answer questions on how good the model's documentation was from both a policymaker's and a programmer's point of view.

From a policymaker's point of view, respondents indicated that the documentation could easily be understood and the results used by them effectively with a minimum of effort in 35 percent of the cases. Thirty-seven percent thought "at least some discussion" with the model's originators was necessary to assure

proper use of the model's results. Extensive assistance was felt to be needed for understanding 19 percent of the models. No documentation was available for the policymaker in nearly 6 percent of the cases. In about 3 percent of the cases, respondents checked that they "don't know."

Respondents indicated that the level of documentation required for programmers was higher than for policymakers. They reported that over 43 percent of the models had adequate documentation. "At least some discussion" was thought to be needed for another 43 percent of the cases. Extensive assistance was considered needed for 8 percent of the models. Documentation did not exist in less than 5 percent of the cases. "Don't know" was indicated for about 1 percent of the models.

What is the data source for these models?

Respondents were asked to indicate where the data used for the models were obtained. In over half the cases, data were reported to be obtained from the responding agency, 16 percent by "Government contract," and 13 percent from other Government agencies. Fewer than 10 percent obtained their data from publications; about 7 percent responded to "other," and "not under Government contract" was cited in about 4 percent of the cases.

COMMENTS

Responses to the questionnaire indicate wide and varied use of computer-based models. We feel this information can be used to form a basis for asking further questions about models used in the policymaking process. We would caution against using these data to draw conclusions about an individual model's capabilities unless the present data are verified and/or further inquiries made. We have noted that in responses pertaining to some models, answers given to one question appear to be inconsistent with answers to another question. For example, good documentation is considered an integral part of understanding a model and is needed to facilitate an independent evaluation of the model. However, over 50 percent of the models reported had documentation that was considered not easily usable. Also, we note in our past experience with surveys that respondents do not always agree on the use of terms. Since terms were not defined for respondents to this questionnaire, various interpretations are possible. It is possible that one agency might consider essentially the same type model as "major" where another may not.

Agency and legislative decisionmakers who are concerned about the degree of confidence to place in the results of these and other models may wish to consider the information in our document,

"Guidelines for Model Evaluation" 1/. This document provides guidelines for accumulating evidence about each model upon which to base reasonable opinions, conclusions, judgments, and recommendations concerning the confidence which can be given to that model's results. It provides a general overview of model evaluation and also identifies some concerns that should be considered before the results of a model are used by a decisionmaker.

* * * * *

Because this report is informational and does not contain recommendations, we did not seek agency comments. Unless you publicly announce the contents earlier, no further distribution of this report will be made until 30 days after the report date.



Morton A. Myers
Director

1/See "Guidelines for Model Evaluation," U.S. General Accounting Office, Washington, D.C., PAD-79-17, January 1979 (exposure draft).



AGENCIES THAT WERE MAILED QUESTIONNAIRESPolicy models used

Executive Office of the President Office of Management and Budget	Federal Reserve System General Services Administration
Department of Agriculture	National Aeronautics and Space Administration
Department of Commerce	National Capital Planning Commission
Department of Education	National Credit Union Administration
Department of Energy	Office of Personnel Management
Department of Health and Human Services	Pension Benefit Guaranty Corporation
Department of Housing and Urban Development	Postal Rates Commission
Department of the Interior	Securities and Exchange Commission
Department of Justice	Tennessee Valley Authority
Department of Labor	U.S. Postal Service
Department of State	Veterans Administration
Department of Transportation	
Department of the Treasury	
Civil Aeronautics Board	
Consumer Product Safety Commission	
Environmental Protection Agency	
Export-Import Bank of the United States	
Federal Communications Commission	
Federal Emergency Management Agency	

AGENCIES THAT WERE MAILED QUESTIONNAIRES

Policy models not used

Executive Office of the President
Office of Science and Technology
Policy

ACTION

Commodity Futures Trading
Commission

Federal Deposit Insurance
Corporation

Federal Trade Commission

International Development
Cooperation Agency

Interstate Commerce
Commission

National Transportation
Safety Board

Railroad Retirement Board

Small Business Administration

U.S. International Trade
Commission

Did not respond

Department of Defense

INVENTORY OF POLICYMAKING MODELS

OFFICE OF MANAGEMENT AND BUDGET

MODEL OR PROJECT NAME: CHASE ECONOMETRICS - U.S. AGRICULTURE MODEL
SUBJECT AREA OF MODEL: CROP FORECASTING, SUPPLY/DEMAND
PROGRAM DIRECTOR: DENNIS DICKSTEIN

MODEL OR PROJECT NAME: DOD OUTLAYS
SUBJECT AREA OF MODEL: OUTLAY FORECASTING
PROGRAM DIRECTOR: WILLIAM MCLEOD

MODEL OR PROJECT NAME: E OUTLAYS VSB
SUBJECT AREA OF MODEL: SUBSIDIZED HOUSING
PROGRAM DIRECTOR: KEN RYDER

MODEL OR PROJECT NAME: FAST (FINANCING AND STATUS)
SUBJECT AREA OF MODEL: PROJECTION OF OASDHI TRUST FUND OPERATIONS UNDER ALTERNATIVE ECONOMIC ASSUMPTIONS
PROGRAM DIRECTOR: RICH KUZMACK

MODEL OR PROJECT NAME: FFB MODEL
SUBJECT AREA OF MODEL: FISCAL POLICY
PROGRAM DIRECTOR: JOHN MITRISIW

MODEL OR PROJECT NAME: FHA APPLICATIONS MODEL
SUBJECT AREA OF MODEL: FORECASTS OF FEDERAL HOUSING ADMINISTRATION ACTIVITY
PROGRAM DIRECTOR: BARRY ANDERSON

MODEL OR PROJECT NAME: INTEREST ON THE PUBLIC DEBT MODEL
SUBJECT AREA OF MODEL: PROJECTION OF BUDGET OUTLAYS; SENSITIVITY OF THE BUDGET TO ECONOMIC ASSUMPTIONS
PROGRAM DIRECTOR: KATE NEWMAN

MODEL OR PROJECT NAME: MILITARY RETIREMENT REFORM
SUBJECT AREA OF MODEL: MILITARY RETIREMENT COSTS
PROGRAM DIRECTOR: CHRIS GAMBLE

MODEL OR PROJECT NAME: PROPHET
SUBJECT AREA OF MODEL: FORECASTS STRENGTH AND EXPERTISE DISTRIBUTION OF U.S. MILITARY FORCES
PROGRAM DIRECTOR: BILL HANNON

DEPARTMENT OF AGRICULTURE

MODEL OR PROJECT NAME: ADVENT
SUBJECT AREA OF MODEL: PROGRAM AND BUDGET DEVELOPMENT
PROGRAM DIRECTOR: LYNN VANCIL

MODEL OR PROJECT NAME: AGSIM
SUBJECT AREA OF MODEL: FORECAST CROP PRICES AND PRODUCTION IN RESPONSE TO POLICIES
PROGRAM DIRECTOR: CRAIG OSTEN

MODEL OR PROJECT NAME: CCC BUDGET FORESIGHT SYSTEM
SUBJECT AREA OF MODEL: AUTOMATED BUDGET SYSTEM
PROGRAM DIRECTOR: ANGELENA BRACHT

MODEL OR PROJECT NAME: EROSION-PRODUCTIVITY IMPACT CALCULATOR
SUBJECT AREA OF MODEL: ENVIRONMENTAL SIMULATION
PROGRAM DIRECTOR: PAUL DYKE

4 MODEL OR PROJECT NAME: FOOD AND AGRICULTURAL POLICY SIMULATOR (FAPSIM)
SUBJECT AREA OF MODEL: U.S. AGRICULTURE
PROGRAM DIRECTOR: DR. LARRY E. SALATHE

MODEL OR PROJECT NAME: FORPLAN
SUBJECT AREA OF MODEL: LAND MANAGEMENT AND RESOURCE PLANNING
PROGRAM DIRECTOR: REX HARTGRAVES

MODEL OR PROJECT NAME: INTERREGIONAL COAL ANALYSIS MODEL
SUBJECT AREA OF MODEL: EFFECT OF ALTERNATIVE POLICIES TOWARD COAL MINING
PROGRAM DIRECTOR: VELMER DAVIS

MODEL OR PROJECT NAME: ISU/NRE LP/ECONOMETRIC MODELS (HYBRID)
SUBJECT AREA OF MODEL: INTEGRATED AGRICULTURAL SECTOR MODEL
PROGRAM DIRECTOR: WEN-YUAN HUANG

MODEL OR PROJECT NAME: ISU/NRE NATIONAL-REGIONAL LP MODEL
SUBJECT AREA OF MODEL: INTEGRATED AGRICULTURAL SECTOR MODEL
PROGRAM DIRECTOR: WEN-YUAN HUANG

DEPARTMENT OF AGRICULTURE

MODEL OR PROJECT NAME: NATIONAL-INTERREGIONAL AGRICULTURAL PROJECTIONS (NIRAP)
 SUBJECT AREA OF MODEL: INTEGRATED AGRICULTURAL PROJECTIONS
 PROGRAM DIRECTOR: BILL QUINBY

DEPARTMENT OF COMMERCE

MODEL OR PROJECT NAME: ITA - TRADE FORECASTING MODEL
 SUBJECT AREA OF MODEL: TRADE FORECASTING, ANALYSIS, AND SIMULATIONS
 PROGRAM DIRECTOR: STEB HIPPLE

MODEL OR PROJECT NAME: BEA QUARTERLY ECONOMETRIC MODEL OF THE U.S. ECONOMY
 SUBJECT AREA OF MODEL: FORECASTING AND POLICY SIMULATION
 PROGRAM DIRECTOR: GEORGE GREEN

MODEL OR PROJECT NAME: DOCUMENTATION, PRODUCTION & COSTING MODEL
 SUBJECT AREA OF MODEL: PRODUCTION AND MONETARY FORECASTING
 PROGRAM DIRECTOR: JAY LUCAS

MODEL OR PROJECT NAME: GULF OF MEXICO STRATEGIC ASSESSMENT PROGRAM
 SUBJECT AREA OF MODEL: ENVIRONMENTAL ASSESSMENT
 PROGRAM DIRECTOR: CHARLES N. EHLER

MODEL OR PROJECT NAME: INPUT/OUTPUT INTEGRATED MACROECONOMIC MODEL
 SUBJECT AREA OF MODEL: INDUSTRIAL POLICY, CRITICAL MATERIALS ANALYSIS
 PROGRAM DIRECTOR: GORTI NARASIMHAM

MODEL OR PROJECT NAME: PATENT, PRODUCTION & COSTING MODEL
 SUBJECT AREA OF MODEL: PRODUCTION AND MONETARY FORECASTING
 PROGRAM DIRECTOR: JAY LUCAS

MODEL OR PROJECT NAME: TRADEMARK PRODUCTION & COSTING MODEL
 SUBJECT AREA OF MODEL: PRODUCTION AND MONETARY FORECASTING
 PROGRAM DIRECTOR: JAY LUCAS

DEPARTMENT OF EDUCATION

MODEL OR PROJECT NAME: BASIC GRANT APPLICANT - BASED COST PROJECT MODEL
 SUBJECT AREA OF MODEL: BUDGET FORECASTING AND POLICY ANALYSIS
 PROGRAM DIRECTOR: DR. JOSEPH A. VIGNONE

MODEL OR PROJECT NAME: BUDGET OUTLAY ANALYSIS SYSTEM
 SUBJECT AREA OF MODEL: FEDERAL EDUCATION OUTLAY
 PROGRAM DIRECTOR: SUSAN WEINER

MODEL OR PROJECT NAME: LUBELLE LOAN MODEL
 SUBJECT AREA OF MODEL: GSL LOAN VOLUME AND COSTS
 PROGRAM DIRECTOR: JAMES P. MAXWELL

MODEL OR PROJECT NAME: OSFA INTEGRATED STUDENT FINANCIAL AID MODEL
 SUBJECT AREA OF MODEL: BUDGET FORECASTING AND POLICY ANALYSIS
 PROGRAM DIRECTOR: DR. JOSEPH A. VIGNONE

MODEL OR PROJECT NAME: SAFA ESTIMATING SYSTEM
 SUBJECT AREA OF MODEL: APPROPRIATION AND BUDGET FORECASTING FOR THE P.L. 81-874 IMPACT AID PROGRAM
 PROGRAM DIRECTOR: WILLIAM STORMER

MODEL OR PROJECT NAME: TITLE I, ELEMENTARY AND SECONDARY EDUCATION ACT ALLOCATIONS
 SUBJECT AREA OF MODEL: FEDERAL FUNDS ALLOCATION (EDUCATION)
 PROGRAM DIRECTOR: MARTIN M. FRANKEL

MODEL OR PROJECT NAME: TUITION TAX CREDIT IMPACT
 SUBJECT AREA OF MODEL: EDUCATION ASSISTANCE
 PROGRAM DIRECTOR: ALAN GINSBURG

DEPARTMENT OF ENERGY

MODEL OR PROJECT NAME: DATA RESOURCES, INC.
 SUBJECT AREA OF MODEL: MACROECONOMIC FORECASTING
 PROGRAM DIRECTOR: C. W. JICK MYERS

DEPARTMENT OF ENERGY

MODEL OR PROJECT NAME: DEMAND ANALYSIS SYSTEM
SUBJECT AREA OF MODEL: ENERGY DEMAND BY END-USE SECTORS
PROGRAM DIRECTOR: JULIE ZALKIND

MODEL OR PROJECT NAME: EVANS ECONOMICS, INC.
SUBJECT AREA OF MODEL: MACROECONOMIC FORECASTING
PROGRAM DIRECTOR: C. W. JICK MYERS

MODEL OR PROJECT NAME: FOSSIL2
SUBJECT AREA OF MODEL: ENERGY SUPPLY
PROGRAM DIRECTOR: JOHN STANLEY-MILLER

MODEL OR PROJECT NAME: HIGHWAY FUEL CONSUMPTION MODEL
SUBJECT AREA OF MODEL: HIGHWAY FUEL DEMAND FORECASTING
PROGRAM DIRECTOR: BARRY MCNUTT

MODEL OR PROJECT NAME: IFCAM
SUBJECT AREA OF MODEL: INDUSTRIAL FOSSIL FUEL USE
PROGRAM DIRECTOR: CATHERINE GOOD ABBOTT

MODEL OR PROJECT NAME: INDUSTRIAL BOILER MODEL
SUBJECT AREA OF MODEL: ENGINEERING MODEL
PROGRAM DIRECTOR: BELINDA BRIGGS

MODEL OR PROJECT NAME: INTERNATIONAL PETROLEUM MODEL (IPM)
SUBJECT AREA OF MODEL: FORECASTS PETROLEUM NEEDS IN U.S. BY FUEL TYPE
PROGRAM DIRECTOR: GEORGE CURRIE

MODEL OR PROJECT NAME: ISTUM
SUBJECT AREA OF MODEL: INDUSTRIAL ENERGY USE
PROGRAM DIRECTOR: CATHERINE GOOD ABBOTT

MODEL OR PROJECT NAME: MIDTERM ENERGY FORECASTING SYSTEM
SUBJECT AREA OF MODEL: DOMESTIC INTEGRATED ENERGY FORECASTS FOR 1985-1995
PROGRAM DIRECTOR: JULIE ZALKIND

DEPARTMENT OF ENERGY

MODEL OR PROJECT NAME: NATIONAL OIL SUPPLY MODEL
SUBJECT AREA OF MODEL: DOMESTIC OIL SUPPLY FORECASTS
PROGRAM DIRECTOR: JOHN STANLEY-MILLER

MODEL OR PROJECT NAME: NATURAL GAS SUPPLY MODEL
SUBJECT AREA OF MODEL: NATURAL GAS PRODUCTION FORECASTS
PROGRAM DIRECTOR: LINDA BARBER

MODEL OR PROJECT NAME: OIL MARKET SIMULATION (OMS) MODEL
SUBJECT AREA OF MODEL: FORECAST OF WORLD OIL PRICES TO THE YEAR 2000
PROGRAM DIRECTOR: W. CALVIN KILGORE

MODEL OR PROJECT NAME: ORNL COMMERCIAL ENERGY DEMAND MODEL
SUBJECT AREA OF MODEL: ENERGY DEMAND BY NON-RESIDENTIAL BUILDINGS
PROGRAM DIRECTOR: PHILIP PATTERSON

∞ MODEL OR PROJECT NAME: ORNL HIGHWAY GASOLINE DEMAND MODEL
SUBJECT AREA OF MODEL: GASOLINE DEMAND FOR AUTOS AND LIGHT TRUCKS
PROGRAM DIRECTOR: DAVID GREEN

MODEL OR PROJECT NAME: ORNL INDUSTRIAL SECTOR MODEL (ORIM)
SUBJECT AREA OF MODEL: INDUSTRIAL ENERGY USE
PROGRAM DIRECTOR: THOMAS MOONEY

MODEL OR PROJECT NAME: ORNL RESIDENTIAL ENERGY DEMAND MODEL
SUBJECT AREA OF MODEL: RESIDENTIAL ENERGY DEMAND
PROGRAM DIRECTOR: PHILIP PATTERSON

MODEL OR PROJECT NAME: PETROLEUM ALLOCATION (PAL) MODEL
SUBJECT AREA OF MODEL: FORECAST OF WORLD TRADE IN CRUDE OIL BEFORE AND AFTER DISRUPTION IN SUPPLIES
PROGRAM DIRECTOR: W. CALVIN KILGORE

MODEL OR PROJECT NAME: PIPELINE SIMULATOR OF NATURAL GAS MARKET
SUBJECT AREA OF MODEL: DEMAND FOR NATURAL GAS BY ECONOMIC SECTORS
PROGRAM DIRECTOR: CATHERINE GOOD ABBOTT

DEPARTMENT OF ENERGY

MODEL OR PROJECT NAME: PROCESS HEAT MODEL
SUBJECT AREA OF MODEL: ENGINEERING MODEL OF ENERGY CONSUMPTION
PROGRAM DIRECTOR: BELINDA BRIGGS

MODEL OR PROJECT NAME: SHORT-TERM INTEGRATED FORECASTING SYSTEM (STIFS)
SUBJECT AREA OF MODEL: SHORT-TERM MULTI-FUEL ENERGY FORECASTING
PROGRAM DIRECTOR: JOHN E. TODD

MODEL OR PROJECT NAME: SPR DYNAMIC PROGRAMMING MODEL
SUBJECT AREA OF MODEL: OIL STOCKPILE POLICY
PROGRAM DIRECTOR: JERRY BLANKENSHIP

MODEL OR PROJECT NAME: STRATEGIC ENVIRONMENTAL ASSESSMENT SYSTEM
SUBJECT AREA OF MODEL: ENVIRONMENTAL ASSESSMENTS
PROGRAM DIRECTOR: GEORGE KELLY

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MODEL OR PROJECT NAME: WHARTON ECONOMETRIC FORECASTING ASSOCIATES
SUBJECT AREA OF MODEL: MACROECONOMIC FORECASTING
PROGRAM DIRECTOR: C. W. JICK MYERS

MODEL OR PROJECT NAME: WOIL
SUBJECT AREA OF MODEL: WORLD ENERGY MODEL
PROGRAM DIRECTOR: JOHN STANLEY-MILLER

MODEL OR PROJECT NAME: 2 MARKET GAS MODEL
SUBJECT AREA OF MODEL: FORECASTING DEMAND AND SOCIAL WELFARE PARAMETERS
PROGRAM DIRECTOR: CATHERINE GOOD ABBOTT

DEPARTMENT OF HEALTH AND HUMAN SERVICES

MODEL OR PROJECT NAME: AFDC MODEL
SUBJECT AREA OF MODEL: CASELOAD FORECASTING AND PAYMENT FORECASTING ESTIMATOR FOR AFDC CHARGES
PROGRAM DIRECTOR: DR. LYNN WARE

DEPARTMENT OF HEALTH AND HUMAN SERVICES

MODEL OR PROJECT NAME: ASPE AFDC MODEL
 SUBJECT AREA OF MODEL: AID TO FAMILIES WITH DEPENDENT CHILDREN
 PROGRAM DIRECTOR: RICHARD KASTEN

MODEL OR PROJECT NAME: BENEFIT AND TAX SIMULATOR
 SUBJECT AREA OF MODEL: SOCIAL SECURITY POLICY
 PROGRAM DIRECTOR: RICHARD A. KASTEN

MODEL OR PROJECT NAME: BHPR HEALTH PROFESSION SUPPLY MODEL
 SUBJECT AREA OF MODEL: FORECASTING SUPPLIES OF HEALTH PROFESSIONAL PERSONNEL
 PROGRAM DIRECTOR: S. BERNSTEIN

MODEL OR PROJECT NAME: DYNAMIC MICROSIMULATION MODEL
 SUBJECT AREA OF MODEL: MICROSIMULATION WITH EMPHASIS ON SOCIAL SECURITY BENEFIT CHANGE PROPOSALS
 PROGRAM DIRECTOR: BENJAMIN BRIDGES

MODEL OR PROJECT NAME: ECONOMETRIC MODEL OF THE DENTAL SECTOR
 SUBJECT AREA OF MODEL: FORECASTING THE ECONOMIC STATUS OF THE DENTAL SECTOR
 PROGRAM DIRECTOR: JESSE S. HIXSON

MODEL OR PROJECT NAME: ECONOMIC AND FORECASTING SERVICES - DRI, INC.
 SUBJECT AREA OF MODEL: ECONOMIC FORECASTING
 PROGRAM DIRECTOR: JOAN TUREK-BREZING

MODEL OR PROJECT NAME: FEDERAL COST AND CASELOAD ESTIMATING MODEL (SECOND GUESS)
 SUBJECT AREA OF MODEL: BUDGET ESTIMATES OF SUPPLEMENTAL SECURITY INCOME
 PROGRAM DIRECTOR: MICHAEL C. STAREN

MODEL OR PROJECT NAME: GENERAL UNBIASED ESTIMATES OF SUPPLEMENTAL SECURITY INCOME PROGRAM ELIGIBLES (GUESS)
 SUBJECT AREA OF MODEL: INCOME MAINTENANCE PROGRAMS
 PROGRAM DIRECTOR: MICHAEL C. STAREN

MODEL OR PROJECT NAME: GONORRHEA VACCINE SIMULATION MODEL
 SUBJECT AREA OF MODEL: EPIDEMIOLOGIC STUDY OF GONORRHEA - EVALUATION OF CONTROL METHODS
 PROGRAM DIRECTOR: ROBERT E. JOHNSON

DEPARTMENT OF HEALTH AND HUMAN SERVICES

MODEL OR PROJECT NAME: HEALTH PROFESSIONS REQUIREMENTS MODEL
 SUBJECT AREA OF MODEL: FORECASTING REQUIREMENTS FOR HEALTH PROFESSIONS PERSONNEL
 PROGRAM DIRECTOR: L. DRABEK

MODEL OR PROJECT NAME: INTEGRATED PHYSICIAN SUPPLY MODEL
 SUBJECT AREA OF MODEL: PHYSICIAN SUPPLY FORECASTING
 PROGRAM DIRECTOR: BARRY J. GREENGART

MODEL OR PROJECT NAME: LONG-RANGE SOCIAL SECURITY COST PROJECTION MODEL
 SUBJECT AREA OF MODEL: SOCIAL SECURITY COST ESTIMATES
 PROGRAM DIRECTOR: FRANCISCO R. BAYO

MODEL OR PROJECT NAME: LONG-RUN MACROECONOMIC MODEL
 SUBJECT AREA OF MODEL: LONG-RUN MODEL OF U.S. ECONOMY AND ITS INTERRELATIONS WITH SOCIAL SECURITY
 PROGRAM DIRECTOR: DEAN LEIMER

MODEL OR PROJECT NAME: MACRO ECONOMIC FORECASTING - DRI INC.
 SUBJECT AREA OF MODEL: FORECASTS TO CONSTRUCT NCFA MARKET BASKETS OF HEALTH PROVIDERS
 PROGRAM DIRECTOR: CAROL ELLEN SCHENDLER

MODEL OR PROJECT NAME: MICRO-ANALYSIS OF TRANSFERS TO HOUSEHOLDS (MATH)
 SUBJECT AREA OF MODEL: MICRO-SIMULATION OF HEALTH POLICY AND INCOME MAINTENANCE
 PROGRAM DIRECTOR: JANE LEE

MODEL OR PROJECT NAME: OASDHI REVENUE PROJECTIONS
 SUBJECT AREA OF MODEL: TAX REVENUE FORECASTING
 PROGRAM DIRECTOR: KENNETH G. SANDER

MODEL OR PROJECT NAME: OASDI SHORT-RANGE TRUST FUND PROJECTIONS
 SUBJECT AREA OF MODEL: ESTIMATION OF FINANCIAL OPERATIONS OF OASI AND DI TRUST FUNDS
 PROGRAM DIRECTOR: RICHARD S. FOSTER

MODEL OR PROJECT NAME: RESOURCE REQUIREMENT METHODOLOGY
 SUBJECT AREA OF MODEL: RESOURCE JUSTIFICATION AND ALLOCATION
 PROGRAM DIRECTOR: ANTHONY D ANGELO

DEPARTMENT OF HEALTH AND HUMAN SERVICES

MODEL OR PROJECT NAME: SIMULATED TAX AND TRANSFER SYSTEM (STATS) MODEL
 SUBJECT AREA OF MODEL: MICROSIMULATION OF TAXES AND TRANSFERS
 PROGRAM DIRECTOR: BENJAMIN BRIDGES

MODEL OR PROJECT NAME: STATE SUPPLEMENTATION ESTIMATING MODEL (GUESS AGAIN)
 SUBJECT AREA OF MODEL: STATE EXPENDITURES
 PROGRAM DIRECTOR: MICHAEL C. STAREN

MODEL OR PROJECT NAME: TIME SERIES MODELING PROJECT
 SUBJECT AREA OF MODEL: FORECASTING HEALTH CARE PRICES, EXPENDITURES, WAGES, AND EMPLOYMENT
 PROGRAM DIRECTOR: JESSE S. HIXSON

MODEL OR PROJECT NAME: TRIM2 - TRANSFER INCOME MODEL
 SUBJECT AREA OF MODEL: HEALTH, TAX, FOOD STAMP, AND HEALTH INSURANCE POLICY
 PROGRAM DIRECTOR: JANE LEE

MODEL OR PROJECT NAME: VECTOR NURSE REQUIREMENTS MODEL
 SUBJECT AREA OF MODEL: FORECASTING NATIONAL REQUIREMENTS FOR REGISTERED NURSES
 PROGRAM DIRECTOR: W. LOSAW

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

MODEL OR PROJECT NAME: ANNUAL HOUSING SURVEY MICRO-SIMULATION SYSTEM
 SUBJECT AREA OF MODEL: POPULATION
 PROGRAM DIRECTOR: PAUL BURKE

MODEL OR PROJECT NAME: COMMUNITY SIMULATION SYSTEM
 SUBJECT AREA OF MODEL: COMMUNITY DEVELOPMENT PROJECT PLANNING, MANAGING, MONITORING, AND FEEDBACK
 PROGRAM DIRECTOR: DR. DAVID PASS

MODEL OR PROJECT NAME: EXPERIMENTAL HOUSING ALLOWANCE PROGRAM DATA ANALYSIS SYSTEM
 SUBJECT AREA OF MODEL: ASSISTED HOUSING POLICY
 PROGRAM DIRECTOR: JENNIFER STUCKER

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

MODEL OR PROJECT NAME: FORESIGHT SOFTWARE PACKAGE
SUBJECT AREA OF MODEL: FINANCIAL REPORTING
PROGRAM DIRECTOR: GERRY B. PARCOVER

MODEL OR PROJECT NAME: MULTI-FAMILY INQUIRY SYSTEM
SUBJECT AREA OF MODEL: PROGRAM PREPARATION
PROGRAM DIRECTOR: PAUL BURKE

MODEL OR PROJECT NAME: NEW COMMUNITY SIMULATION MODELS
SUBJECT AREA OF MODEL: NEW COMMUNITY FEASIBILITY, FORECASTING, MONITORING AND EVALUATION
PROGRAM DIRECTOR: DAVID PASS

MODEL OR PROJECT NAME: SHORT TERM MONITORING AND FEEDBACK SYSTEM
SUBJECT AREA OF MODEL: COMMUNITY DEVELOPMENT PROJECT PLANNING, MANAGING, MONITORING, AND FEEDBACK
PROGRAM DIRECTOR: DR. DAVID PASS

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DEPARTMENT OF THE INTERIOR

MODEL OR PROJECT NAME: BIDDING SYSTEM MODEL - LEASING SIMULATION COMPUTER PROGRAM TSL80
SUBJECT AREA OF MODEL: OFFSHORE LEASING SIMULATION COST MODEL
PROGRAM DIRECTOR: TOM READINGER

MODEL OR PROJECT NAME: BREAM (BUREAU OF RECLAMATION ECONOMIC ASSESSMENT MODEL)
SUBJECT AREA OF MODEL: FORECASTING POPULATION, POPULATION DISTRIBUTION, AND INCOME
PROGRAM DIRECTOR: JIM CHAMBERS

MODEL OR PROJECT NAME: BUREAU OF RECLAMATION ECONOMIC ASSESSMENT MODEL (BREAM)
SUBJECT AREA OF MODEL: ECONOMIC/DEMOGRAPHIC SIMULATION
PROGRAM DIRECTOR: TOM PHILLIPS

MODEL OR PROJECT NAME: COAL DISTRIBUTION MODEL
SUBJECT AREA OF MODEL: FEDERAL COAL POLICY
PROGRAM DIRECTOR: LEONARD S. GORDON

DEPARTMENT OF THE INTERIOR

MODEL OR PROJECT NAME: COAL PRODUCTION COST AND DISCOUNTED CASH FLOW SIMULATION MODEL
SUBJECT AREA OF MODEL: COAL PRODUCTION COSTS
PROGRAM DIRECTOR: RICHARD BERNKNOPF

MODEL OR PROJECT NAME: COLORADO RIVER ANNUAL SIMULATION MODEL
SUBJECT AREA OF MODEL: RESERVOIR SYSTEM OPERATION
PROGRAM DIRECTOR: ALDEN BRIGGS

MODEL OR PROJECT NAME: COLORADO RIVER SIMULATION SYSTEM
SUBJECT AREA OF MODEL: LONG RANGE WATER RESOURCE PLANNING MODEL
PROGRAM DIRECTOR: MICHAEL S. COWAN

MODEL OR PROJECT NAME: COLORADO RIVER STORAGE PROJECT MODEL
SUBJECT AREA OF MODEL: LONG RANGE OPERATING MODEL FOR THE COLORADO RIVER
PROGRAM DIRECTOR: JOHN NEWMAN

MODEL OR PROJECT NAME: COLORADO RIVER STORAGE PROJECT SIMULATION MODEL (CRSP MODEL)
SUBJECT AREA OF MODEL: RIVER SIMULATION
PROGRAM DIRECTOR: NO PROJECT DIRECTOR

MODEL OR PROJECT NAME: CVOCO SIMULATION MODEL
SUBJECT AREA OF MODEL: WATER AND POWER OPERATIONS
PROGRAM DIRECTOR: NO PROJECT DIRECTOR

MODEL OR PROJECT NAME: DAMBRK
SUBJECT AREA OF MODEL: SIMULATION OF DOWNSTREAM FLOOD HYDROGRAPH PRODUCED BY DAM BREAK
PROGRAM DIRECTOR: JOHN GOAR

MODEL OR PROJECT NAME: ENCORE
SUBJECT AREA OF MODEL: MINE PLAN REVIEW
PROGRAM DIRECTOR: KEITH KIRK

MODEL OR PROJECT NAME: ENROLLMENT PROJECTION MODEL
SUBJECT AREA OF MODEL: CONSTRUCTION PLANNING
PROGRAM DIRECTOR: WALTER F. LATTA

DEPARTMENT OF THE INTERIOR

MODEL OR PROJECT NAME: EVALUATION AND SENSITIVITY ANALYSIS PROGRAM (ESAP)
 SUBJECT AREA OF MODEL: PLAN EVALUATION, SENSIVITY ANALYSIS, DECISION ANALYSIS
 PROGRAM DIRECTOR: U.S. CORP OF ENGINEERS

MODEL OR PROJECT NAME: FARM BUDGET
 SUBJECT AREA OF MODEL: FARM BUDGETING
 PROGRAM DIRECTOR: NO PROJECT DIRECTOR

MODEL OR PROJECT NAME: HABITAT EVALUATION PROCEDURES
 SUBJECT AREA OF MODEL: WILDLIFE SPECIES HABITAT
 PROGRAM DIRECTOR: MEL SCHAMBERGER, U.S. FISH AND WILDLIFE SERVICES

MODEL OR PROJECT NAME: HYDROSS (HYDROLOGIC RIVER OPERATION STUDY SYSTEM)
 SUBJECT AREA OF MODEL: PLANNING MODEL FOR PROPOSED WATER PROJECTS
 PROGRAM DIRECTOR: JOHN DOOLEY

MODEL OR PROJECT NAME: MULTI-ATTRIBUTE TRADEOFF SYSTEM (MATS)
 SUBJECT AREA OF MODEL: MULTIATTRIBUTE PLAN EVALUATION
 PROGRAM DIRECTOR: CURT BROWN

MODEL OR PROJECT NAME: DEP (OPTIMAL EXPANSION PLANNING) MODEL
 SUBJECT AREA OF MODEL: POWER SYSTEM BENEFIT EVALUATION
 PROGRAM DIRECTOR: MICHAEL ROCUTI

MODEL OR PROJECT NAME: OIL SPILL RISK ANALYSIS MODEL AND OIL SPILL TRAJECTORY ANALYSIS MODEL
 SUBJECT AREA OF MODEL: OIL SPILL RISKS ASSOCIATED WITH OUTER CONTINENTAL SHELF LEASING
 PROGRAM DIRECTOR: DR. DAVID E. AMSTUTZ

MODEL OR PROJECT NAME: PHYSICAL HABITAT SIMULATION SYSTEM (PHABSIM)
 SUBJECT AREA OF MODEL: AQUATIC HABITAT IN STREAMS AND RIVERS
 PROGRAM DIRECTOR: CLAIR STALNAKER

MODEL OR PROJECT NAME: PROGRAM AND BUDGET SYSTEM
 SUBJECT AREA OF MODEL: PROGRAM DEVELOPMENT AND EVALUATION
 PROGRAM DIRECTOR: CHIEF, PROGRAM COODINATION AND FINANCE

DEPARTMENT OF THE INTERIOR

MODEL OR PROJECT NAME: PROGRAM DEMAND MODEL
SUBJECT AREA OF MODEL: CONSTRUCTION PLANNING
PROGRAM DIRECTOR: WALTER F. LATTA

MODEL OR PROJECT NAME: QUARTERS MANAGEMENT INFORMATION
SUBJECT AREA OF MODEL: RENTAL RATE SETTING FOR GOVERNMENT FURNISHED QUARTERS
PROGRAM DIRECTOR: GEORGE SANDBERG

MODEL OR PROJECT NAME: SEES - SIS ECONOMIC ESTIMATION SYSTEM
SUBJECT AREA OF MODEL: DISCOUNTED CASH FLOW ECONOMIC FORECASTING
PROGRAM DIRECTOR: DAVID DONATO

MODEL OR PROJECT NAME: SLIDE
SUBJECT AREA OF MODEL: MINERAL LEASING POLICY
PROGRAM DIRECTOR: DON BIENICWICZ

MODEL OR PROJECT NAME: STREAMFLOW SYNTHESIS AND RESERVOIR REGULATION (SSARR)
SUBJECT AREA OF MODEL: SURFACE WATER MODELING
PROGRAM DIRECTOR: NO PROJECT DIRECTOR

MODEL OR PROJECT NAME: SUBFAC AND LOANFAC
SUBJECT AREA OF MODEL: LOANS FOR IRRIGATION SYSTEMS
PROGRAM DIRECTOR: RON WILLHITE

MODEL OR PROJECT NAME: SUPPLY ANALYSIS MODEL
SUBJECT AREA OF MODEL: WORLDWIDE NONFUEL MINERAL AVAILABILITY AND SUPPLY ANALYSIS INCLUDING POLICY IMPACT
PROGRAM DIRECTOR: GARY A KINGSTON

MODEL OR PROJECT NAME: SYMAP
SUBJECT AREA OF MODEL: GENERAL CONTOUR AND MAPPING PROGRAM
PROGRAM DIRECTOR: NO PROJECT DIRECTOR

MODEL OR PROJECT NAME: TABNEW
SUBJECT AREA OF MODEL: BIDDING FOR MINERAL LEASES
PROGRAM DIRECTOR: MARSHALL ROSE

DEPARTMENT OF THE INTERIOR

MODEL OR PROJECT NAME: TSL80
SUBJECT AREA OF MODEL: MINERAL LEASING SYSTEMS
PROGRAM DIRECTOR: MARSHALL ROSE

MODEL OR PROJECT NAME: UPPER SNAKE RIVER DIGITAL MODEL
SUBJECT AREA OF MODEL: RIVER OPERATION SIMULATION FOR PLANNING WATER RESOURCE DEVELOPMENT
PROGRAM DIRECTOR: NO PROJECT DIRECTOR

MODEL OR PROJECT NAME: WATER QUALITY FOR RIVER AND RESERVOIR SYSTEMS (WQRRS)
SUBJECT AREA OF MODEL: DESIGN CRITERIA FOR RESERVOIRS
PROGRAM DIRECTOR: JERRY MILLER

MODEL OR PROJECT NAME: WATER SURFACE PROFILE COMPUTATION
SUBJECT AREA OF MODEL: WATER SURFACE ELEVATION PREDICTION
PROGRAM DIRECTOR: NO PROJECT DIRECTOR

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DEPARTMENT OF JUSTICE

MODEL OR PROJECT NAME: JET PROPULSION LAB (JPL) AID - III SYSTEM SIMULATION
SUBJECT AREA OF MODEL: FBI IDENTIFICATION DIVISION FINGERPRINT CARD FLOW
PROGRAM DIRECTOR: W. H. BELL

MODEL OR PROJECT NAME: SPECIAL AGENT PERSONNEL MODEL
SUBJECT AREA OF MODEL: PERSONNEL POLICY
PROGRAM DIRECTOR: CALVIN M. ANDERSON

DEPARTMENT OF LABOR

MODEL OR PROJECT NAME: CETA PERFORMANCE STANDARDS PROJECT
SUBJECT AREA OF MODEL: CETA PERFORMANCE STANDARDS
PROGRAM DIRECTOR: HUGH DAVIS

DEPARTMENT OF LABOR

MODEL OR PROJECT NAME: DRI, INC. - MODEL OF THE U.S. ECONOMY
SUBJECT AREA OF MODEL: FORECASTING
PROGRAM DIRECTOR: ROLAND DROITSCH

MODEL OR PROJECT NAME: ECONOMIC GROWTH AND EMPLOYMENT PROJECTIONS
SUBJECT AREA OF MODEL: INDUSTRY EMPLOYMENT AND OCCUPATIONAL FORECASTING
PROGRAM DIRECTOR: RONALD E. KUTSCHER

MODEL OR PROJECT NAME: LABOR MARKET PROJECTIONS MODEL (LMPM)
SUBJECT AREA OF MODEL: PROJECTIONS OF POPULATION, LABOR FORCE AND UNEMPLOYMENT PLUS UPDATES
PROGRAM DIRECTOR: ALAN MOSS

MODEL OR PROJECT NAME: PENSIM
SUBJECT AREA OF MODEL: FORECASTING OF SOCIAL SECURITY AND PRIVATE PENSION BENEFITS
PROGRAM DIRECTOR: GARY HENDRICKS

MODEL OR PROJECT NAME: PROGRAM IN ACCIDENT REDUCTION (PAR)
SUBJECT AREA OF MODEL: INITIAL SELECTION OF MINES FOR INCLUSION IN PAR
PROGRAM DIRECTOR: DONALD K. WALKER

MODEL OR PROJECT NAME: STAFF PLANNING - SAFETY, HEALTH, AND BENCHMARK MODELS
SUBJECT AREA OF MODEL: STAFF PLANNING OR RESOURCE ALLOCATION
PROGRAM DIRECTOR: JOSEPH DUBOIS

MODEL OR PROJECT NAME: UI FORECASTING MODEL (NATIONAL)
SUBJECT AREA OF MODEL: LEGISLATIVE, BUDGET, POLICY FORECASTING
PROGRAM DIRECTOR: JAMES VAN ERDEN

MODEL OR PROJECT NAME: UI FORECASTING MODEL (STATE)
SUBJECT AREA OF MODEL: LEGISLATIVE, BUDGET, POLICY FORECASTING
PROGRAM DIRECTOR: JAMES VAN ERDEN

MODEL OR PROJECT NAME: UNEMPLOYMENT INSURANCE COST MODEL MANAGEMENT SYSTEM
SUBJECT AREA OF MODEL: BUDGET AND PROGRAM ANALYSIS
PROGRAM DIRECTOR: ROBERT L. CLAY

DEPARTMENT OF STATE

MODEL OR PROJECT NAME: COST-BENEFIT MODEL
 SUBJECT AREA OF MODEL: OVERSEAS AUTOMATION PROGRAM
 PROGRAM DIRECTOR: DOUGLAS K. STEVENS, JR.

MODEL OR PROJECT NAME: DEBT SERVICES MODELS
 SUBJECT AREA OF MODEL: LENDING POLICY
 PROGRAM DIRECTOR: G. PAUL BALABANIS

MODEL OR PROJECT NAME: DRI, INC. - ANNUAL U.S. ENERGY MODEL
 SUBJECT AREA OF MODEL: ENERGY DEMAND
 PROGRAM DIRECTOR: JACK SHEERIN

MODEL OR PROJECT NAME: DRI, INC. - EUROPEAN MACRO MODELS
 SUBJECT AREA OF MODEL: ECONOMIC FORECASTING OF FISCAL AND MONETARY POLICIES
 PROGRAM DIRECTOR: SHARON LYNN EARLY

MODEL OR PROJECT NAME: DRI, INC. - JAPAN MACRO MODEL
 SUBJECT AREA OF MODEL: ECONOMIC FORECASTING OF FISCAL AND MONETARY POLICIES
 PROGRAM DIRECTOR: SHARON LYNN EARLY

MODEL OR PROJECT NAME: DRI, INC. - U.S. MACRO MODEL
 SUBJECT AREA OF MODEL: ECONOMIC FORECASTING OF FISCAL AND MONETARY POLICIES
 PROGRAM DIRECTOR: SHARON LYNN EARLY

MODEL OR PROJECT NAME: DRI, INC. - WORLD OIL MODEL
 SUBJECT AREA OF MODEL: ENERGY SUPPLY FORECASTING
 PROGRAM DIRECTOR: JACK SHEERIN

MODEL OR PROJECT NAME: ECONOMETRIC MODEL OF THE WORLD COFFEE ECONOMY
 SUBJECT AREA OF MODEL: FORECASTS WORLD COFFEE PRODUCTION, TRADE, AND PRICES
 PROGRAM DIRECTOR: STEPHEN H. MULLER

MODEL OR PROJECT NAME: LINK
 SUBJECT AREA OF MODEL: SYSTEM OF ECONOMETRIC MODELS FOR OECD AND CEMA COUNTRIES INCLUDING REGIONAL MODELS
 PROGRAM DIRECTOR: LAWRENCE KLEIN

DEPARTMENT OF TRANSPORTATION

MODEL OR PROJECT NAME: AIR CARRIER MODEL
SUBJECT AREA OF MODEL: FORECASTS COMMERCIAL AIRLINE TRAFFIC AND OPERATIONS
PROGRAM DIRECTOR: ROBERT BOWLES

MODEL OR PROJECT NAME: AIR TRAFFIC STAFFING STANDARDS
SUBJECT AREA OF MODEL: AIR TRAFFIC CONTROL
PROGRAM DIRECTOR: BOB WOODS

MODEL OR PROJECT NAME: AIRCRAFT FUEL BURN MODELING
SUBJECT AREA OF MODEL: DETERMINATION OF AIRCRAFT FUEL BURN
PROGRAM DIRECTOR: DAVID W. FORD

MODEL OR PROJECT NAME: AIRCRAFT/AIRPORT AIR QUALITY IMPACT
SUBJECT AREA OF MODEL: AIRCRAFT AND AIRPORT AIR QUALITY IMPACT
PROGRAM DIRECTOR: N. KRULL

MODEL OR PROJECT NAME: ASSESSMENT OF CRUISE-ALTITUDE AIRCRAFT EXHAUST EMISSIONS ON THE ENVIRONMENT
SUBJECT AREA OF MODEL: ASSESSMENT
PROGRAM DIRECTOR: DR. N. SUNDARARAMAN

MODEL OR PROJECT NAME: AUTOMATED FLIGHT SERVICE STATIONS TELEPHONE SERVICE COSTING MODEL
SUBJECT AREA OF MODEL: COST ANALYSIS
PROGRAM DIRECTOR: MARTIN J. LYNN

MODEL OR PROJECT NAME: BRAIN FINITE ELEMENT PROGRAM
SUBJECT AREA OF MODEL: STRESS ANALYSIS
PROGRAM DIRECTOR: JEFFERY MARCUS

MODEL OR PROJECT NAME: CAPITAL CONSTRUCTION FUND (CCF) FINANCIAL BENEFIT MODEL
SUBJECT AREA OF MODEL: PROJECTION OF IMPACT ON COST OF NEW VESSEL CONSTRUCTION
PROGRAM DIRECTOR: EDWARD A. UTTRIDGE

MODEL OR PROJECT NAME: CHASE ECONOMETRICS VERSION OF INFORUM
SUBJECT AREA OF MODEL: FORECASTING DETAILED INDUSTRY OUTPUTS
PROGRAM DIRECTOR: RICHARD HORN

DEPARTMENT OF TRANSPORTATION

MODEL OR PROJECT NAME: CHASE MACROECONOMIC MODEL
SUBJECT AREA OF MODEL: FORECASTING MACROECONOMIC VARIABLES
PROGRAM DIRECTOR: RICHARD HORN

MODEL OR PROJECT NAME: COMMUTER AIRLINES MODEL
SUBJECT AREA OF MODEL: FORECASTS COMMUTER AIRLINE TRAFFIC AND OPERATIONS
PROGRAM DIRECTOR: GENE MERCER

MODEL OR PROJECT NAME: CONSOLIDATED RAIL FREIGHT FORECASTING MODEL
SUBJECT AREA OF MODEL: REVENUE AND TRAFFIC FORECASTING
PROGRAM DIRECTOR: JANICE HARTWILL-MILLER

MODEL OR PROJECT NAME: CRASH VICTIM SIMULATOR (CVS)
SUBJECT AREA OF MODEL: BIODYNAMIC ANALYSIS
PROGRAM DIRECTOR: JEFFREY MARCUS

MODEL OR PROJECT NAME: CRUSH
SUBJECT AREA OF MODEL: VEHICLE SIMULATION
PROGRAM DIRECTOR: WILLIAM T. HOLLOWELL

MODEL OR PROJECT NAME: DATA RESOURCES, INC. (DRI) - MACROECONOMIC MODEL
SUBJECT AREA OF MODEL: MACROECONOMIC FORECASTING
PROGRAM DIRECTOR: YONG CHA

MODEL OR PROJECT NAME: DATA RESOURCES, INC. (DRI) - TRANSPORTATION MODEL
SUBJECT AREA OF MODEL: TRANSPORTATION FORECASTING
PROGRAM DIRECTOR: YONG CHA

MODEL OR PROJECT NAME: DRIVER VEHICLE EFFECTIVENESS MODEL
SUBJECT AREA OF MODEL: EVALUATION OF VEHICLE SAFETY MEASURES
PROGRAM DIRECTOR: MICHAEL PEREL

MODEL OR PROJECT NAME: ECONOMETRIC MODEL OF U.S. OCEANBORNE FOREIGN TRADE
SUBJECT AREA OF MODEL: TRADE FORECASTING
PROGRAM DIRECTOR: RUSSELL I. BYINGTON

DEPARTMENT OF TRANSPORTATION

MODEL OR PROJECT NAME: EDGE LOAD ANALYSIS, INTERIOR LOAD ANALYSIS, AND CBR DESIGN
SUBJECT AREA OF MODEL: AIRPORT PAVEMENT ENGINEERING
PROGRAM DIRECTOR: JOHN L. RICE

MODEL OR PROJECT NAME: EVANS ECONOMETRIC
SUBJECT AREA OF MODEL: HIGHWAY FINANCIAL AND FISCAL POLICY
PROGRAM DIRECTOR: JAMES F. MCCARTHY

MODEL OR PROJECT NAME: FAA GENERAL AVIATION FORECASTING MODEL
SUBJECT AREA OF MODEL: FORECASTING OPERATIONS AT FAA FACILITIES
PROGRAM DIRECTOR: ARNOLD SCHWARTZ

MODEL OR PROJECT NAME: FCAF
SUBJECT AREA OF MODEL: CORPORATE AVERAGE FUEL ECONOMY FORECASTING
PROGRAM DIRECTOR: DR. RICHARD STROMBOTHE

MODEL OR PROJECT NAME: FINANCIAL ANALYSIS MODEL (FAM)
SUBJECT AREA OF MODEL: RAILROAD ACCOUNTING FORM FORECASTS
PROGRAM DIRECTOR: MICHAEL WOLFE

MODEL OR PROJECT NAME: FLEET FUEL CONSUMPTION MODEL
SUBJECT AREA OF MODEL: FUEL CONSUMPTION PROJECTIONS
PROGRAM DIRECTOR: SAMUEL F. POWEL, III

MODEL OR PROJECT NAME: FRA NETWORK MODEL
SUBJECT AREA OF MODEL: RAILROAD NETWORK SIMULATION
PROGRAM DIRECTOR: RAPHAEL KEDAR

MODEL OR PROJECT NAME: FRA RAIL FREIGHT COMMODITY FLOW FORECASTS
SUBJECT AREA OF MODEL: RAIL TRAFFIC FORECASTING
PROGRAM DIRECTOR: RICHARD HORN

MODEL OR PROJECT NAME: FUEL CONSUMPTION MODEL
SUBJECT AREA OF MODEL: MOTOR VEHICLE FUEL CONSUMPTION
PROGRAM DIRECTOR: KLAUS SCHAEFFER

DEPARTMENT OF TRANSPORTATION

MODEL OR PROJECT NAME: GLOBAL FORECAST MODEL
SUBJECT AREA OF MODEL: PREDICT POLLUTION AT CRUISE ALTITUDE OF AIRCRAFT
PROGRAM DIRECTOR: N. KRULL

MODEL OR PROJECT NAME: HAZARDOUS MATERIAL RISK PROFILE MODEL
SUBJECT AREA OF MODEL: RAIL TRANSPORTATION
PROGRAM DIRECTOR: EDWIN J. ROBERTS

MODEL OR PROJECT NAME: HEVSIM (HEAVY VEHICLE SIMULATION)
SUBJECT AREA OF MODEL: HEAVY TRUCK AND BUS FUEL ECONOMY PREDICTION
PROGRAM DIRECTOR: BOB MASON

MODEL OR PROJECT NAME: HIGHWAY USER COST/TAX MODEL
SUBJECT AREA OF MODEL: FEDERAL-AID HIGHWAY USER TAX ANALYSIS
PROGRAM DIRECTOR: RICHARD HORN

MODEL OR PROJECT NAME: HIGHWAY VEHICLE OBJECT SIMULATION MODEL (HVOSM)
SUBJECT AREA OF MODEL: VEHICLE SIMULATION
PROGRAM DIRECTOR: WILLIAM T. HOLLOWELL

MODEL OR PROJECT NAME: IFR AIRCRAFT HANDLED FORECASTING MODEL
SUBJECT AREA OF MODEL: FORECASTING OPERATIONS AT FAA AIR ROUTE TRAFFIC CONTROL CENTERS
PROGRAM DIRECTOR: ARNOLD SCHWARTS

MODEL OR PROJECT NAME: INTEGRATED NOISE MODEL (INM)
SUBJECT AREA OF MODEL: AIRPORT NOISE PREDICTION
PROGRAM DIRECTOR: THOMAS L. CONNOR

MODEL OR PROJECT NAME: LONG-RANGE FLEET FORECASTING MODEL
SUBJECT AREA OF MODEL: MERCHANT FLEET FORECASTING MODEL
PROGRAM DIRECTOR: TERENCE J. MCCORMICK

MODEL OR PROJECT NAME: MARITIME CONTRACT IMPACT SYSTEM (MCIS)
SUBJECT AREA OF MODEL: SEAFARING LABOR AGREEMENTS
PROGRAM DIRECTOR: E. M. LOVE

DEPARTMENT OF TRANSPORTATION

MODEL OR PROJECT NAME: MARITIME MARKET STRATEGY MODEL
SUBJECT AREA OF MODEL: FORECASTS U.S. FLAG CARRIER CARGO SHARE
PROGRAM DIRECTOR: ROBERT G. CHRISTENSEN

MODEL OR PROJECT NAME: MATHEMATICAL MODELS FOR SIMULATION OF VEHICLE HANDLING
SUBJECT AREA OF MODEL: VEHICLE HANDLING
PROGRAM DIRECTOR: DR. HOWELL K. BREWER

MODEL OR PROJECT NAME: OPERATING-DIFFERENTIAL SUBSIDIES BUDGET MODEL
SUBJECT AREA OF MODEL: SUBSIDY FORECASTING
PROGRAM DIRECTOR: MASON NOTTINGHAM

MODEL OR PROJECT NAME: PARAMETRIC ANALYSIS OF HEAVY VEHICLE DYNAMIC STABILITY
SUBJECT AREA OF MODEL: ENGINEERING ANALYSIS OF HEAVY VEHICLE DYNAMIC STABILITY AND HANDLING PROPERTIES
PROGRAM DIRECTOR: ROBERT M. CLARKE

MODEL OR PROJECT NAME: SAFETY SYSTEM OPTIMIZATION MODEL (SSOM)
SUBJECT AREA OF MODEL: VEHICLE CRASHWORTHINESS EVALUATION
PROGRAM DIRECTOR: WILLIAM T. HOLLOWELL

MODEL OR PROJECT NAME: SEARCH AND RESCUE SIMULATION MODEL (SARSIM)
SUBJECT AREA OF MODEL: RESOURCE ALLOCATION
PROGRAM DIRECTOR: COMMANDER S. BRUNDAGE

MODEL OR PROJECT NAME: SHIPBUILDING EVALUATION AND ANALYSIS SYSTEM (SEAS)
SUBJECT AREA OF MODEL: SHIPBUILDING INDUSTRY STATUS AND FORECASTING
PROGRAM DIRECTOR: JOHN M. HOTALING

MODEL OR PROJECT NAME: SUBSIDY RATE CALCULATION
SUBJECT AREA OF MODEL: SUBSIDY CALCULATION
PROGRAM DIRECTOR: FREDERICK R. LARSON

MODEL OR PROJECT NAME: TERMENAL AREA FORECASTS (TAF)
SUBJECT AREA OF MODEL: AVIATION ACTIVITY FORECASTING
PROGRAM DIRECTOR: THOMAS F. HENRY

DEPARTMENT OF TRANSPORTATION

MODEL OR PROJECT NAME: THE REGIONAL ECONOMIC INPUT OUTPUT U.S. PORT POLICY MODEL
 SUBJECT AREA OF MODEL: ENABLES ECONOMIC IMPACTS AND STRATEGIES TO BE EVALUATED
 PROGRAM DIRECTOR: RICHARD L. KORINK

MODEL OR PROJECT NAME: THE STRATEGIC PLANNING MODEL/OCEAN SHIPPING SYSTEM DYNAMICS MODEL
 SUBJECT AREA OF MODEL: SHIPPING POLICY
 PROGRAM DIRECTOR: PAUL MENTZ

MODEL OR PROJECT NAME: TRAIN OPERATIONS SIMULATOR
 SUBJECT AREA OF MODEL: TRAIN HANDLING AND FORCES
 PROGRAM DIRECTOR: ROBERT FINKELSTEIN

MODEL OR PROJECT NAME: TRUST FUND BUDGET FORMULATION AND ALLOCATION
 SUBJECT AREA OF MODEL: FORECASTING OF AVIATION TRUST FUND UNCOMMITTED BALANCES
 PROGRAM DIRECTOR: JOHN RODGERS

MODEL OR PROJECT NAME: UPPER MISSISSIPPI BASIN WATERWAY CAPACITY ANALYSIS
 SUBJECT AREA OF MODEL: FREIGHT MODE SHARE, TRAFFIC ASSIGNMENT
 PROGRAM DIRECTOR: RICHARD HORN

MODEL OR PROJECT NAME: WRECKER
 SUBJECT AREA OF MODEL: STRUCTURAL ANALYSIS
 PROGRAM DIRECTOR: WILLIAM T. HOLLOWELL

DEPARTMENT OF TREASURY

MODEL OR PROJECT NAME: ADB MODEL
 SUBJECT AREA OF MODEL: MEDIUM TERM ASSESSMENT OF BANK'S POLICIES AND FINANCIAL CONDITION (AFRICA)
 PROGRAM DIRECTOR: ANGELO MASCARO

MODEL OR PROJECT NAME: AUDIT CLASS FORECASTING WITH SOI TAX MODEL
 SUBJECT AREA OF MODEL: RETURNS AUDIT CLASS FORECASTING
 PROGRAM DIRECTOR: KENNETH L. UTTER

DEPARTMENT OF TREASURY

MODEL OR PROJECT NAME: BALANCE OF PAYMENTS FORECASTING
SUBJECT AREA OF MODEL: SHORT-TERM FORECASTING OF U.S. FOREIGN TRADE
PROGRAM DIRECTOR: DONALD W. CURTIS

MODEL OR PROJECT NAME: CORPORATE MODEL
SUBJECT AREA OF MODEL: REVENUE ESTIMATING, CORPORATE INCOME - TAX POLICY
PROGRAM DIRECTOR: THOMAS H. ROSEN

MODEL OR PROJECT NAME: CORPORATE TAX RETURN PANEL DATABASE
SUBJECT AREA OF MODEL: TAX POLICY - MODELING BEHAVIOURAL RESPONSES TO CHANGES IN CORPORATE TAX LAW
PROGRAM DIRECTOR: RALPH BRISTOL

MODEL OR PROJECT NAME: DATA RESOURCES MACROECONOMIC MODEL (DRI)
SUBJECT AREA OF MODEL: ECONOMIC POLICY
PROGRAM DIRECTOR: JAMES RUSSEL

MODEL OR PROJECT NAME: DATA RESOURCES, INC. - U.S. MACRO MODEL
SUBJECT AREA OF MODEL: MONETARY AND FISCAL POLICY, INTERNATIONAL SECTOR AND ENERGY SECTOR
PROGRAM DIRECTOR:

MODEL OR PROJECT NAME: GENERAL EQUILIBRIUM MODEL AND TAX ANALYSIS PACKAGE
SUBJECT AREA OF MODEL: TAX POLICY EVALUATION
PROGRAM DIRECTOR: HUDSON MILNER

MODEL OR PROJECT NAME: INDIVIDUAL INCOME TAX SIMULATION MODEL
SUBJECT AREA OF MODEL: INDIVIDUAL INCOME TAX POLICY
PROGRAM DIRECTOR: ROY A. WYSCARVER

MODEL OR PROJECT NAME: MAGPIE
SUBJECT AREA OF MODEL: GENERAL EQUILIBRIUM MODEL OF THE U.S. ECONOMY
PROGRAM DIRECTOR: GARY ROBBINS

MODEL OR PROJECT NAME: MERGE MODEL
SUBJECT AREA OF MODEL: MICRO-ECONOMIC SIMULATION
PROGRAM DIRECTOR: GORDON WILSON

DEPARTMENT OF TREASURY

MODEL OR PROJECT NAME: MINT LINEAR PROGRAMMING MODEL
SUBJECT AREA OF MODEL: COIN PRODUCTION OPTIMIZATION
PROGRAM DIRECTOR: DANIEL OPITZ

MODEL OR PROJECT NAME: PROJECTED DAILY OPERATING CASH BALANCE WITH NEW MONEY BORROWING
SUBJECT AREA OF MODEL: TREASURY FINANCING
PROGRAM DIRECTOR: BLAKE W. SITES

MODEL OR PROJECT NAME: RETURNS PROJECTIONS
SUBJECT AREA OF MODEL: PROJECTING NUMBER OF RETURNS TO BE FILED
PROGRAM DIRECTOR: KENNETH L. UTTER

MODEL OR PROJECT NAME: U.S. FEED GRAINS
SUBJECT AREA OF MODEL: FEED GRAIN SUPPLY/DEMAND
PROGRAM DIRECTOR: ROBERT G. HOFFMAN

MODEL OR PROJECT NAME: U.S. FERTILIZER
SUBJECT AREA OF MODEL: DEMAND LEVEL FORECASTING
PROGRAM DIRECTOR: ROBERT G. HOFFMAN

MODEL OR PROJECT NAME: U.S. WHEAT
SUBJECT AREA OF MODEL: WHEAT PRODUCTION/DEMAND/PRICE
PROGRAM DIRECTOR: ROBERT G. HOFFMAN

MODEL OR PROJECT NAME: WORLD BANK MODEL
SUBJECT AREA OF MODEL: MEDIUM TERM ASSESSMENT OF BANK POLICIES AND FINANCIAL CONDITION
PROGRAM DIRECTOR: ANGELO MASCARO

MODEL OR PROJECT NAME: WORLD GRAIN PRODUCTION/TRADE MODEL
SUBJECT AREA OF MODEL: WORLD GRAIN PRODUCTION/TRADE/FEED DEMAND FORECASTING
PROGRAM DIRECTOR: ROBERT G. HOFFMAN

MODEL OR PROJECT NAME: WORLD/US RICE MODEL
SUBJECT AREA OF MODEL: PRODUCTION, TRADE, PRICE FORECASTING
PROGRAM DIRECTOR: ROBERT G. HOFFMAN

CIVIL AERONAUTICS BOARD

MODEL OR PROJECT NAME: COSTING METHODOLOGY (VERSION 6)
SUBJECT AREA OF MODEL: AIRLINE FARE AND ROUTE FORECASTING
PROGRAM DIRECTOR: FRANK M. LEWIS

CONSUMER PRODUCT SAFETY COMMISSION

MODEL OR PROJECT NAME: CHRONIC HAZARDS
SUBJECT AREA OF MODEL: CARCINOGENIC RISK ASSESSMENT
PROGRAM DIRECTOR: PETER PREUSS

MODEL OR PROJECT NAME: INJURY COST MODEL
SUBJECT AREA OF MODEL: ESTIMATION OF THE ECONOMIC LOSSES DUE TO INJURIES
PROGRAM DIRECTOR: WILLIAM W. ZAMULA

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MODEL OR PROJECT NAME: SEVERITY MEASURES
SUBJECT AREA OF MODEL: INJURY SEVERITY ESTIMATION
PROGRAM DIRECTOR: TOM HOPPER

ENVIRONMENTAL PROTECTION AGENCY

MODEL OR PROJECT NAME: "AUTO AND LIGHT TRUCK FINANCIAL MODEL"
SUBJECT AREA OF MODEL: FINANCIAL ACCOUNTING AND FORECASTING
PROGRAM DIRECTOR: GARY I. FIELDS

MODEL OR PROJECT NAME: A.D.I. CALCULATION
SUBJECT AREA OF MODEL: DIETARY PESTICIDE RISK
PROGRAM DIRECTOR: WILLIAM R. SCHNEIDER, PH.D

MODEL OR PROJECT NAME: AGSIM
SUBJECT AREA OF MODEL: SIMULATION MODEL OF THE MAJOR U.S. FIELD CROPS
PROGRAM DIRECTOR: EDWARD WEILER

ENVIRONMENTAL PROTECTION AGENCY

MODEL OR PROJECT NAME: AIR POLLUTION CONTROL STRATEGY RESOURCE ESTIMATOR (APCSRE)
SUBJECT AREA OF MODEL: RESOURCES - ESTIMATING STATE AND LOCAL AIR POLLUTION CONTROL COSTS
PROGRAM DIRECTOR: THOMAS DONALDSON

MODEL OR PROJECT NAME: AIRDOS/DARTAB
SUBJECT AREA OF MODEL: RADIOLOGICAL ASSESSMENT
PROGRAM DIRECTOR: CHRISTOPHER NELSON

MODEL OR PROJECT NAME: ATM-SECPOP
SUBJECT AREA OF MODEL: ATMOSPHERIC EXPOSURE ASSESSMENT
PROGRAM DIRECTOR: WILLIAM P. WOOD

MODEL OR PROJECT NAME: ATMOSPHERIC TRANSPORT MODEL (ATM)
SUBJECT AREA OF MODEL: ATMOSPHERIC TOXICANT CONCENTRATION ESTIMATION FOR CHEMICAL EXPOSURE ASSESSMENTS
PROGRAM DIRECTOR: J. G. LEFLER

MODEL OR PROJECT NAME: CO COSTS
SUBJECT AREA OF MODEL: ECONOMIC IMPACTS ANALYSIS
PROGRAM DIRECTOR: THOMAS MCCURDY

MODEL OR PROJECT NAME: COHORT ANALYSIS OF INCREASED RISKS OF DEATH (CAIRD)
SUBJECT AREA OF MODEL: LIFETABLE ANALYSIS
PROGRAM DIRECTOR: W. H. ELLETT

MODEL OR PROJECT NAME: COKE MODEL
SUBJECT AREA OF MODEL: FORECASTING PRICE AND QUALITY ADJUSTMENTS, INCLUDING PLANT CLOSURES
PROGRAM DIRECTOR: FRANK BUNYARD

MODEL OR PROJECT NAME: CONSTRUCTION GRANTS RESOURCE MODEL
SUBJECT AREA OF MODEL: PROGRAM DEVELOPMENT; BUDGET DEVELOPMENT; AND RESOURCE ALLOCATION
PROGRAM DIRECTOR: MICHAEL J. QUIGLEY

MODEL OR PROJECT NAME: COST MODEL FOR HAZARDOUS WASTE LAND DISPOSAL FACILITIES
SUBJECT AREA OF MODEL: COST OF DISPOSING HAZARDOUS WASTE IN LANDFILLS
PROGRAM DIRECTOR: MARGARET PODOLAK

ENVIRONMENTAL PROTECTION AGENCY

MODEL OR PROJECT NAME: DCF MODEL
SUBJECT AREA OF MODEL: DISCOUNTED CASH FLOW FOR ECONOMIC DECISION MAKING
PROGRAM DIRECTOR: FRANK BUNYARD

MODEL OR PROJECT NAME: DRAIN MOT, WATER MOVEMENT THROUGH HAZARDOUS WASTE LANDFILLS
SUBJECT AREA OF MODEL: WATER BALANCE
PROGRAM DIRECTOR: PROF. WAYNE SKAGGS

MODEL OR PROJECT NAME: DRI AGRICULTURAL MODEL
SUBJECT AREA OF MODEL: CROP FORECASTING, LIVESTOCK FORECASTING AND POLICY MODEL
PROGRAM DIRECTOR: EDWARD WEILER

MODEL OR PROJECT NAME: ECONOMIC IMPACT ANALYSIS OF EFFLUENT GUIDELINES FOR THE ORGANIC CHEMICAL INDUSTRY
SUBJECT AREA OF MODEL: REGULATORY ANALYSIS
PROGRAM DIRECTOR: HAROLD D. LESTER

MODEL OR PROJECT NAME: ECONOMIC IMPACT ANALYSIS OF EFFLUENT GUIDELINES FOR THE PULP AND PAPER INDUSTRY
SUBJECT AREA OF MODEL: REGULATORY IMPACT ANALYSIS
PROGRAM DIRECTOR: HAROLD D. LESTER

MODEL OR PROJECT NAME: ENPART
SUBJECT AREA OF MODEL: ENVIRONMENTAL PARTITIONING OF CHEMICALS FOR ENVIRONMENTAL FATE ASSESSMENT
PROGRAM DIRECTOR: WILLIAM P. WOOD

MODEL OR PROJECT NAME: EXAM (EXPOSURE ANALYSIS MODELING SYSTEM)
SUBJECT AREA OF MODEL: CHEMICAL FATE
PROGRAM DIRECTOR: LARRY BURNS

MODEL OR PROJECT NAME: GLOBAL 79
SUBJECT AREA OF MODEL: LOW-DOSE EXTRAPOLATION
PROGRAM DIRECTOR: ELIZABETH H. MARGOSCHES

MODEL OR PROJECT NAME: HUMAN EXPOSURE MODEL
SUBJECT AREA OF MODEL: ESTIMATION OF POPULATION EXPOSED TO AIR POLLUTANTS
PROGRAM DIRECTOR: DAVID PATRICK

ENVIRONMENTAL PROTECTION AGENCY

MODEL OR PROJECT NAME: ICF, INC. - COAL AND ELECTRIC UTILITIES MODEL (CEUM)
SUBJECT AREA OF MODEL: COAL AND ELECTRIC UTILITY ISSUES
PROGRAM DIRECTOR: HOFF STAUFFER, ICF, INC.

MODEL OR PROJECT NAME: INDUSTRIAL FUEL CHOICE ANALYSIS MODEL (IFCAM)
SUBJECT AREA OF MODEL: ENERGY DEMAND MODEL
PROGRAM DIRECTOR: DR. AL WEHE

MODEL OR PROJECT NAME: MANTEL-BRYAN/ONE-HIT
SUBJECT AREA OF MODEL: LOW-DOSE EXTRAPOLATION
PROGRAM DIRECTOR: ELIZABETH H. MARGOSCHES

MODEL OR PROJECT NAME: MRS. T (STATISTICAL METHODOLOGY FOR TOXICOLOGICAL RESEARCH)
SUBJECT AREA OF MODEL: LOW-DOSE EXTRAPOLATION
PROGRAM DIRECTOR: ELIZABETH H. MARGOSCHES

MODEL OR PROJECT NAME: MULTI 80
SUBJECT AREA OF MODEL: LOW-DOSE EXTRAPOLATION
PROGRAM DIRECTOR: ELIZABETH H. MARGOSCHES

MODEL OR PROJECT NAME: NEM (NAAQS EXPOSURE MODEL)
SUBJECT AREA OF MODEL: EXPOSURE FORECASTING
PROGRAM DIRECTOR: THOMAS MCCURDY

MODEL OR PROJECT NAME: NO2 COSTS
SUBJECT AREA OF MODEL: COST AND ECONOMIC IMPACTS ANALYSIS
PROGRAM DIRECTOR: THOMAS MCCURDY

MODEL OR PROJECT NAME: PARTICULATE MATTER REGULATORY IMPACT ANALYSIS
SUBJECT AREA OF MODEL: NAAQS IMPACT ANALYSIS
PROGRAM DIRECTOR: HENRY THOMAS

MODEL OR PROJECT NAME: PESTAN (PESTICIDE ANALYTICAL MODEL)
SUBJECT AREA OF MODEL: CHEMICAL FATE
PROGRAM DIRECTOR: CAROL ENFIELD

ENVIRONMENTAL PROTECTION AGENCY

MODEL OR PROJECT NAME: POLICY TESTING MODEL
SUBJECT AREA OF MODEL: ECONOMIC IMPACT ANALYSIS
PROGRAM DIRECTOR: DAVID SCHNARE

MODEL OR PROJECT NAME: POST-CLOSURE LIABILITY TRUST FUND COMPUTER MODEL
SUBJECT AREA OF MODEL: FUND ADEQUACY PREDICTIONS
PROGRAM DIRECTOR: PETER GUERRERO

MODEL OR PROJECT NAME: RADRISK
SUBJECT AREA OF MODEL: RADIATION DOSIMETRY
PROGRAM DIRECTOR: R. E. SULLIVAN

MODEL OR PROJECT NAME: RANK 81
SUBJECT AREA OF MODEL: LOW-DOSE EXTRAPOLATION
PROGRAM DIRECTOR: ELIZABETH H. MARGOSCHES

MODEL OR PROJECT NAME: REPRISK
SUBJECT AREA OF MODEL: RISK ASSESSMENT
PROGRAM DIRECTOR: DANIEL EGAN

MODEL OR PROJECT NAME: RESIDUALS ACCOUNTING MODEL
SUBJECT AREA OF MODEL: ENVIRONMENTAL RESIDUALS FORECASTING
PROGRAM DIRECTOR: JOHN COLEMAN

MODEL OR PROJECT NAME: RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) STRATEGY PROJECT
SUBJECT AREA OF MODEL: HAZARDOUS WASTE MANAGEMENT
PROGRAM DIRECTOR: CURTIS HAYMORE

MODEL OR PROJECT NAME: RESOURCE CONSERVATION AND RECOVERY ACT INTERIM STATUS STANDARDS COSTS AND IMPACTS
SUBJECT AREA OF MODEL: ECONOMIC COST AND IMPACT FORECASTS
PROGRAM DIRECTOR: LAWRENCE G. BUC

MODEL OR PROJECT NAME: RISK 81
SUBJECT AREA OF MODEL: LOW-DOSE EXTRAPOLATION
PROGRAM DIRECTOR: ELIZABETH H. MARGOSCHES

ENVIRONMENTAL PROTECTION AGENCY

MODEL OR PROJECT NAME: SEASONAL SOIL COMPARTMENT MODEL (SESOIL)
SUBJECT AREA OF MODEL: CHEMICAL TRANSPORT AND FATE IN SOILS
PROGRAM DIRECTOR: MICHAEL A. CALLAHAN

MODEL OR PROJECT NAME: SUPERFUND OUTLAY AND REVENUE
SUBJECT AREA OF MODEL: MONETARY POLICY
PROGRAM DIRECTOR: DAVID RYAN

MODEL OR PROJECT NAME: SWRRB (SIMULATOR FOR WATER RESOURCES IN RURAL BASINS)
SUBJECT AREA OF MODEL: CHEMICAL FATE
PROGRAM DIRECTOR: ROBERT CARSEL

MODEL OR PROJECT NAME: TOXSCREEN
SUBJECT AREA OF MODEL: ENVIRONMENTAL TRANSPORT AND FATE
PROGRAM DIRECTOR: WILLIAM P. WOOD

MODEL OR PROJECT NAME: UNAMAP
SUBJECT AREA OF MODEL: AIR QUALITY SIMULATION
PROGRAM DIRECTOR: D. BRUCE TURNER

MODEL OR PROJECT NAME: WISCONSIN HYDROLOGIC TRANSPORT MODEL (WHTM)
SUBJECT AREA OF MODEL: TOXICANT CONCENTRATION ESTIMATION FOR CHEMICAL EXPOSURE ASSESSMENTS
PROGRAM DIRECTOR: J. G. LEFLER

EXPORT-IMPORT BANK OF THE UNITED STATES

MODEL OR PROJECT NAME: FINANCIAL PROJECTIONS COMPUTER SYSTEM
SUBJECT AREA OF MODEL: FINANCIAL PROJECTIONS
PROGRAM DIRECTOR: RICHARD ZURN

FEDERAL COMMUNICATIONS COMMISSION

MODEL OR PROJECT NAME: AM ANALYSIS MODEL
SUBJECT AREA OF MODEL: RADIO SPECTRUM ANALYSIS
PROGRAM DIRECTOR: PHILLIP TREMPER

FEDERAL COMMUNICATIONS COMMISSION

MODEL OR PROJECT NAME: ECONOMIC IMPLICATIONS OF DIFFERENT BROADCAST ALLOCATION SCHEMES
 SUBJECT AREA OF MODEL: DETERMINANTS OF RADIO STATION REVENUES
 PROGRAM DIRECTOR: JAMES A. BROWN, JR.

MODEL OR PROJECT NAME: FM 8090
 SUBJECT AREA OF MODEL: POTENTIAL FM STATIONS THROUGHOUT THE U.S.
 PROGRAM DIRECTOR: KATHRYN S. HOSFORD

MODEL OR PROJECT NAME: INFLUENCE ON UHF VIEWING BY TV CHANNEL SELECTOR TYPE
 SUBJECT AREA OF MODEL: COMMUNICATIONS POLICY
 PROGRAM DIRECTOR: JONATHAN LEVY

MODEL OR PROJECT NAME: MICROWAVE ENGINEERING ANALYSIS SYSTEM (MEANS)
 SUBJECT AREA OF MODEL: DEVELOPMENT OF A DATA BASE AND ASSOCIATED ANALYTIC MODELS
 PROGRAM DIRECTOR: ALVIN REINER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MODEL OR PROJECT NAME: ATTACK GENERATOR MODEL
 SUBJECT AREA OF MODEL: NUCLEAR ATTACK PATTERN FORMULATION
 PROGRAM DIRECTOR: R. B. ROWLAND

MODEL OR PROJECT NAME: CONTINGENCY IMPACT ANALYSIS SYSTEM (CIAS)
 SUBJECT AREA OF MODEL: ECONOMIC DISRUPTION
 PROGRAM DIRECTOR: PAUL KRUEGER

MODEL OR PROJECT NAME: DYNAMIC GENERAL EQUALIBRIUM MODEL (DGEM)
 SUBJECT AREA OF MODEL: ECONOMIC DISRUPTION MODEL
 PROGRAM DIRECTOR: ROBERT WILSON

MODEL OR PROJECT NAME: EARTHQUAKES ECONOMICS IMPACTS ESTIMATION MODEL
 SUBJECT AREA OF MODEL: ECONOMIC FORECASTING
 PROGRAM DIRECTOR: R. B. ROWLAND

FEDERAL EMERGENCY MANAGEMENT AGENCY

MODEL OR PROJECT NAME: INTERINDUSTRY NATIONAL FEASIBLE ECONOMIC RECOVERY SYSTEM (INFERS)
SUBJECT AREA OF MODEL: ECONOMIC RECOVERY
PROGRAM DIRECTOR: ROBERT WILSON

MODEL OR PROJECT NAME: LONG-TERM INTERINDUSTRY TRANSACTIONS MODEL
SUBJECT AREA OF MODEL: INDUSTRIAL
PROGRAM DIRECTOR: ROBERT WILSON

MODEL OR PROJECT NAME: LONG-TERM MACROECONOMIC GROWTH MODEL WITH GNP BRIDGE
SUBJECT AREA OF MODEL: FORECASTING
PROGRAM DIRECTOR: ROBERT WILSON

MODEL OR PROJECT NAME: MACROECONOMIC MODEL
SUBJECT AREA OF MODEL: FORECASTING
PROGRAM DIRECTOR: ROBERT WILSON

MODEL OR PROJECT NAME: MULTI-REGIONAL INPUT-OUTPUT SYSTEM (MRIO)
SUBJECT AREA OF MODEL: EMERGENCY DISRUPTION
PROGRAM DIRECTOR: ROBERT WILSON

MODEL OR PROJECT NAME: POPULATION EVACUATION MODEL
SUBJECT AREA OF MODEL: POPULATION DISTRIBUTION FORECASTING
PROGRAM DIRECTOR: R. B. ROWLAND

MODEL OR PROJECT NAME: PUGH-ROBERTS SYSTEM DYNAMIC ECONOMIC MODEL (SDEM)
SUBJECT AREA OF MODEL: NATIONAL PREPAREDNESS PROGRAM
PROGRAM DIRECTOR: ROBERT WILSON

MODEL OR PROJECT NAME: REACT
SUBJECT AREA OF MODEL: DAMAGE ANALYSIS
PROGRAM DIRECTOR: R. B. ROWLAND

MODEL OR PROJECT NAME: READY I MODEL
SUBJECT AREA OF MODEL: DAMAGE ANALYSIS
PROGRAM DIRECTOR: R. B. ROWLAND

FEDERAL EMERGENCY MANAGEMENT AGENCY

MODEL OR PROJECT NAME: READY II MODEL
SUBJECT AREA OF MODEL: DAMAGE ANALYSIS
PROGRAM DIRECTOR: R. B. ROWLAND

MODEL OR PROJECT NAME: TEMPORARY CRISIS II LINEAR PROGRAMMING INPUT-OUTPUT MODEL
SUBJECT AREA OF MODEL: ECONOMIC DISRUPTIONS
PROGRAM DIRECTOR: PAUL KRUEGER

MODEL OR PROJECT NAME: TEST AND EVALUATION OF NATIONAL OPERATING SYSTEMS
SUBJECT AREA OF MODEL: DAMAGE ESTIMATION
PROGRAM DIRECTOR: R. B. ROWLAND

MODEL OR PROJECT NAME: 1967 FEMA INPUT-OUTPUT DEMAND IMPACT TRANSFORMATION TABLES (DITT) SYSTEM
SUBJECT AREA OF MODEL: ECONOMIC MODEL
PROGRAM DIRECTOR: ROBERT WILSON

MODEL OR PROJECT NAME: 1977 INTERREGIONAL INPUT-OUTPUT MODEL
SUBJECT AREA OF MODEL: ECONOMIC ANALYSIS
PROGRAM DIRECTOR: ROBERT WILSON

FEDERAL RESERVE SYSTEM

MODEL OR PROJECT NAME: MONTHLY MONEY MARKET MODEL
SUBJECT AREA OF MODEL: MONETARY POLICY
PROGRAM DIRECTOR: HELEN T. FARR

MODEL OR PROJECT NAME: MULTI-COUNTRY MODEL
SUBJECT AREA OF MODEL: POLICY SIMULATIONS AND FORECASTS ACROSS COUNTRIES
PROGRAM DIRECTOR: PETER HOOPER

MODEL OR PROJECT NAME: QUARTERLY ECONOMETRIC MODEL
SUBJECT AREA OF MODEL: MACROECONOMIC MODEL
PROGRAM DIRECTOR: FLINT BRAYTON

GENERAL SERVICES ADMINISTRATION

MODEL OR PROJECT NAME: ADMINISTRATOR'S MANAGEMENT INFORMATION SYSTEM
SUBJECT AREA OF MODEL: MANAGEMENT INFORMATION AND FORECASTING
PROGRAM DIRECTOR: RON BONIG

MODEL OR PROJECT NAME: FSS DEPOT STUDY
SUBJECT AREA OF MODEL: TRANSPORTATION
PROGRAM DIRECTOR: JOHN BEZNER

MODEL OR PROJECT NAME: LEASE VS. BUY DECISION MODEL
SUBJECT AREA OF MODEL: COST ANALYSIS
PROGRAM DIRECTOR: ELIZABETH M. LYNCH

MODEL OR PROJECT NAME: METHOD-OF-SUPPLY ECONOMIC DECISION MODEL
SUBJECT AREA OF MODEL: SUPPLY POLICY
PROGRAM DIRECTOR: DONALD L. VENNEBERG

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MODEL OR PROJECT NAME: GROUND PROCESSING SIMULATOR
SUBJECT AREA OF MODEL: FLIGHT SCHEDULE CAPABILITY AND RESOURCE REQUIREMENTS MODEL
PROGRAM DIRECTOR: WAYNE STALLARD

MODEL OR PROJECT NAME: PRMS - PROGRAM RESOURCES MANAGEMENT SYSTEM
SUBJECT AREA OF MODEL: FORECASTING, BUDGETING, TRACKING
PROGRAM DIRECTOR: WARREN R. WHITLEY

MODEL OR PROJECT NAME: SHUTTLE COST PRICE (SCP)
SUBJECT AREA OF MODEL: PRICING POLICY EVALUATION
PROGRAM DIRECTOR: BARBARA STONE

NATIONAL CAPITAL PLANNING COMMISSION

MODEL OR PROJECT NAME: FEDERAL EMPLOYEE TRAVEL MODEL
SUBJECT AREA OF MODEL: HOME-TO-WORK TRIPS IN NATIONAL CAPITAL REGION
PROGRAM DIRECTOR: ROBERT W. HARRIS

NATIONAL CAPITAL PLANNING COMMISSION

MODEL OR PROJECT NAME: FEDERAL EMPLOYMENT DISAGGREGATION MODEL
 SUBJECT AREA OF MODEL: FORECASTING FEDERAL EMPLOYMENT FOR THE NATIONAL CAPITAL REGION
 PROGRAM DIRECTOR: ROBERT N. GOLD

NATIONAL CREDIT UNION ADMINISTRATION

MODEL OR PROJECT NAME: CHASE ECONOMETRICS/INTERACTIVE DATA CORP.
 SUBJECT AREA OF MODEL: MACRO ECONOMIC AND REGIONAL MODEL
 PROGRAM DIRECTOR: JOHN WOLKEN

MODEL OR PROJECT NAME: CREDIT UNION SIMULATION MODEL
 SUBJECT AREA OF MODEL: SIMULATION OF BALANCE-SHEET AND INCOME/EXPENSE SHEET OF CREDIT UNION
 PROGRAM DIRECTOR: JOHN WOLKEN

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OFFICE OF PERSONNEL MANAGEMENT

MODEL OR PROJECT NAME: FEDERAL EMPLOYEE WORKFORCE PLANNING MODEL
 SUBJECT AREA OF MODEL: FEDERAL WORKFORCE DYNAMICS
 PROGRAM DIRECTOR: MICHAEL R. SANERA

MODEL OR PROJECT NAME: MERIT PAY MODEL
 SUBJECT AREA OF MODEL: COMPENSATION PROGRAMS
 PROGRAM DIRECTOR: RICHARD HUNTER

MODEL OR PROJECT NAME: VALUATION MODEL OF CIVIL SERVICE RETIREMENT SYSTEM
 SUBJECT AREA OF MODEL: COST OF CIVIL SERVICE RETIREMENT
 PROGRAM DIRECTOR: MICHAEL R. VIRGA

MODEL OR PROJECT NAME: 3 BUDGET PROJECTION MODELS
 SUBJECT AREA OF MODEL: RETIREMENT, LIFE, HEALTH
 PROGRAM DIRECTOR: JAMES E. NORRIS

PENSION BENEFIT GUARANTY CORPORATION

MODEL OR PROJECT NAME: MULTI-EMPLOYER PENSION PLAN SIMULATION MODEL (MULTI: MODEL)
 SUBJECT AREA OF MODEL: MULTI-EMPLOYER INSURANCE PROGRAM LIABILITY ESTIMATION
 PROGRAM DIRECTOR: VINCENT CICCONI

MODEL OR PROJECT NAME: PBGC FINANCIAL FORECASTING MODEL
 SUBJECT AREA OF MODEL: FINANCIAL FORECASTING
 PROGRAM DIRECTOR: RICHARD KATTULA

POSTAL RATE COMMISSION

MODEL OR PROJECT NAME: USPS COST FORECASTING MODEL
 SUBJECT AREA OF MODEL: COST FORECASTING
 PROGRAM DIRECTOR: CHARLES MCBRIDE

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SECURITIES AND EXCHANGE COMMISSION

MODEL OR PROJECT NAME: BID-ASK SPREAD MODEL
 SUBJECT AREA OF MODEL: IMPACT ANALYSIS
 PROGRAM DIRECTOR: PETER MARTIN

MODEL OR PROJECT NAME: BROKER-DEALER CAPITAL MODEL
 SUBJECT AREA OF MODEL: CAPITAL NEEDS
 PROGRAM DIRECTOR: VANCE ANTHONY

MODEL OR PROJECT NAME: SECURITIES PRICING MARKET MODEL
 SUBJECT AREA OF MODEL: IMPACT ANALYSIS AND EVENT STUDIES
 PROGRAM DIRECTOR: PETER MARTIN

TENNESSEE VALLEY AUTHORITY

MODEL OR PROJECT NAME: AIR RESOURCES REGIONAL POLLUTION ASSESSMENT (ARRPA) MODEL
 SUBJECT AREA OF MODEL: AIR QUALITY IMPACT ASSESSMENT
 PROGRAM DIRECTOR: TIMOTHY L. CRAWFORD

TENNESSEE VALLEY AUTHORITY

MODEL OR PROJECT NAME: ATMOSPHERIC FLUID BED COMBUSTION (AFBC) STEADY STATE & TRANSIENT MODELS
SUBJECT AREA OF MODEL: AFBC PROCESS DEVELOPMENT AND EVALUATION
PROGRAM DIRECTOR: ARNOLD M. MANAKER

MODEL OR PROJECT NAME: COAL COST AND SUPPLY MODEL (COAL ALLOCATOR)
SUBJECT AREA OF MODEL: COAL COST ESCALATION AND SUPPLY
PROGRAM DIRECTOR: D. W. SHEPPARD

MODEL OR PROJECT NAME: COMPLEX I
SUBJECT AREA OF MODEL: EVALUATION OF THE EFFECT OF EMISSIONS FROM STATIONARY SOURCES ON AIR QUALITY
PROGRAM DIRECTOR: JOHN P. BLACKWELL

MODEL OR PROJECT NAME: CRSTER
SUBJECT AREA OF MODEL: AIR POLLUTION IMPACT
PROGRAM DIRECTOR: JOHN P. BLACKWELL

MODEL OR PROJECT NAME: DAILY MAIN RIVER ROUTING MODEL
SUBJECT AREA OF MODEL: DAILY RESERVOIR SYSTEM SCHEDULING
PROGRAM DIRECTOR: JACK DAVIS

MODEL OR PROJECT NAME: DOE - 2.1A
SUBJECT AREA OF MODEL: BUILDING ENERGY ANALYSIS MODEL
PROGRAM DIRECTOR: BRUCE MACPHEE

MODEL OR PROJECT NAME: FINESSE (FINANCIAL EVALUATION SIMULATING SYSTEM ECONOMICS)
SUBJECT AREA OF MODEL: LONG-RANGE FINANCIAL PLANNING
PROGRAM DIRECTOR: ROGER A. BABB

MODEL OR PROJECT NAME: GEOHYDROLOGY MODELING
SUBJECT AREA OF MODEL: GROUND WATER QUALITY
PROGRAM DIRECTOR: W. R. WALDROP

MODEL OR PROJECT NAME: ISCLT
SUBJECT AREA OF MODEL: AIR QUALITY
PROGRAM DIRECTOR: JOHN P. BLACKWELL

TENNESSEE VALLEY AUTHORITY

MODEL OR PROJECT NAME: ISCST
SUBJECT AREA OF MODEL: EVALUATION OF THE EFFECT OF EMISSIONS FROM STATIONARY SOURCES ON AIR QUALITY
PROGRAM DIRECTOR: JOHN P. BLACKWELL

MODEL OR PROJECT NAME: LOAD FORECASTING SYSTEM
SUBJECT AREA OF MODEL: LOAD FORECASTING
PROGRAM DIRECTOR: WILLIAM F. IRISH

MODEL OR PROJECT NAME: LOSS OF LOAD PROBABILITY ANALYSIS
SUBJECT AREA OF MODEL: TVA SYSTEM RELIABILITY ANALYSIS
PROGRAM DIRECTOR: ROGER A. BABB

MODEL OR PROJECT NAME: MAIN RIVER DYNAMIC HOURLY ROUTING MODEL
SUBJECT AREA OF MODEL: DAILY FLOOD CONTROL OPERATIONS
PROGRAM DIRECTOR: JACK DAVIS

MODEL OR PROJECT NAME: MESOPUFF
SUBJECT AREA OF MODEL: EVALUATION OF THE IMPACT OF SO2 AND SO4 EMISSIONS ON AREAS FAR FROM THE SOURCE
PROGRAM DIRECTOR: JOHN P. BLACKWELL

MODEL OR PROJECT NAME: MINEVAL AND POLYGON
SUBJECT AREA OF MODEL: GEOLOGY AND MINING
PROGRAM DIRECTOR: RICH MORLEY

MODEL OR PROJECT NAME: MPTER
SUBJECT AREA OF MODEL: AIR POLLUTION IMPACT
PROGRAM DIRECTOR: JOHN P. BLACKWELL

MODEL OR PROJECT NAME: MULTIMAX
SUBJECT AREA OF MODEL: AIR QUALITY/DISPERSION MODEL
PROGRAM DIRECTOR: JOHN P. BLACKWELL

MODEL OR PROJECT NAME: MULTIPURPOSE WEEKLY PLANNING MODEL FOR THE TVA RESERVOIR SYSTEM
SUBJECT AREA OF MODEL: PLANNING AND OPERATIONAL APPLICATIONS
PROGRAM DIRECTOR: JACK DAVIS

TENNESSEE VALLEY AUTHORITY

MODEL OR PROJECT NAME: POWER CREDITS
SUBJECT AREA OF MODEL: ECONOMIC EVALUATION
PROGRAM DIRECTOR: BRUCE MACPHEE

MODEL OR PROJECT NAME: POWER SYSTEM SIMULATOR
SUBJECT AREA OF MODEL: ELECTRIC POWER TRANSMISSION SYSTEM EXPANSION PLANNING
PROGRAM DIRECTOR: ROBERT G. WALRAVEN

MODEL OR PROJECT NAME: POWRSYM (PRODUCTION COSTING SIMULATION MODEL)
SUBJECT AREA OF MODEL: POWER SYSTEM ANALYSIS
PROGRAM DIRECTOR: ROGER A. BABB

MODEL OR PROJECT NAME: REGIONAL ECONOMIC SIMULATION MODEL
SUBJECT AREA OF MODEL: REGIONAL ECONOMIC FORECASTING (EMPLOYMENT, POPULATION, ETC.)
PROGRAM DIRECTOR: ALLAN G. PULSIPHER

MODEL OR PROJECT NAME: REGIONAL ENERGY MODEL (REM)
SUBJECT AREA OF MODEL: TOTAL ENERGY FORECASTING BY SPECIFIC END USE
PROGRAM DIRECTOR: RAYMOND G. TESSMER, JR.

MODEL OR PROJECT NAME: STRATEGIC ANALYSIS MODEL (SAM)
SUBJECT AREA OF MODEL: CONSERVATION AND LOAD MANAGEMENT PROGRAM EVALUATION
PROGRAM DIRECTOR: RAYMOND G. TESSMER, JR.

MODEL OR PROJECT NAME: SURFACE WATER HYDRODYNAMIC AND WATER QUALITY MODELING
SUBJECT AREA OF MODEL: SURFACE WATER HYDRODYNAMIC AND WATER QUALITY MODELING
PROGRAM DIRECTOR: W. R. WALDROP

MODEL OR PROJECT NAME: TC
SUBJECT AREA OF MODEL: ATMOSPHERIC CHEMISTRY
PROGRAM DIRECTOR: JAMES F. MEAGHER

MODEL OR PROJECT NAME: TERMITES
SUBJECT AREA OF MODEL: ECONOMIC EVALUATION OF PROJECT PROPOSALS
PROGRAM DIRECTOR: BILLY J. EDWARDS

TENNESSEE VALLEY AUTHORITY

MODEL OR PROJECT NAME: TORCH
SUBJECT AREA OF MODEL: NUCLEAR CORE ANALYSIS
PROGRAM DIRECTOR: CHARLES ENDSLEY

MODEL OR PROJECT NAME: TRNSYS
SUBJECT AREA OF MODEL: THERMAL PERFORMANCE SIMULATION
PROGRAM DIRECTOR: GREG AKEN

MODEL OR PROJECT NAME: WEEKLY SCHEDULING MODEL FOR THE TVA RESERVOIR SYSTEM
SUBJECT AREA OF MODEL: RESERVOIR SYSTEM OPERATIONS PLANNING AND ANALYSIS
PROGRAM DIRECTOR: JACK DAVIS

U.S. POSTAL SERVICE

MODEL OR PROJECT NAME: ATTRIBUTABLE COST ROLL - FORWARD MODEL
SUBJECT AREA OF MODEL: ATTRIBUTABLE COST PROJECTION
PROGRAM DIRECTOR: FRANK R. HESELTON

MODEL OR PROJECT NAME: FORECAST - 370
SUBJECT AREA OF MODEL: REGIONAL TOTAL WORKHOURS FORECAST FROM 1979 - 1981
PROGRAM DIRECTOR: BILLY G. STEWART

MODEL OR PROJECT NAME: INTERACTIVE POSTAL SIMULATOR (IPSIM)
SUBJECT AREA OF MODEL: STAFFING AND SCHEDULING OF POSTAL ACTIVITY
PROGRAM DIRECTOR: DON NOCKE

MODEL OR PROJECT NAME: LABOR NEGOTIATIONS COST ESTIMATE MODEL
SUBJECT AREA OF MODEL: FORECASTING COSTS OF CONTRACT PROPOSALS
PROGRAM DIRECTOR: VINCENT DRUMB

MODEL OR PROJECT NAME: MAIL PROCESSING COST MODEL (MPCM)
SUBJECT AREA OF MODEL: SIMULATION OF WORKLOAD, STAFFING AND SCHEDULING IN MAIL PROCESSING
PROGRAM DIRECTOR: DR. LEONARD MEREWITZ

U.S. POSTAL SERVICE

MODEL OR PROJECT NAME: PLANNING MODEL
 SUBJECT AREA OF MODEL: FORECASTS INCOME STATEMENT OF USPS
 PROGRAM DIRECTOR: CHARLES E. GUY

MODEL OR PROJECT NAME: QUICK FLOW FACILITY MODEL
 SUBJECT AREA OF MODEL: MAIL PROCESSING
 PROGRAM DIRECTOR: BARRY WALSH

MODEL OR PROJECT NAME: SMALL OFFICE SCHEDULING AND STAFFING COMPUTERIZED DATA CONSOLIDATION
 SUBJECT AREA OF MODEL: SCHEDULING AND STAFFING FORECAST REQUIREMENTS FOR MOD II MAIL PROCESSING OFFICES
 PROGRAM DIRECTOR: SAMMY J. SEALS

MODEL OR PROJECT NAME: VOLUME-REVENUE, FORECASTING
 SUBJECT AREA OF MODEL: POSTAL VOLUME AND REVENUE, QUARTERLY, POSTAL YEAR, AND FISCAL YEAR
 PROGRAM DIRECTOR: M. KOLIN

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VETERANS ADMINISTRATION

MODEL OR PROJECT NAME: AFFILIATION ASSESSMENT PROJECT
 SUBJECT AREA OF MODEL: DETAILED ANALYSIS OF AFFILIATION ACTIVITIES
 PROGRAM DIRECTOR: ROGER R. RAPP

MODEL OR PROJECT NAME: MERIT PAY MODEL DETERMINATION PROGRAM
 SUBJECT AREA OF MODEL: MERIT PAY PROGRAM ADMINISTRATION
 PROGRAM DIRECTOR: CHARLES J. KELLY

MODEL OR PROJECT NAME: VETERAN POPULATION MODEL
 SUBJECT AREA OF MODEL: POPULATION ESTIMATES AND PROJECTIONS OF VETERANS
 PROGRAM DIRECTOR: WILLIAM A. MALOY

SURVEY RESULTS ON POLICYMAKING MODELS

This appendix contains information on major computer models being used by Federal executive agencies in the policymaking process. This information was taken from the questionnaires returned by the agencies listed in appendix I. The figures used are explained below.

Number - The number of usable responses in each response category. This is the absolute frequency distribution.

Percent - The percentage is derived from the number of usable responses to the question, not the total number of responses. This is the absolute frequency distribution percentage.

Valid Cases - The number of valid responses to each question.

Multiple Responses - In some cases, respondents provided multiple responses to questions requiring a single response. We have included these responses when we felt this information would be useful. These responses were not included in our calculations.

SECTION I. BASIC DATA

1. Types of policy models reported in use:

<u>Number</u>	<u>Percent</u>	
98	29.1	General simulation
77	22.8	Other
73	21.7	Econometric
38	11.3	Input/output
15	4.5	Linear programming
14	4.2	System dynamics
12	3.6	General equilibrium
7	2.1	Nonlinear programming
3	0.9	Dynamic programming

VALID CASES: 337

2. Documentation for the models from the policymaker's point of view:

<u>Number</u>	<u>Percent</u>	
125	37.2	Existent in some form, but it would be hard to be sure one was using the results correctly without at least some discussion with the originators
119	35.4	Existent, easily understood, and the results used correctly with a minimum of phone calls
62	18.5	Existent in some form but it would almost be impossible to be sure one understood the results without extensive assistance
21	6.3	Not existent
9	2.7	Unknown to respondents

VALID CASES: 336

3. Documentation for the models from the programmer's point of view:

<u>Number</u>	<u>Percent</u>	
150	43.4	Existent, easily understood and the results used correctly with a minimum of phone calls
147	42.5	Existent in some form, but it would be hard to be sure one was using the results correctly without at least some discussion with the originators of the model
28	8.1	Existent in some form, but it would almost be impossible to be sure one understood the results without extensive assistance
16	4.6	Not existent
5	1.4	Unknown to respondents

VALID CASES: 346

SECTION II. MODEL DEVELOPMENT

4. Parts of the sponsoring agencies where ideas of the models were first considered:

<u>Number</u>	<u>Percent</u>	
185	56.2	At the program level
92	28.0	At the policy level
52	15.8	Other

VALID CASES: 329

5. Principle motivations for developing the models:

<u>Number</u>	<u>Percent</u>	
205	64.9	To have been a solution to an existing, specific problem
74	23.4	Other
37	11.7	To have been a solution to an anticipated problem

VALID CASES: 316

MULTIPLE RESPONSES: 29

6. First uses or applications of the models:

<u>Number</u>	<u>Percent</u>	
100	29.2	5+ years ago
71	20.7	3 to 5 years ago
50	14.6	1 to 2 years ago
50	14.6	2 to 3 years ago
38	11.1	0 to 6 months ago
29	8.5	6 to 12 months ago
5	1.5	Unknown to respondents

VALID CASES: 343

7. Development of the models:

<u>Number</u>	<u>Percent</u>	
161	49.2	At the responding agency
97	29.7	Under Government contract
37	11.3	Other
21	6.4	At another branch of the Federal Government
10	3.1	Not under Government contract
1	0.3	Unknown to the respondent
VALID CASES: 327		MULTIPLE RESPONSES: 24

8. Costs of development to the responding agencies:

<u>Number</u>	<u>Percent</u>	
88	26.0	Less than \$25,000
64	18.9	\$100,000 to \$249,000
45	13.3	Unknown to respondents
42	12.4	\$50,000 to \$99,999
38	11.2	\$25,000 to \$49,000
32	9.4	\$250,000 to \$499,999
25	7.4	\$500,000 to 1,000,000
5	1.5	More than \$1,000,000
VALID CASES: 339		

9. Last major changes to the model's structures:

<u>Number</u>	<u>Percent</u>	
62	21.5	Over 24 months ago
55	19.1	0 to 3 months ago

9. Continued:

<u>Number</u>	<u>Percent</u>	
54	18.8	12 to 24 months ago
47	16.3	6 to 12 months ago
41	14.2	Unknown to respondents
29	10.1	3 to 6 months ago

VALID CASES: 288

10. Last minor changes to the model's structures:

<u>Number</u>	<u>Percent</u>	
94	32.9	0 to 3 months ago
68	23.8	6 to 12 months ago
48	16.8	3 to 6 months ago
30	10.5	12 to 24 months ago
24	8.4	Unknown to respondents
22	7.7	Over 24 months ago

VALID CASES: 286

11. Last update (expected changes in data to reflect current conditions) to the models:

<u>Number</u>	<u>Percent</u>	
163	56.2	0 to 3 months ago
45	15.5	3 to 6 months ago
27	9.3	Unknown to respondents
26	9.0	6 to 12 months ago
18	6.2	12 to 24 months ago
11	3.8	Over 24 months ago

VALID CASES: 290

12. Frequencies of planned changes in the models' structures:

<u>Number</u>	<u>Percent</u>	
234	68.8	Not on a fixed schedule
46	13.5	9 to 12 months
22	6.5	0 to 3 months
15	4.4	Over 12 months
14	4.1	6 to 9 months
9	2.5	3 to 6 months

VALID CASES: 340

13. Frequencies of planned updates to the models' data:

<u>Number</u>	<u>Percent</u>	
171	50.1	Not on a fixed schedule
74	21.7	0 to 3 months
48	14.1	9 to 12 months
25	7.3	3 to 6 months
16	4.7	6 to 9 months
7	2.1	Over 12 months

VALID CASES: 341

14. Revisions to models done:

<u>Number</u>	<u>Percent</u>	
197	61.4	At the responding agency
73	22.7	under Government contract
29	9.0	Other
13	4.0	At another Government agency
9	2.8	Not under Government contract

VALID CASES: 321

15. Updates to models done:

<u>Number</u>	<u>Percent</u>	
211	67.0	At the responding agency
57	18.1	Under Government contract
27	8.6	Other
12	3.8	At another Government agency
8	2.5	Not under Government contract

VALID CASES: 315

16. Reviews or evaluations described as "internal":

<u>Number</u>	<u>Percent</u>	
241	67.5	of the models

VALID CASES: 357

17. Reviews or evaluations described as "external":

<u>Number</u>	<u>Percent</u>	
149	41.7	of the models

VALID CASES: 357

18. Reviews or evaluations described as "audits" (e.g., GAO):

<u>Number</u>	<u>Percent</u>	
13	3.6	of the models

VALID CASES: 357

19. Reviews or evaluations described as "other":

<u>Number</u>	<u>Percent</u>	
18	5.0	of the models

VALID CASES: 357

20. Reviews or evaluations not performed:

<u>Number</u>	<u>Percent</u>	
34	9.5	of the models

VALID CASES: 357

21. Reviews or evaluations not known to respondents:

<u>Number</u>	<u>Percent</u>	
30	8.4	of the models

VALID CASES: 357

SECTION III. MODEL USE

22. Persons responsible for the uses of the models:

<u>Number</u>	<u>Percent</u>	
225	65.8	The "project director"
117	34.2	Other

VALID CASES: 342

MULTIPLE RESPONSES: 10

23. Numbers of professional staff working with models:

<u>Number</u>	<u>Percent</u>	
144	41.0	Three to five
85	24.2	Two
59	16.8	One
31	8.8	5 to 10
27	7.7	More than 10
5	1.4	Unknown to respondents

VALID CASES: 351

24. Original intended uses of the models:

<u>Number</u>	<u>Percent</u>	
79	36.7	Forecasting
50	23.3	Problem analysis
24	11.2	Other
22	10.2	Selection among policies and program
21	9.8	Evaluation of policy or program effectiveness
19	8.8	Development of policies or programs

VALID CASES: 215

MULTIPLE RESPONSES: 134

25. Actual uses of the models:

<u>Number</u>	<u>Percent</u>	
64	32.5	Forecasting
46	23.4	Problem analysis
28	14.2	Other
23	11.7	Evaluation of policy or program effectiveness
19	9.6	Development of policies or programs
17	8.6	Selection among policies or programs

VALID CASES: 197

MULTIPLE RESPONSES: 145

26. Frequencies of use of the models for problem solving:

<u>Number</u>	<u>Percent</u>	
87	27.1	Monthly
67	20.9	Weekly
57	17.8	Quarterly

26. Continued:

<u>Number</u>	<u>Percent</u>	
46	14.3	Less than annually
34	10.6	Annually
30	9.3	Semiannually

VALID CASES: 321

27. Frequencies of use of the models for policy input:

<u>Number</u>	<u>Percent</u>	
59	20.2	Monthly
57	19.5	Quarterly
52	17.8	Semiannually
49	16.8	Annually
42	14.4	Less than annually
33	11.3	Weekly

VALID CASES: 292

28. Costs of the models for typical runs:

<u>Number</u>	<u>Percent</u>	
135	39.9	\$10 to \$99
89	26.3	Less than \$10
78	23.1	\$100 to \$499
19	5.6	\$1,000 to \$5,000
13	3.8	\$500 to \$999
4	1.2	More than \$5,000

VALID CASES: 338

29. Cost of the models for typically solving problems:

<u>Number</u>	<u>Percent</u>	
95	30.9	\$100 to \$499
88	28.7	\$10 to \$99
53	17.3	Less than \$10
35	11.4	\$500 to \$999
27	8.8	\$1,000 to \$5,000
9	2.9	More than \$5,000

VALID CASES: 307

30. Costs of the models for generating policy input:

<u>Number</u>	<u>Percent</u>	
89	32.0	\$100 to \$499
70	25.2	\$10 to \$99
43	15.5	Less than \$10
36	12.9	\$1,000 to \$5,000
31	11.2	\$500 to \$999
9	3.2	More than \$5,000

VALID CASES: 278

31. Average monthly computer bills for the models:

<u>Number</u>	<u>Percent</u>	
113	34.6	Less than \$100
104	31.8	\$100 to \$999
76	23.2	\$1,000 to \$4,999
17	5.2	\$5,000 to \$10,000
17	5.2	More than \$10,000

VALID CASES: 327

32. Yearly costs of models (figured by taking average monthly bill times 12 and adding average salary times equivalent staff years):

<u>Number</u>	<u>Percent</u>	
83	24.5	\$10,000 to \$49,999
66	19.5	\$250,000 to \$1,000,000
58	17.1	\$1,000 to \$4,999
47	13.9	less than \$1,000
43	12.7	\$5,000 to \$9,999
20	5.9	Unknown to respondents
19	5.6	\$250,000 to \$1,000,000
3	0.9	Over \$1,000,000

VALID CASES: 339

33. "Back ups" (i.e., where up-to-date copies of the programs are kept) for the models are "tape storages":

<u>Number</u>	<u>Percent</u>	
257	72.0	of the cases

VALID CASES: 357

34. "Back ups" for the models are "disc packs":

<u>Number</u>	<u>Percent</u>	
241	67.5	of the cases

VALID CASES: 357

35. "Back ups" for the models are "program listings":

<u>Number</u>	<u>Percent</u>	
180	50.4	of the cases

VALID CASES: 357

36. "Back ups" for the models are "cards":

<u>Number</u>	<u>Percent</u>	
19	5.3	of the cases

VALID CASES: 357

37. "Back ups" for the models are unknown to respondents:

<u>Number</u>	<u>Percent</u>	
14	3.9	of the cases

VALID CASES: 357

38. "Back ups" for the models are nonexistent:

<u>Number</u>	<u>Percent</u>	
0	0.0	of the cases

VALID CASES: 357

39. Program runs for the models made (where):

<u>Number</u>	<u>Percent</u>	
191	58.4	At a computer operated within the agency
98	30.0	At a computer operated by a contractor
38	11.6	At a Government computer but outside agency
0	0.0	Unknown to respondents

VALID CASES: 327 MULTIPLE RESPONSES: 18

40. Program runs for the models made (how):

<u>Number</u>	<u>Percent</u>	
118	37.9	In a batch and time sharing mode by agency personnel
83	26.7	In a time sharing mode by agency personnel
63	20.3	In a batch mode by agency personnel

40. Continued:

<u>Number</u>	<u>Percent</u>	
34	10.9	By non-Government personnel (at the request of the agency)
9	2.9	Other
4	1.3	By other Government personnel (request made to them and they execute)

VALID CASES: 311

MULTIPLE RESPONSES: 38

41. Data bases used by the models:

<u>Number</u>	<u>Percent</u>	
185	58.0	Contained within the model
118	37.0	External to the model
16	5.0	Other

VALID CASES: 319

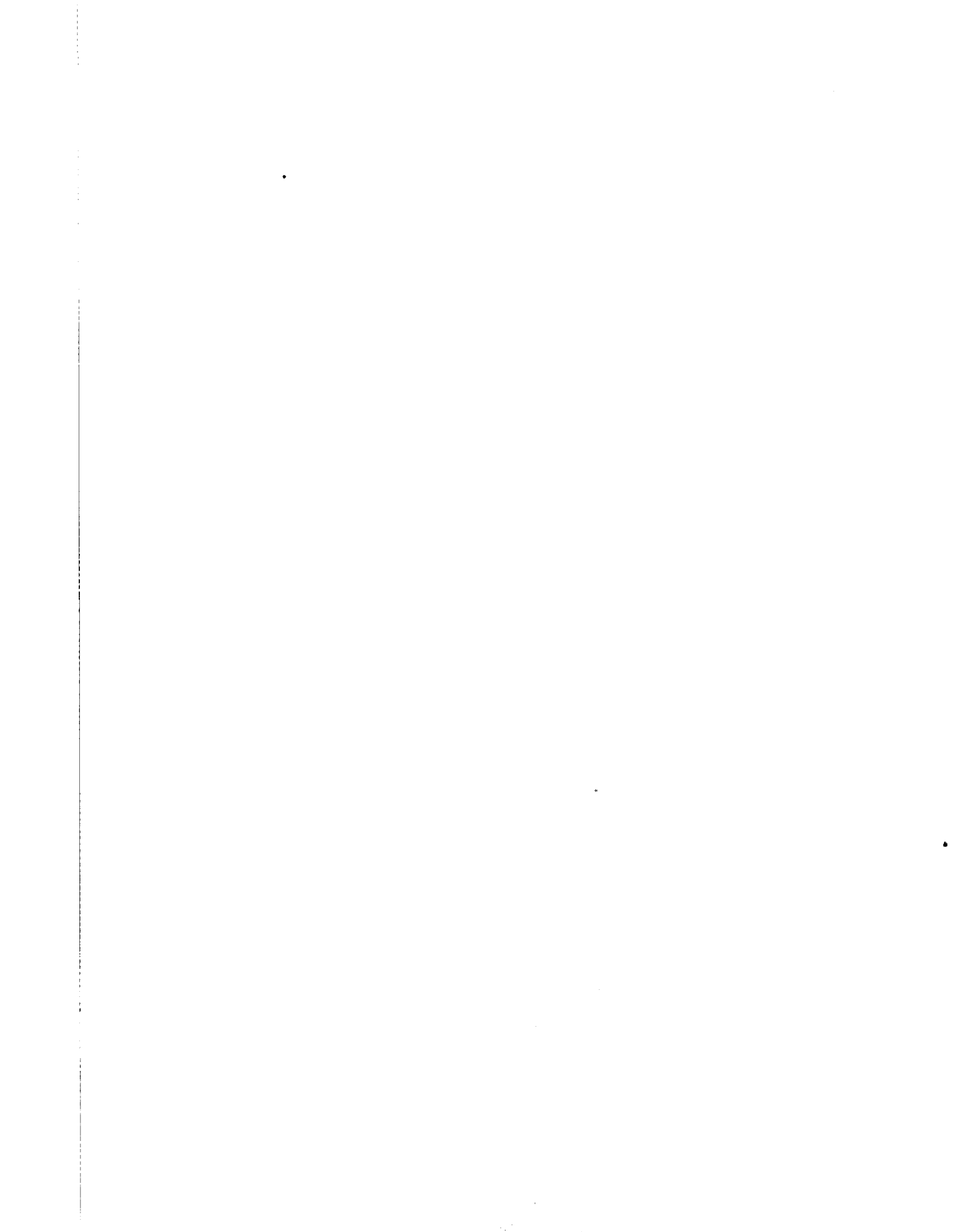
MULTIPLE RESPONSES: 35

42. Data used by the models obtained:

<u>Number</u>	<u>Percent</u>	
97	51.3	From responding agency work
30	15.9	From under Government contract
25	13.2	From another Government agency
17	9.0	From publications
13	6.9	Other
7	3.7	Not from under Government contract

VALID CASES: 189

MULTIPLE RESPONSES: 162



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